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THE ENCYCLOPAEDIA AND DICTIONARY OF EDUCATION

A COMPREHENSIVE, PRACTICAL AND AUTHORITATIVE GUIDE ON ALL MATTERS CONNECTED WITH EDUCATION, INCLUDING EDUCATIONAL PRINCIPLES AND PRACTICE, VARIOUS TYPES OF TEACHING INSTITUTIONS, AND EDUCATIONAL SYSTEMS THROUGHOUT THE WORLD

EDITED BY

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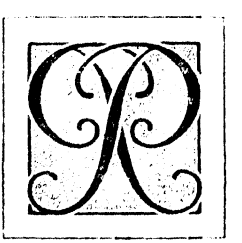
WITH ARTICLES BY ABOUT NINE HUNDRED EMINENT AUTHORITIES



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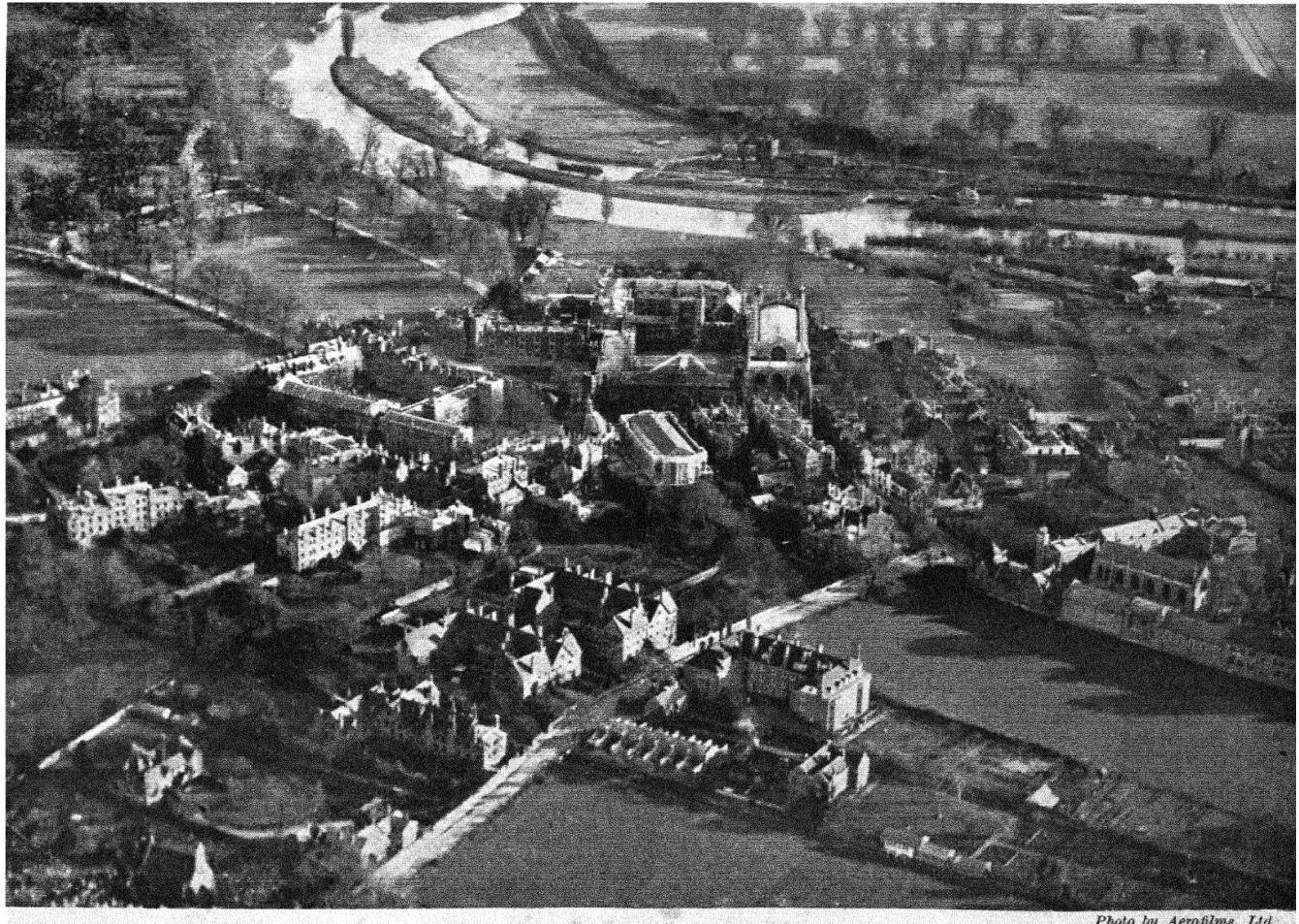

Air Photo of Eton College

Photo by Aerofilms, Ltd.

THE ENCYCLOPAEDIA AND DICTIONARY OF EDUCATION

EDINBURGH ACADEMY.—This school of 640 boys was founded and incorporated by royal charter in 1824. It consists of two parts: the Preparatory School, for boys from 6 to 10 years old; and the Upper School, for boys up to 19: these are conducted quite apart from each other. In the latter there are two divisions; in the senior a good deal of specialization is permitted, and boys are prepared for the universities, the Civil Service, Woolwich, and Sandhurst, as well as for first professional examinations and commercial life. The buildings comprise library, laboratories, gymnasium, workshop, rifle-range, and fives-courts, besides many classrooms and the great hall. The playground covers 3 acres, and there are playing-fields extending over 18 acres. The boarding-houses (Scott, Jeffrey, and Mackenzie [Junior]) are situated at Inverleith, and accommodate 79 boys. The monitors are called "ephors," and the school captain the "Dux." There is an excellent choir and orchestral society. Games are cultivated with great care, and the Rugby football so characteristic of all first-rate Scottish public schools is taught and played with extraordinary success. The cadet corps (O.T.C.) is a highly popular institution.

EDINBURGH LADIES' COLLEGE.—(See MERCHANT COMPANY SCHOOLS [EDINBURGH] THE.)

EDINBURGH, ROYAL HIGH SCHOOL OF.—When exactly the High School of Edinburgh came into separate being it is impossible to ascertain. Before the twelfth century the monasteries were the homes of learning in Scotland, and for long afterwards most of the warlike nobles were minded, in regard to education, like Douglas who boasted proudly—

> "Thanks to Saint Bothan, son of mine
> Save Gawain ne'er could pen a line."

The few who did not consider Latinity the exclusive privilege of Churchmen entered their sons for instruction in the monasteries, and so the "Abbey of the Holy Rood," close by the present buildings of the High School, thus became the resort of those who by noble birth or Court influence could obtain tuition there.

Later, those of a lower order, such as prosperous tradesmen, came to desire education for their sons, and certain of the Friars of Holyrood Abbey were allowed to teach within the city of Edinburgh and in the intervening village of the Canongate. Thus, in some humble, forgotten building the High School doubtless had its origin; and it was probably here that the mixing of all classes of scholars, without favour or prejudice to rank, paved the way for the parish schools of Scotland. While under the care of the Abbot and Canons of Holyrood in the twelfth century the school was known as "The Grammer Schule of Edinburgh." After the Reformation its management was handed over to the Clergy and Town Council, and according to tradition King James VI conferred on it, in 1598, the title "Schola Regia Edimburgensis"—The Royal High School of Edinburgh.

The school, which is now under the Edinburgh Education Authority, provides a complete course of primary and secondary education on thoroughly modern lines for boys from the age of 5 upwards. There are swimming baths, a gymnasium, and two recreation fields. A number of valuable Bursaries are open for competition to boys attending the school and many medals and prizes are presented annually. The fees range from two guineas a term for preparatory pupils to four guineas for seniors.

EDINBURGH, UNIVERSITY OF.—Founded in 1583 as the College of Edinburgh, or the Town's College, this is the youngest of the four Scottish universities. After the Reformation the town council and clergy of Edinburgh desired to establish and endow a seat of learning in their city, but met with discouragement from Mary of Scotland and opposition from the Universities of St. Andrews, Glasgow and Aberdeen. They succeeded eventually in obtaining from Queen Mary a grant of the ruins of the ancient collegiate church of St. Mary-in-the-Field, commonly known as the Kirk of Field, and they extended this holding by buying out other occupiers of the Kirk grounds. On this site the college was built after a charter had been granted by King James VI in 1582.

For many years the college was chiefly a training ground for the Scottish Presbyterian clergy, although representatives of the Scottish nobility also attended. When teaching began, in 1583, there was one regent and an assistant. Even in these humble beginnings, however, the college had the privilege of granting degrees. Four years later the "staff" was increased to a principal and four regents, each of whom taught *all* the subjects of the curriculum. No material change occurred until 1708, when the regents were appointed professors, to teach one subject only, and possibilities were thus opened up for great extension of the scope of the college. In 1621 an Act of the Scottish Parliament ratified to the college all the rights, immunities, and

units. There are many societies and clubs, of which the most prominent are those affiliated to the associated societies of the University, viz., the Dialectic, Scots Law, Diagnostic, Philomathic, and Celtic; societies interested in further study of university subjects, such as the Agricultural Society; those having various religious interests, as the Christian Union; several with national interests, *e.g.* the Indian Association; and many artistic and social, including the Musical and the Dramatic Societies.

The Students' Representative Council, founded in 1884, represents the students in matters affecting their interests, affords a recognized means of communication between the students and the University authorities, and is intended generally to promote social life and academic unity among the students.

The University Union, erected at a cost of £40,000, is the chief centre of student social and recreative activities.

At the University Hall there are residences and board for students. These are not subject to the stricter discipline of the residential colleges of Oxford and Cambridge, but encourage self-government to a much greater extent.

Curricula and Fees. There are six faculties—arts, science, divinity, law, medicine, and music. The teaching staff consists approximately of 70 professors, 126 University lecturers, and 50 University assistants. The number of matriculated students is about 3,600. Every applicant for admission to a graduation curriculum must pass a preliminary examination conducted by the Scottish Universities Entrance Board. The fee is half a guinea.

The inclusive fee for the curriculum for the ordinary M.A. degree is 30 guineas, and for Honours M.A. 40 guineas. The fee for the two degree curricula of M.A. and B.Sc. is 75 guineas. These may be taken as a general standard. There are several "post graduate" degrees, viz., the D.Sc., open to holders of the M.A. degree in 1st or 2nd class hons., to those holding the degree of B.Sc., and also to research students holding certain degrees from other universities; the degrees of D.Phil. and D.Litt. are also open to graduates under certain conditions.

There is a degree in Education (B.Ed.) and in Commerce (B.Com.).

Diplomas are granted in Education, Actuarial Mathematics, Forestry, Psychiatry, Public Health, and Tropical Medicine and Hygiene.

There are many fellowships, scholarships, bursaries, and prizes offered by the University. Research students are also assisted by funds from the Carnegie Trust.

EDUCATION ACT (1902) OF A. J. BALFOUR, THE.—This Act was called Mr. Balfour's Act, because the Rt. Hon. A. J. Balfour was Prime Minister at the time, and took charge of the Bill in the Commons. It was the outcome of many hopes and fears, and of much discontent and agitation in the country. In its final build it was the resultant of many forces. Our educational system had "grown," but yet was not organic or coherent. Secondary was divorced from primary, and was itself fragmentary. The main recommendation of the Bryce Commission (*q.v.*) in its regard had not been carried out. The public elementary schools were more or less harmonized in purpose and administration through the direct agency of the Acts of 1870, 1873, 1876, 1880, 1891, and 1897; but no great constructive effort had been made since 1870, and it was generally felt that sufficient advantage had not been taken of the Local Government Act of 1888. Local authorities had not yet taken over the control of the schools. The school board was supplementary of the voluntary system, and could make call upon local rates: not by direct levy, yet as effectively by "precept" upon the "rating authority." But the voluntary school still carried on its work, owing no allegiance to school board or local authority, but in direct relation with Whitehall. As a consequence of the Bryce Commission, a reform in administration had been effected by the Board of Education Act, 1899. The Education Department and the Science and Art Department were now the Board of Education. The technical schools and classes consequent on the Technical Instruction Acts of 1889 and 1891 were brought under the new Board, but secondary education was still amorphous, though the Board could inspect "by consent."

The first aim of the new Act, therefore, was an efficient machinery: there was to be unity and organization—with limitations. It was recognized that the schools of finest history and highest rank—the great public schools of the country—were to be let alone. Foundation schools of the second rank were to be let alone also—with some qualification and, should they desire to fall within the proposed system, they had opportunities—on terms. Other forms of education above the primary grade were to be under the local care of the local authority and the central care of the Board at Whitehall. Further simplification seemed easy. Voluntary schools and the Board schools were to be under one authority—with variations in detail. And this authority was the council of a county or a borough. School boards were at an end. One Board of Education in London and one local education authority in the administrative area: here is the efficient machinery. And "the local education authority shall consider the educational needs of their area and take such steps as seem to them desirable, after consultation with the Board of Education, to supply or aid the supply of education other than elementary, and to promote the general co-ordination of all forms of education." And further, throughout their area, they shall "have the powers and duties of a school board and school attendance committee . . . and shall also be responsible for, and have the control of, all secular instruction in public elementary schools not provided by them, and school boards and school attendance committees shall be abolished."

Of almost equal importance—and, to some, of greater importance—was a constructive scheme which might be of approximate finality in the province of the public elementary school. The competition between the voluntary and the board school was nearing an end. The former had become anaemic: good red gold was necessary. Imperial grants were not large enough, and personal or collective subscriptions were a poor substitute for local rates in making up deficiencies. But assistance from the rates meant public control, and on no terms were the voluntary schools prepared to part with their powers in religious (denominational) teaching. The result of the position was a compromise which pleased nobody very much, and roused many to strong and conscientious opposition.

privileges enjoyed by the other universities in Scotland, and this was further confirmed in the treaty of Union of the parliaments of England and Scotland in 1707, and in the Act of Security.

In course of time the institution came to be known as the College of King James VI or King's College, and later as the University of Edinburgh. From 1583, the year of its foundation, to 1858 the University remained under the control and patronage of the town council, when, as the result of a Royal Commission's Report, the Universities (Scotland) Act, 1858, gave all the universities of Scotland new and autonomous constitutions. By this Act the University Court and the body of Curators were brought into being and new regulations were made in regard to study and discipline. The government of the University was in the hands of the *Senatus Academicus*, a body consisting of the principal and the professors, but was subject to the review of the University Court which was composed of eight representatives selected partly by sections of the University authorities and partly by the town council. The privilege of appointing professors to the chairs which had been held hitherto by the town council —except in a few cases where patronage of the chairs was under the Crown—was now passed to seven curators, of whom four were appointed by the town council and three by the University Court.

Present Constitution. A further Universities (Scotland) Act of 1889 provided for enlargement of the University Court on the already existing basis, and for its constitution as a body corporate to hold the whole of the property of the University with full administrative powers. The University Court now consists of four members elected by the General Council of Graduates, and four elected by the *Senatus Academicus*; three assessors nominated by the chancellor, the rector, and the town council, respectively; in addition, the rector, the principal, and the Lord Provost of Edinburgh are *ex-officio* members of the University Court. This body has power to review all decisions of the *Senatus Academicus* except as otherwise expressly laid down, and is a Court of Appeal from the *Senatus;* to improve the internal arrangements of the University after due communication with the *Senatus*, and after such proposed improvements have been submitted to the general council; to fix the amounts of fees; and to take disciplinary action in regard to proven offences of any member of the *Senatus*.

The *Senatus Academicus* is composed of the principal of the University and the whole body of professors. It is concerned with the internal teaching and discipline of the University, subject, as stated previously, to review and control by the University Court. The General Council consists of the Chancellor, members of the University Court, the professorial staff, and all graduates of the University. This body, in co-operation with the University Court, is concerned with all questions relating to the welfare of the University.

By the Representation of the People (Scotland) Act the general councils of the universities of St. Andrews, Glasgow, Aberdeen and Edinburgh form one constituency and elect three members of Parliament.

Buildings.—Until the end of the eighteenth century the academic buildings continued to be inadequate, and we find Principal Robertson complaining, in 1768, that the buildings, "poor in themselves, seem not to have been carried on according to any regular plan such as takes place in other academical structures which have been erected on more opulent foundations; and hence the whole fabric has a mean, irregular, and contemptible appearance." At that time the students numbered 600 to 700, and the professors 21.

In 1869 the number of students had increased to 1,500 and the professorial staff to 33, while for all these only seventeen classrooms were available. In 1873, therefore, an extension committee was formed, and an appeal was made to the public for subscriptions for the purchase of a site for and erection of new buildings. This succeeded to the extent of close on £250,000, and the University (new) buildings were begun in 1878, partly opened in 1880, and completed in 1888. The main buildings of the University are now six in number and are mostly within short distances of each other. They include the University (old) building in South Bridge Street, on the site of the Kirk of Field, containing the University library and reading-rooms; the classrooms of the faculties of arts, divinity, law, and part of science; the theological library and reading-room; the geological and petrological laboratories; the geological, fine art, and natural history museums; the examination rooms and a number of offices where the administrative work of the University is carried out.

The University (new) buildings in Teviot Place contain classrooms, theatres, laboratories, and museums for the faculty of medicine. The McEwan Hall, close by, is used mainly for University functions; it was erected in 1897, chiefly through the generosity of Mr. John McEwan, a burgess of the city. Near here is the Reid Hall of Music (1859), where the work of the faculty of music is carried on. In 1902 Sir John Usher, Bart., presented to the University the completed Usher Hall of Public Health, situated in Warrender Park Road, at some distance from the other buildings of the University. Besides these, there are the engineering and natural philosophy departments in Infirmary Street; the departments of agriculture, forestry and entomology in George Square; the department of mathematics in Chambers Street, and the University Union in Park Place.

Libraries, Museums, Societies, etc. Among the earliest benefactions to the University was the gift by the Town Council of Edinburgh of a library of about 300 volumes bequeathed, in 1580, by Clement Little to the town and church of Edinburgh. This formed the nucleus of the University Library, and it was augmented from time to time, notably by the rich collection of Drummond of Hawthornden, the friend of Ben Jonson. From 1709 to 1837 it enjoyed the right of receiving a copy of every book entered at Stationers' Hall, but in the latter year it agreed to accept an annual sum of £575 in lieu of this privilege. The library now contains about 300,000 printed volumes and about 8,000 MSS., many of which are of great value. There are also departmental libraries, including the medical, theological, Sellar and Goodhart classical, honours philosophical, history, physiological, astronomical, natural philosophy, English, and music. There are also museums in connection with many of the departments.

The University has an Officers' Training Corps with artillery, engineers, infantry, and medical

units. There are many societies and clubs, of which the most prominent are those affiliated to the associated societies of the University, viz., the Dialectic, Scots Law, Diagnostic, Philomathic, and Celtic; societies interested in further study of university subjects, such as the Agricultural Society; those having various religious interests, as the Christian Union; several with national interests, *e.g.* the Indian Association; and many artistic and social, including the Musical and the Dramatic Societies.

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The several bodies of managers were left in full control of religious instruction, but with almost no control at all in secular. Though not "provided," they were to be "maintained" by the local authority and "kept efficient." With qualifications —not harsh in practice—they could appoint their own teachers. They might be expected to carry forward their original mission. Their life seemed assured.

Passive Resistance. Discontent with this issue led to "passive resistance" by many earnest and sincere men and women: they protested by declining to pay rates in support of a system which they held to be subsidized by public money for a partial and sectarian purpose. The effect of the Act has been broadly beneficial, but at the cost of an immediate increase of expenditure through the increased call upon the rates. Except as consequent on richer resources—a large qualification—the quality of primary school instruction has not been materially affected; but progressive improvement may be looked for as the outcome of an extension of training college accommodation and the larger number of "trained" certificated teachers. (From causes other than those arising out of the Act, there has been for some years an unfortunate shortage of teachers.) Above the primary school, its influence has been very great. The public were spurred to educational ideals. They responded too slowly. But the power of co-ordination and correlation of grades and types of school and subjects of instruction given to the local authority was new. A few years showed what might be done with it and what might be hoped from it. A few more will enable many who have passed under its kindly provisions from the elementary school to the university to bless the Education Act of 1902. (See LADDER, EDUCATIONAL.) A. E. L.

EDUCATION ACT OF 1918, THE, takes rank in importance and range of effect with the Acts of 1870 and 1902. Like them it is conceived on the grand scale. The Act of 1870 (*q.v.*) made elementary education broadly universal, popular and compulsory, and gave birth to school boards and board schools. The Act of 1902 (*q.v.*) killed school boards as such and board schools as so called. Local councils, as the new local education authorities, took over their powers and duties as well as their schools; public elementary education as a system was made reasonably organic, and the new authorities were made responsible for the adequate supply of higher education within their area. Education beyond the elementary school stage was still, however, limited to the very few, and men were thinking that young people ought not to be deprived of further schooling because they had begun to earn their living. The war developed mightily all ideals and purposes of human betterment, and the question of the education of the adolescent was felt to be urgent: the Act of 1918 made continuation schools compulsory. This is not the only thing it did, but is perhaps the most distinctive; these schools are a principal concern and duty of the local authority. It is to be noted at once, however, that the same local authority is empowered to have the nursery school care of children before the age of compulsory attendance, and is expected to do much for children and young persons at any and every age of school life that would not formerly have been thought appropriate to educational administration. Here, then, is a reasonably complete system of compulsory application to children and young persons between the ages of 5 and 18, and affording voluntary opportunity to some still younger and others still older.

Continuation Schools. The point of most general interest is the question of continuation schools (*q.v.*). Under certain conditions and qualifications attendance is to be compulsory for 320 hours in the year, and between 8 a.m. and 7 p.m. only, and on days other than Sundays and recognized holidays. Young persons between the upper age limit of the public elementary school and their 18th birthday are affected, but for the first seven years after the appointed day[1] only up to the 16th birthday, and with a reduction of 320 hours to 280 hours if the local authority so decide. The same authority may require employers to grant exemption from employment for attendance at classes, and possibly inclusive of two hours additional in the day in order to secure "fit, mental and bodily condition to receive full benefit" from the school instruction. If a young person[2] neglects to attend as required, he is liable to a penalty of 5s. for the first offence and £1 for each subsequent offence. The culpable parent is similarly liable to a penalty of £2 and £5 respectively, and the culpable employer hindering attendance is open to prosecution and penalty under the Employment of Children Act. The obligation to attend is not to apply to any young person over 14 on the appointed day, and it will be seen that these part-time continuation schools will begin on a small scale and the numbers of students should progressively increase for a period of nine years from the appointed day; those over 14 on that day escape compulsion altogether, and those over 16 seven years afterwards will not be compelled to continue their attendance. As in the case of public elementary and secondary schools, there is a conscience clause; the young person is not to be compelled to receive instruction properly declared to be "contrary or offensive to his religious belief."

It is interesting to note how in these things educational, as in other things, we often make progress a step at a time and journey by stages. Education has enlarged its connotation immensely of late years, so that much more is done in the public elementary school than formerly, and with (i) the upcoming of secondary education, and (ii) the extension of compulsion to the young person for purposes of part-time instruction, this enlarged definition is enlarged also in its application. This is seen particularly in provisions for social and physical training, and for medical inspection and treatment.

Social and Physical Training. Local authorities may—not shall—with the approval of the Board of Education provide or maintain or assist "(*a*) holiday or school camps, especially for young persons attending continuation schools; (*b*) centres and equipment for physical training, playing fields . . . school baths, school swimming baths; (*c*) other facilities for social and physical training in the day or evening"; all this expressly covering the case of "persons over the age of 18 attending educational institutions."

[1] In terms of the Act itself the Board of Education are empowered to fix appointed days—or dates from which the provisions of the Act are operative—which may be different for different (*a*) purposes, (*b*) provisions, (*c*) areas, and (*d*) persons.

[2] Defined as "a person under 18 years of age who is no longer a child," *i.e.* no longer under obligation to attend school full time.

Medical Inspection and Treatment. Local authorities for higher education are to have the same powers here as local authorities for elementary education, and special mention is made of "secondary schools provided by them,... continuation schools under their direction and control, and such other schools or educational institutions... provided by them as the Board direct." And their powers cover the case of "any school or institution, whether aided by them or not, if so requested by or on behalf of the persons having the management thereof."

This latter-day enlargement of the meaning of education is seen in other provisions. Permissive powers are given for "(*a*) supplying or aiding the supply of *nursery schools* (*q.v.*) ... for children over 2 and under 5 years of age, or such later age as may be approved by the Board of Education, whose attendance at such a school is necessary or desirable for their healthy, physical and mental development; and (*b*) attending to the health, nourishment, and physical welfare of children attending nursery schools." And this care of children other than scholastic is seen in modifications of the Employment of Children Act, 1903, and the Prevention of Cruelty to Children Act, 1904. There is to be no *employment of children* under 12, and children over 12 are not to be employed for more than two hours on Sunday, or on any school day before the end of school time, or on any other day before six in the morning or after eight in the evening, "provided that a local authority may make a by-law permitting, with respect to such occupations as may be specified ...the employment of children of the age of 12 or upwards before school hours and the employment of children by their parents" for one hour before school; but then for not more than one hour in the afternoon. Children are not to be employed in street trading, and the local education authority is to be the authority for enforcing the provisions of the Employment of Children Act, 1903, as thus amended, except in the City of London where the authority is the corporation. There is similar stiffening in several points of detail of the Prevention of Cruelty to Children Act, 1904, and the local education authority is to be the authority for the granting of licences to take part in any entertainment: the eligible age for certain specified employments is uniformly 12, instead of a former 10 and 11 respectively in particular instances. These changes introduce welcome restrictions on the exploitation of children for profit, and tend in the direction of making the local education authority—as responsible for the public elementary schools—responsible also for the general well-being of children of school age.

Miscellaneous Provisions. The raising of *the upper age-limit of full-time compulsory attendance* is possibly the most important feature of the Act in the field of elementary education. Nor is the child free on his birthday; he is not to come of age for any particular purpose of school attendance till the end of the school term in which his birthday occurs. The local authority is also to have power to substitute 15 for 14 by by-law, but then may exempt all children above 14 engaged in particular industries, and any such children on special grounds. A boy or girl is now a "child" up to the limit of age of obligatory attendance at a full-time school, so that in particular circumstances of locality, birth, school and employment, a "child" is younger than 14, and also may be some months older than 15. The *labour certificate* and the half-timer cease to exist.

The education provided for the oldest boys and girls in the ordinary elementary school has long been criticized as defective, and this raising of the upper age-limit has made development and improvement all the more necessary. Local education authorities have now, by means of *central schools, central or special classes*, or otherwise (i) to include in the curriculum of public elementary schools practical instruction suitable to the ages, abilities and requirements of the children, and (ii) to organize in public elementary schools courses of advanced instruction for the older or more intelligent children in attendance; they must see also to *the preparation of children for further education in schools other than elementary* and to *the supply and training of teachers*, local authorities for elementary education co-operating with local authorities for higher education accordingly. This particular question of the supply and training of teachers is clearly of the utmost urgency, and the locality has now to bear something of the burden and responsibility of properly staffing its own schools: in the sense of finding its teachers and training them as well as paying them.

A few other points of detail may be mentioned. (1) *Fees are abolished* in any public elementary school, but for five years from the appointed day managers of schools who have had a proportionate refund of fees from the local authority under the Act of 1902, are to have equivalent payments by way of the Board of Education. These schools have often provided instruction beyond the usual character and range of the ordinary elementary school, and have otherwise afforded some measure of social and educational advantage, and it is probable that many of them will become central schools under the new Act; with this loss of income it is possible, too, that some of them may be transferred to the local authority. (2) *Private schools* are touched with some effect: they have to keep registers and be open to inspection either by the Board of Education or the local authority in order that the attendance of their pupils may be recognized as evidence of efficient instruction. (3) A local authority for higher education may give *assistance to teachers and students...for the advancement of learning or research* in or in connection with an educational institution, and may give such assistance to educational institutions themselves; all, however, "with a view to promoting the efficiency of teaching and advanced study," and quite properly so limited and conditioned. (4) With the approval of the Board of Education—given only after public inquiry held by the Board if managers make request accordingly—the local authority may give directions for the *grouping of schools* "of the same denominational character in the same locality" and "for the distribution of the children in those schools according to age, sex, or attainments, and otherwise with respect to the organization of the schools." Neighbouring schools may thus be grouped under one body of managers, and although the aggregate of their educational activities and of the numbers in attendance will not be materially altered without the consent of the managers, yet each constituent school may be seriously affected by the new arrangement, however "expedient for the purpose of educational efficiency and economy."

Financial and Administrative Provisions. There remain to be noted (i) *financial* and (ii) *administrative* provisions of high merit and importance. (i) In the sphere of elementary education the fee grant, the aid grant and the several small population grants are abolished, and the parliamentary grant takes the form of an *annual substantive grant.* Whether in the sphere of elementary or secondary education, or indeed in respect of any educational expenditure which the authority may lawfully incur, " the total sums paid to a local education authority out of moneys provided by Parliament and the local taxation account . . . shall not be less than *one half of the net expenditure* of the authority recognized by the Board of Education," except in the case of deductions made by the Board as penalties for specific default. In many areas the Government grant already exceeds this minimum half of the net expenditure, but even so the provision is sound and encourages a generous policy in the schools; it tends, too, to equalize the burden of education, relieving localities of low rateable value in comparison with the child population or of high rentals and high cost of living generally. London ratepayers are fortunate under the new system: of late they have been receiving about two-fifths only of their net expenditure.

Appertaining to higher education only is the welcome *abolition of the limit of expenditure to the produce of a twopenny rate* imposed on county councils other than London. Higher education ought to cost more than that: even before the war it cost more than the produce of a fourpenny rate in London. All limitation is now removed.

(ii) The Board of Education and the local authorities are undisturbed in their *administration*; both have greater powers and responsibilities, and their mutual relationship is made more organic and effective. The first section of the Act strikes a fine note and declares a pregnant procedure: " with a view to the establishment of *a national system of public education* available for all persons capable of profiting thereby, it shall be the duty of the council of every county and county borough, so far as their powers extend, to contribute thereto by providing for the progressive development and comprehensive organization of education in respect of their area, and with that object any such council from time to time *may, and shall when required by the Board of Education, submit to the Board schemes* showing the mode in which their duties and powers under the Education Acts are to be performed and exercised, whether separately or in co-operation with other authorities." Before submitting schemes, county councils are to consult the authorities for elementary education in their area, and all local authorities are to consider representations of parents or others interested. They are to have regard to any existing supply of efficient and suitable schools or colleges and to proposals for new ones, and to see that children and young persons are not barred from educational opportunity by inability to pay fees. On approval, the authority must put the scheme into force; on disagreement, there may be conference between the Board and the authority, and public inquiry with possible report to Parliament on continued disagreement.

A council may *combine with other councils* for joint educational action, and there may even be a *federation of local authorities* under special circumstances.

Altogether a great Act, always to be very honourably associated with the name of the Rt. Hon. H. A. L. Fisher as indefatigable in its interests and in large measure responsible for its parliamentary success. A. E. L.

EDUCATION BILL OF AUGUSTINE BIRRELL. —The Act of 1902 (*q.v.*) had brought into some kind of organic relation the various grades of education known as primary, secondary, and technical, and had placed upon a reasonably broad basis the management of the great educational machinery which it created. But opponents were keenly hostile against the State maintenance of voluntary schools. Mr. Balfour's Government " went out " at the end of 1905, and the new Government " came in " pledged to take up the question of education and to amend Mr. Balfour's Act.

Mr. Augustine Birrell was the new President of the Board of Education, and at once declared (at Bristol, Jan., 1906) that " there could be no settlement . . . unless and until every public elementary school in this country . . . should be placed under complete popular control, including, of course, the appointment of teachers." The country was eagerly expectant; and in April, 1906, Mr. Birrell introduced his proposals to an animated House of Commons. His Bill had five " parts," forty " clauses," and two " schedules." The first part dealt with " Elementary Schools," the second with " Educational Endowments," the third with " Miscellaneous Amendments " to the Act of 1902, the fourth (in a single clause) would establish a " Council for Wales," and the fifth was " Supplemental." The first clause plunged *in medias res :* " On and after the first day of January One thousand nine hundred and eight, a school shall not be recognized as a public elementary school unless it is a school provided by the local education authority." Clearly, then, there was expectation of a general transfer of voluntary schools; and here came in the special features of the Bill in regard to religious teaching. There were to be " ordinary facilities " (Clause 3) and " extended facilities " (Clause 4). In arrangements for transfer, the local authority could accept a condition under which ordinary facilities for denominational instruction should be provided " on not more than two mornings a week " to the children of parents desiring it; but not by the teachers, and not at the expense of the authority: and in urban areas, extended facilities should similarly be provided, but only on application, and on being satisfied, after " public local inquiry " . . . " (*a*) that the parents of at least four-fifths of the children attending the school desire those facilities; and (*b*) that there is public school accommodation in schools not affected by a permission given under this section for the children attending the school whose parents do not desire those facilities." Teachers might be permitted to give the instruction, but not at the expense of the authority. But the " Conscience Clause " was extended: the child of an objecting parent need not attend school during the religious teaching, and no teacher was to be required " as part of his duties as teacher to give any religious instruction "; while " tests " and compulsory attendance or non-attendance at Sunday school or place of religious worship were forbidden. There was much besides in the Bill—including the provision of a million pounds for distribution to local authorities, and the discontinuance of the teachers' register under the Board of Education Act, 1899—but public

agitation and discussion and debates in Parliament concentrated on these main proposals, and more particularly and vehemently on the proposal for "extended facilities." However, with amendments, the Bill passed the Commons handsomely—369 to 177; but the Lords amended and amended again, in detail and heavily. The Commons rejected the Lords' amendments by a majority of 309. The Lords stood their ground and rejected the Bill. The Bill was dead. Nothing remained now, as the Prime Minister (Sir Henry Campbell-Bannerman) said, but to bury it. A. E. L.

Reference—

"The Annual Report for 1906 of the National Education Association" gives a summary of the Bill.

EDUCATION BILL OF THE BISHOP OF ST. ASAPH.—After the failure of Mr. McKenna's Bill (*q.v.*), a stage had been reached at which both sides had to make something of a halt. Somebody had to give way or there was a deadlock; and the Bishop of St. Asaph presented a Bill to the Lords. Mr. McKenna would allow objecting schools to withdraw from the public elementary system on suitable financial terms: the Bishop's plan was to provide facilities for representatives of different forms of religious faith and practice to "enter" the schools and teach during school hours; but much of Mr. McKenna's Bill was now common ground. Both Bills provided that (*a*) no school should be recognized as a public elementary school, unless provided by the local authority and the teachers free from religious tests; (*b*) school buildings might be transferred to the local authority, notwithstanding possible terms of trust to the contrary; (*c*) it might be a condition of transfer that the building must be at the disposal of the trustees on Saturdays and Sundays; (*d*) the undertaking to that effect might be enforced by the Board of Education, and on breach of terms the transfer might be set aside: the Board might also impose other conditions to give effect to the transfer. In both Bills there were provisions for safeguarding (i) rights in the school-house not subject to trust; (ii) the superannuation of teachers; (iii) schools for the blind and deaf and other special institutions; and (iv) holders of scholarships. In both Bills the definition of an "existing voluntary school" was the same, as were the appointed days and the short title; but each Bill contained a good deal which the other did not. The Bishop omitted the financial clauses of Mr. McKenna's Bill, as well as the provisions for schools that might choose to withdraw from the public elementary system, the repeal of the Free Education Act, and the prohibition of payment for the transfer of a school in strict trust in single-school parishes. He did not retain the power of the local authority to claim the transfer of any school building, nor the undertakings in regard to the teaching of the syllabus of undenominational religious instruction and the use of the school daily before or after the school session. On the other hand, and of necessity, there were new points. The trustees were to have the right to the use of the school building two days a week out of school hours, in addition to Saturday and Sunday. There was to be compulsory "Cowper-Temple" (*q.v.*) teaching in all schools. There was to be "right of entry" by representatives of religious denominations on at least three days a week during school hours; the teacher, however, was not to be compelled to give any religious teaching, but might volunteer for either "Cowper-Temple" or denominational.

Broadly, the difference between the two Bills was that Mr. McKenna's offered "contracting-out" and no "inside facilities"; whilst the Bishop made no provision for "contracting-out," but offered "inside facilities" to all denominations in all schools, made "Cowper-Temple" teaching obligatory, and allowed any teacher to give denominational teaching (if willing).

It very soon became evident that neither Bill could be expected to become law without serious change. "Contracting-out" and "inside facilities" seemed equally difficult and equally unpopular.

A. E. L.

Reference—

"The Annual Report for 1908 of the National Education Association" summarizes the clauses of this Act.

EDUCATION BILL OF REGINALD McKENNA.—The failure of Mr. Birrell's Bill (*q.v.*) did not prevent a further effort. Perhaps there was no great hope of a measure which should set educational troubles at rest for a generation or two, but the Government felt bound to go forward. Mr. McKenna had taken the place of Mr. Birrell at the Board of Education, and, early in 1908, introduced his Bill to the Commons. He had already given indications of its broad purpose. Speaking at Burnley, he had said: "I stand here firmly believing that the mandate given . . . to the Government was this . . . that we were to establish public control of our public elementary education, and that the teachers of our schools should not be submitted to religious tests." He went on to commend the adoption and acceptance, "in the exercise of local freedom during nearly forty years, of the undenominational solution" of his administrative problem; and gave his opinion that the nearer they went to continuing the line upon which the old Board Schools proceeded, the more certainly would they satisfy the parents. Mr. McKenna seems to have forgotten, to some extent, that the whole is greater than the part; that Roman Catholics, at least, would be bitterly hostile, and probably Anglicans; and that the parents he had in mind sent their children to the Board Schools. Others found satisfaction in the Voluntary Schools. However, the Bill was received by the Commons quietly enough. Mr. Balfour spoke forcibly against it, but Members generally were not passionate. Perhaps the memories of 1906 were depressing.

The Bill was short: there were six clauses only—

1. All public elementary schools must be "provided," and teachers free from religious tests. A local authority was not to maintain or aid any elementary school which was not a public elementary school, and must provide a free place in a public elementary school wherever desired.

2. The Free Education Act (1891) was to be repealed, and the Fee Grant, the Aid Grant, and other separate "Grants" were to be abolished as such. But calculated upon the same scale—with an additional sum which itself was the result of a (specified) calculation in relation to "average attendance"—was a Standard Grant, not to exceed forty-seven shillings for each scholar in attendance, as computed by the Board of Education. This Standard Grant might be paid to schools which were not public elementary schools: in that event, they must contain not fewer than thirty scholars; must not be in a single-school parish; must be open

to inspection; and be efficient in staff, premises, and secular instruction.

3. Nothing in a trust deed was to prevent the trustees of a school-house from transferring their buildings to a local authority if they should so desire, and they might do this on ordinary terms of rent or purchase; and the local authority might agree that undenominational religious teaching must always be given in the school, and that the building must be at the disposal of the trustees every Saturday and Sunday—cleaned, warmed, and lighted at the expense of the authority. A building in a single-school parish, in strict trust for education and not required by the trustees for a day school, might be claimed by the local authority for use without payment for five school days in the week. But the trustees might then have the use of the building—lighted, warmed, and cleaned—before and after every meeting of the school, as well as on Saturday and Sunday.

The remaining clauses could not be said to be "difficult," and need not be detailed. The progress of debate in Parliament and discussion in the country soon showed that the Bill was not likely to pass the Lords. A. E. L.

Reference—

See "Annual Report (1908) of the National Education Association."

EDUCATION BILL OF WALTER RUNCIMAN—After the Bishop of St. Asaph's (*q.v.*) failure there were changes in the Government. Mr McKenna left the Board of Education: Mr. Runciman took his place. Meetings of public bodies and prominent men of different religious and educational views were held. Convocation of Canterbury passed the following resolution: "That the suggestion of a conference of representative members of religious communities being held in order to promote a satisfactory settlement of the education question having lately met with general approval, his Grace the President be respectfully requested to take such steps as he may think desirable to bring about such a conference." There followed several months of negotiation between various "interests" and the Government, and its President of the Board of Education. On the denominational side, the Parents' League may be mentioned. Formed at the beginning of the year (1908), it was now said to have more than a thousand branches. The Marquis of Salisbury was President. A meeting held in July in London, with Mr. Balfour as chief speaker, unanimously resolved: "That this meeting affirms the rights of parents to determine the character of the religious teaching of their children in the schools of the country, and to have such teaching given in school hours by teachers who are qualified and believe in what they teach." At length—in November—the Government introduced a new Bill. Broadly, this Bill reproduced all the proposals of Mr. McKenna's Bill, and added to them all those of the Bishop of St. Asaph's Bill . . . except that the head teachers of council schools were not allowed to give denominational teaching. It was plainly thought that each of the chief opposing schools of educational thought and practice might be reconciled to its terms as the best they could get. The Prime Minister (Mr. Asquith) in announcing the Bill had said that the proposals would "be put forward by the Government not as the plan which we regard as ideally the best, but as one upon which all parties who are really anxious for a settlement of the vexed and long-standing controversy may, without sacrificing principles on one side or the other, concur in accepting." The Archbishop and the Nonconformist advisers of the Government did not claim to bind "either the members of the Church of England or the Nonconformist bodies as a whole"; but "both have given us (the Government) the assurance that, so far as their authority and influence go, they will acquiesce in the settlement embodied in the Bill, and give their support to its being brought into effect." All this with reservation as to "not unimportant points of detail." It was soon evident that one of these "not unimportant points of detail" would be the finance of the Bill. The main principle of the man who fought for the Voluntary school as a denominational institution would be gravely imperilled if there were not a free opportunity of "contracting out": this meant liberal grants to any efficient school that was not public elementary, with the probability of many such schools. So sprang a very general fear and anxiety; although the Archbishop agreed with Mr. Runciman that the aim should be to make "contracting-out" exceptional. But it was the practical certainty of a few only that could allow the man whose main principle was "public control" to rest satisfied with "contracting-out," and therefore the grants must not be high enough to lure to independence. Doubts soon arose and disagreement. It was clear the Roman Catholics had not been sufficiently consulted and were serious opponents. A revolt amongst the supporters of the Government rapidly developed against the "right of entry" to Council schools. To this "right of entry" (*q.v.*) again there appeared an almost unanimous opposition of the teachers. In the end, the Bill was withdrawn. It may be added that these experiments in educational legislation (1906 and 1908) have had their effect of discouragement and warning: nothing was done afterwards for ten years. A. E. L.

Reference—

"The Annual Report of the National Education Association for 1908" contains a summary of the Bill.

EDUCATION AND INSTRUCTION.—(See INSTRUCTION AND EDUCATION.)

EDUCATION (LONDON) ACT, THE.—(See LONDON COUNTY COUNCIL, EDUCATIONAL WORK OF THE.)

EDUCATION, THE PHILOSOPHY OF.—The philosophy of education attempts to interpret the meaning of the process of education by showing its relation to other fields of human interest and to human experience as a whole. Its task is similar to that of the philosophy of history or of religion. It makes use of the results attained by the science of education, but looks at these results from a more comprehensive point of view. The science of education aims at the discovery of facts and at the formulation of scientific laws. It deals, for instance, with human purposes as actual facts, without inquiring into their ultimate significance. For the evaluation of its facts and laws, it must depend upon educational philosophy, which endeavours to supply an interpretation based on fundamental principles. The distinction between educational science and philosophy is often disregarded, but each will best accomplish its proper task by concentrating its attention upon its special field.

In the attempt here made to give some account of the present position in English educational philosophy, it will be possible to consider that philosophy only in so far as it deals with the training given in the schools and other specifically educational institutions. In England, at the present time, valuable progress is being made in the provision and improvement of various types of school and university education, and also in the investigation of specific problems, such as the best methods of teaching particular subjects. Questions of educational organization also are being earnestly debated. Each current of thought and effort necessarily implies some more or less definite attitude towards fundamental questions of educational philosophy, but each party tends to assume the intrinsic reasonableness of its attitude without any serious attempt to show its theoretical validity. Opposing views are more often determined by tradition and emotion than by systematic thinking or clear insight into the principles involved. This situation is not unfavourable to the gradual evolution of a philosophy of education at once inclusive and profound; but, for the moment, it discourages the discussion of fundamental questions. Educational convictions are often more strongly held than they would be if they were due primarily to intellectual influences, but they are mainly convictions regarding practical problems. Moreover, we do not possess a national system of social and ethical ideals coherent enough to form a common background for these differing views. Hence the majority of men and women who have no strong educational beliefs feel doubtful as to the possibilities and value of education, while individual thinkers lack a firm foundation on which to build. As a matter of fact, no contemporary or recent English writer has elaborated a comprehensive philosophy of education, though contributions towards such a philosophy have been made in several quarters. Reference may, in this connection, be made to the writings of Edward Thring; to Dr. M. E. Sadler's discussion of English and German ideals in the "Special Reports of the Board of Education" (Vols. I and III); to Professor Campagnac's *Studies*, introductory to a Theory of Education; and to the sociological works of Mr. H. G. Wells. At least equally important are the contributions to educational philosophy by writers who do not deal specifically with education (*e.g.* Prof. Bernard Bosanquet and Dr. L. T. Hobhouse). Light is also thrown upon the subject by many discussions of existing social conditions; by official reports, such as those of the Commission on the Poor Laws and the Commission on the Civil Service; and by the publications of the Board of Education. Mention may also be made of a group of contemporary poets and novelists who have written of school life (*e.g.* Sir Henry Newbolt).

But the conflicts of opinion which are prominent in educational discussions, and the prevailing uncertainty as to many important issues, must not be allowed to obscure the measure of agreement which obtains among competent thinkers respecting the methods and content of educational philosophy. There is gradually being evolved a body of doctrine which may be regarded as provisionally assured. This body of doctrine does not carry us very far, and the relative importance of the principles it includes is variously estimated by different thinkers. It is also too often ignored by writers and speakers on education. Still, it is full of promise for the future, and is becoming every year more comprehensive and coherent.

Contemporary Doctrines. In the first place, there is a consensus of opinion that the philosophy of education must be based upon a careful examination of educational experience, and that its results must be constantly tested by their efficacy in interpreting that experience. The appreciation of this principle has been due largely to the influence of the intellectual ideals specially associated with the physical sciences. It is generally agreed that educational philosophy must be scientific in temper, and must make full use of the methods and results of the physical sciences so far as these are applicable to its special field. Thus, the employment of experimental and statistical methods in the investigation of educational problems is producing results of great value to philosophy. But, secondly, it is generally admitted that the methods of physical science have, in their specific form, proved inadequate for the explanation of the phenomena of human life, and that recourse must be had to the methods and conceptions elaborated by the biological sciences. Thus, in particular, the conceptions of an organism and of organic evolution have come to play a very important part in educational theory. These conceptions are not peculiar to biology; but they appear there in a comparatively simple shape, which has exercised a considerable influence upon educational thought. More generally, the genetic point of view, which has owed much to its biological applications, possesses special significance for education. In addition, it seems clear that the specific results attained by biological research will make valuable contributions to educational theory (*e.g.* by the light they throw upon the structure of society). Thirdly, educational philosophy has profited by the advance of what may be called the human sciences (*e.g.* Psychology and Sociology). Under the pressure of social movements and problems, these sciences have made marked progress during recent years, and, besides finding fresh applications for the conceptions and methods of physical and biological science, have made fruitful use of principles of their own. They have, for instance, developed what may be roughly described as the teleological point of view. Finally, the philosophy of education must, by common consent, exemplify the endeavour to take synoptic views, that is, to see the various parts or aspects of a subject in organic connection with each other. This tendency is, indeed, involved in all systematic thinking, but its increase in strength and range is one of the characteristics of our time.

The progress of the intellectual interpretation of any department of experience resembles, however, the growth of a tree with many branches rather than the erection of a building by craftsmen working in accordance with a common plan. If the trunk represents the principles shared by the various thinkers, the branches correspond to their different speculative systems, which promote the growth of the whole tree partly in virtue of their differences. From what has been said, it is apparent that the tree of educational philosophy has begun to grow, but its progress has been due not less to the shoots sent out in various directions than to the increase in the trunk. Thus, for instance, the points of view just mentioned have been variously appreciated by different writers. Each group of sciences

roughly corresponds to a specific attitude towards the fundamental issues of educational philosophy. This attitude is the outcome of the social and spiritual movements of which the sciences themselves are one expression; and it is assimilated in varying degrees and forms by individual thinkers, according to their personal characteristics and experience. For example, the movement of which one side is represented by the physical sciences is embodied also in the desire for practical efficiency, and in the ideal of personal initiative and the insistance upon individual rights. In educational philosophy, this type of thought underlies the demand that such educational opportunities should be provided for all children as will enable them to make effective use of their individual powers. It has been largely responsible, for instance, for our faith in examinations and for the rapid extension of our scholarship system. The biological point of view appeals specially to those who are impressed by the importance of physiological processes, and of the influence of heredity both in the individual and in the race or social group. They tend to regard society as a system of biological types differing significantly from each other. A characteristic expression of this mode of thought is the new science of eugenics (*q.v.*). The human sciences are associated, on the one hand, with a keen appreciation of the importance of social environment and of historical tradition and, on the other, with an equally keen sense of the value of self-determination: two currents of thought and feeling which meet in the ideal of freedom as whole-hearted devotion to the common good. This ideal has led to the introduction of some form of self-government into many schools, and it is gradually revolutionizing our teaching methods. The synoptic point of view, which is more particularly that of educational philosophy, endeavours to do justice to the various attitudes we have distinguished, and also finds characteristic expression in the doctrines which emphasize the importance of ideal ends and regard education as primarily a spiritual process.

Lines of Development and Tendency. This summary and partial survey of the present position in English educational philosophy may serve to explain the agreement upon certain fundamental principles and the diversity of view as to their application which appear in competent discussions of educational topics. The nature of the results attained may be illustrated by a brief reference to the progress that has been made towards determining the aim of education. Within its special sphere, education has to solve the common problem of all the practical sciences, viz., that of promoting the transformation of the actual into the likeness of some ideal. In school life, this problem meets us in a peculiarly insistent form, and the general method of solution is given by the principle of development. The purpose of education is not to effect sudden transformations, but to foster gradual growth. Whatever their disabilities, all children should receive the kind of training appropriate to their personal characteristics and the stage of development they have attained. Again, the organic view of mind leads us to see that education must aim at the development of all sides and aspects of mental life, and of the mind as a coherent whole. Education should result in practical efficiency and in habits of right feeling, not less than in an increase of knowledge and intellectual power. It should also tend to unify the mind by providing opportunities for its free activity, and at the same time promoting its appreciation of the main elements of its environment. Of this environment, the body forms an important part; and stress is rightly laid upon physical well-being, but the material and social conditions under which mental growth proceeds are also of the greatest educational significance. Thus, for example, the boy must be trained as a member of society and of specific social groups. Knowledge, aesthetic taste, practical skill, and even harmony of mind cannot be regarded as ends in themselves apart from their reference to wider social aims. But even these social aims point beyond themselves. The life for which education should prepare is one devoted to the realization, in some individual form, of the ideals of goodness, truth, and beauty; and it is in virtue of their relation to these ideals that social aims are ultimately valuable. Education should end in "the surrender or completion of finite selfhood in the world of spiritual membership." It is not claimed that this brief account of the aim of education would meet with the approval of all thinkers. It merely indicates the direction in which, with many individual differences, educational thought appears to the writer to be moving. A parallel advance may be detected in the important changes which are taking place in the methods of discipline and teaching obtaining in the schools. These changes seem implicitly to involve a conception of the aim of education similar to that which has been outlined. In the field of educational administration, less progress has been made. It is true that recent sociological theory has, by its doctrine of social groups, thrown fresh light upon the constitution of society and upon the relation of the individual to the social organism; but the difficult question remains of the part which ought to be played by various groups (*e.g.* by the State) in the maintenance and conduct of the schools. This problem, like many other disputed educational questions, will be solved only by a combination of sound theory with practical experience. Educational practice, as well as educational theory, would greatly benefit by the more rapid development of a sound philosophy of education. For practical as well as theoretical reasons, therefore, the more rapid evolution of educational philosophy is much to be desired. It is to be hoped that a more widespread interest will be aroused among educational workers in the fundamental questions of philosophy, and that individual thinkers will appear possessing practical knowledge of teaching or educational administration and able, at the same time, to take synoptic views. If such thinkers investigate the principles underlying some branch of education, making full use of the scientific knowledge bearing upon their subject, they are likely to make contributions of lasting value to educational progress. Questions of teaching methods, of school life and discipline, of organization, and of the relations between the schools and the community, are awaiting the illumination which the philosophy of education can provide; and it would be of no small benefit to our national life, as well as to social and ethical philosophy, if the significance of education as one of the most important functions of society could be clearly shown. The task is not an easy one, but there are few fields of investigation which offer greater opportunities for fruitful effort.

H. Bompas Smith.

References—

Beside the books mentioned in the article:

BATESON, W. *Biological Fact and the Structure of Society.*

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EDUCATION (PROVISION OF MEALS) ACT, 1906.—This is entirely permissive, but for the first time gives statutory powers for the provision of meals to children in attendance at public elementary schools. The definition of education is thus practically extended to include the nutrition of anaemic brains as a necessary step towards school instruction, putting a potential end to the daily struggle to educate the ill-nourished child. The local authority may assist voluntary agencies—or spend direct—to the extent of the produce of a halfpenny rate. Kitchens and suitable service may be provided and the Board of Education are prepared to sanction school plans which include rooms required in this connection. The cost of meals for the child is recoverable from the parent except for reasons other than parental default. "School Canteen Committees" have to be formed, and procedure must be approved by the Board of Education whenever expenditure out of the rates is contemplated; this will mean, in practice, that children's need must be shown as well as lack of other funds. A. E. L.

EDUCATION (PROVISION OF MEALS) ACT, 1914.—This is continuative of the Education (Provision of Meals) Act, 1906 (*q.v.*), and (1) removes the limit of the produce of a halfpenny rate imposed on the expenditure of the local authority—which is no longer defined; (2) authorizes the provision of meals to children on days when school is not kept, and irrespective of school meetings generally (*i.e.* during the longer vacations and on shorter holidays, and on Saturdays and Sundays); and (3) waives the condition of consent by the Board of Education to arrangements that involve expenditure from the rates. The Act is still permissive, and the local authority has still to satisfy itself of (*a*) the children's need; (*b*) the lack of sufficient funds from sources other than the rates; and (*c*) the poverty of the parent in cases where it is not desired to recover cost. A. E. L.

EDUCATION (SCOTLAND) ACT, 1918, THE.—The Education (Scotland) Act, 1918, or the Munro Act as it is called in honour of the Secretary for Scotland who piloted the Bill through the House of Commons, transforms educational administration in Scotland, and lays the foundation for educational developments on modern lines. The Act of 1872 effected a great change by making the parish the education area, the popularly-elected school board the local education authority, and the Scotch Education Department the central authority. School boards superseded heritors and ministers as managers of parish schools, and took the place of magistrates and town councils as managers of burgh or grammar schools. The Scotch Education Department administered and distributed the parliamentary grant for education according to a Code of Minutes, determined the competency of the teacher, and through its officials—His Majesty's Inspectors—had the right of entry into the schools.

The parish schools deserve more than a passing notice. They have played a long and honourable part in Scottish education. There is evidence of their existence long before the Reformation, although it is not so clear that the country was well supplied with them. As is well known, John Knox (*q.v.*) would have had a school in every parish. A distinctive feature in the history of Scottish education is the close connection of such schools with the University. Pupils passed direct to the University from parish schools as well as from grammar schools, and this tradition was preserved down to comparatively recent times. One consequence was that the Act of 1872 was not confined to elementary education: the preamble to it expressly stated that its object was to make provision for the efficient education of the children of the *whole* people of Scotland. Much of the criticism of subsequent educational legislation has been founded on the belief that this tradition was in danger of being overlooked, and some of it was not without foundation. In certain respects the higher grade school of later days is the concrete expression of this tradition.

Equally honourable was the part played by the burgh or grammar schools, although the same cannot be said of the attitude of the State towards them. The Act of 1872 recognized eleven of the larger of them as higher class public schools, and placed them under the newly-created school boards, but did little else for them. Since then the number has been largely increased. But, in time, their financial position became so precarious that, if they were to be preserved, State aid was inevitable. With this aid their position materially improved, and now they form a most important element in providing higher education.

Apart from these, there existed a small class of endowed schools, under private or semi-private management, providing higher education. For these there was no provision in the Act of 1872.

With the parish as the education area, the insufficiency of the school board system in respect of secondary education, gave rise, in 1892, to secondary education committees for the counties and the larger burghs. The main functions of these committees were to take cognizance of the requirements of secondary education in their districts, and to prepare and submit to the Department, for approval, schemes for the distribution of certain grants allotted to them. At the best, these committees could only be looked upon as a temporary expedient in the scheme of administration. Thus, the local administration of primary and secondary education was almost wholly vested in school boards, of which there were well-nigh a thousand in a country with a population less than that of London.

Outline of the Act. The Munro Act gives effect to the principle of wider areas in educational administration. The county or county burgh takes the place of the parish, and the education authority, elected *ad hoc* and by proportional representation, supersedes the school board and the secondary education committee. The Act guards against over-centralization by making provision for school management committees, and by enjoining upon the local authority the preparation of schemes for local education. A large measure of local initiative is possible in respect of the establishment of nursery schools, the giving of financial aid to schools and other educational institutions, the granting of maintenance allowances to pupils and students,

and the provision (in county areas) of books for general reading for adults.

The Act raises the school-leaving age from 14 to 15—with conditional exemption. It restricts the employment of young children, and provides against the exploitation of child labour. With certain limitations, it makes attendance at continuation classes compulsory up to the age of 18; it regulates the hours of attendance; and it institutes medical inspection of those under obligation to attend these classes.

By the transfer of voluntary or denominational schools, upon terms satisfactory to the Churches concerned, a difficult problem is solved. By the institution of central and local advisory councils, the Act paves the way for better and closer co-operation, on the one hand, between central and local authorities, and, on the other, between local authorities and others interested in local education. And, finally, by laying the onus on the Department of instituting a minimum national scale of salaries, the remuneration of teachers is put upon a national basis which should have important and far-reaching effects upon the teaching profession.

Details of the Act. 1. ADMINISTRATION. For administrative purposes the country is divided into thirty-eight education areas—thirty-three counties and five scheduled burghs, *viz.*, Edinburgh, Glasgow, Aberdeen, Dundee, and Leith. For each of these an education authority is elected *ad hoc*, and, for this purpose, with the exception of two counties, each area is divided into electoral divisions with a definite number of members assigned to each division. For the management of schools or groups of schools in any area, the relative education authority must prepare and submit to the Department for their approval a scheme of school management committees, such that each committee shall have upon it representatives of the authority, of the parents, at least one teacher, and, where one or more transferred schools are under the management of the committee, at least one member selected with regard to the religious belief of the parents of the children. In the case of the county, provision is made for the appointment of local persons on the nomination of town and parish councils. To these committees the authority may delegate any or all of its powers and duties with the exception of those relating to (1) the raising of money and the control of expenditure, (2) the acquisition and holding of land, (3) the appointment, transfer, remuneration, and dismissal of teachers, (4) the appointment of bursars, and (5) the facilitating of attendance at secondary schools and other institutions, and the recognition, establishment, or discontinuance of intermediate, or secondary schools, or of centres of advanced technical instruction. Where in a county a school management committee has a secondary school under its management, all the powers and duties of the authority devolve upon it, except those just enumerated.

2. POWERS AND DUTIES OF EDUCATION AUTHORITIES. These are considerably extended by the Act, with the result that much more local initiative is now possible. Certain important duties are carefully defined. One of the principal is that the education authority has to prepare and submit for the approval of the Department a scheme for the adequate provision throughout its area of all forms of primary, intermediate, and secondary education in day schools (including provision for teaching Gaelic in Gaelic-speaking areas) *without payment of fees*, although a limited number of fee-paying schools may be maintained. A further duty is to prepare a scheme to facilitate attendance at secondary schools and other higher institutions, whether by means of bursaries, maintenance allowances, payment of fees or travelling expenses, or cost of residence in hostels. In this way provision is made such that no deserving child or young person may be debarred, by reason of the expense involved, from the benefits of higher education. The authority must also prepare a scheme of scales of salaries conforming with such minimum national scales of salaries for teachers as may be laid down by the Department, after consultation with representatives of the education authorities and the teaching profession. Further, the authority must contribute towards the expense of the maintenance of the training colleges throughout Scotland a sum proportionate to the number of qualified teachers in its service. By Section 9 (1) and (2) and Section 10, the Act makes financial provision for certain intermediate or secondary schools not under the management of the education authorities of the areas in which they are situated, and, in certain cases, this provision is made obligatory upon the authorities. A new duty enjoined upon the education authority is that of establishing a local advisory council consisting of persons qualified to represent the views of bodies interested in education, and it must take into consideration any advice or representation made by it. The number of members and the composition of the council are not defined. Clearly, it is in the nature of an experiment, and, if the spirit of the Act is interpreted rightly, ought to fulfil a useful function.

The powers of the education authority are important. Nursery schools may be established for children between the ages of 2 and 5. The authority may also attend to the health, nourishment, and physical welfare of the children in them. Previously, parliamentary grants have been paid upon the attendance of children, between the ages of 3 and 5, at infant classes in public elementary schools; by the new Act it is not only lawful to establish separate schools, but the lower age-limit is extended. Another power (in county areas) is that of providing books for general reading for adults. Formerly such provision was lawful for pupils in attendance at school but not for adults; the new provision virtually extends the Public Libraries Act to the counties. The section dealing with the power to acquire land is not new; it is meant to simplify the procedure by which an authority may acquire land by compulsion. Similarly the power to promote or oppose Bills is now explicitly defined and the procedure prescribed, although in the past school boards had not infrequently taken steps under departmental control to oppose and support Bills under consideration of Parliament. Further powers and duties are dealt with below.

3. CONTINUATION CLASSES. The section dealing with these classes is one of the most important in the whole Act. It should be noted that the Act raises the school-leaving age from 14 to 15, and the age of conditional exemption from 12 to 13. With certain exceptions, the Act contemplates, in the future, compulsory attendance at continuation classes until the age of 18, although, for a period of three years after the appointed day, the obligation to attend does not apply to young persons between the ages of 16 and 18. Each education authority

must prepare and submit for the approval of the Department schemes for continuation class instruction for young persons (*a*) under the age of 16, and (*b*) between the ages of 16 and 18. These schemes must provide for (*a*) instruction in English language and literature, and such other parts of a general education as may be deemed advisable; (*b*) special instruction conducive to efficiency in particular employments; and (*c*) instruction in physical exercises (account may be taken of such instruction in holiday camps, boys' brigades, etc.). The minimum time for this instruction in each year must be in the aggregate 320 hours, exclusive, in general, of any instruction given between seven in the evening and eight in the morning. Unless the authority grants exemption, failure to attend renders a young person liable to a penalty of 5s. The hours of employment, plus the hours of attendance at continuation classes, plus the time for travelling to them, must not exceed in any day or week the period of employment permitted by any Act of Parliament. An employer failing to afford opportunity for attendance, or conducing to an offence against the regulation regarding hours of employment, is liable on the first offence to a penalty not exceeding 20s., and, for a second or subsequent offence, not exceeding £5. A parent is liable to similar penalties for like offences.

Various other regulations are laid down. The authority is enjoined to communicate and co-operate with associations or committees of employers and workmen concerned in the various local trades or industries; it must give respect, in enforcing attendance, to the religious beliefs of the young persons; and it must pay for the cost of the instruction of any young persons attending classes in an education area other than its own, if such classes are not reasonably accessible in its own area. The authority may also delegate to a committee any or all of its powers relating to continuation classes with the exception of those which by the Act it must "retain, exercise, and perform." It may also make provision for the further education of those who are not compelled to attend continuation classes. Finally, for those who are under obligation to attend, medical examination and supervision is instituted.

Closely connected with these provisions are certain others relating to the employment of children. Although, in general, children under 13 are not to be employed before eight in the morning and after six in the evening a local authority may by by-law vary this restriction. Further, no child or young person under 17 may be employed in street trading; nor under 15, unless exempted, in factories, workshops, mines, etc. The Act, in fact, takes a firm stand against the exploitation of child labour.

4. VOLUNTARY SCHOOLS. The transfer of these schools is dealt with in Section 18. Under the Act of 1872 school boards were not bound to accept transfer if offered; under the present Act, however, the authorities must accept transfer. If the parties to the transfer cannot agree as to price, rent, etc., recourse must be had to the Department, who will appoint an arbiter. If such schools are not transferred, in general, within two years of the passing of the Act, they will cease to receive parliamentary grants. Transferred schools must be "held, maintained, and managed" as public schools by the education authority, which must also take over the teachers and remunerate them according to the scale of salaries current in the area. Teachers appointed, in addition to satisfying the Department as to their secular qualifications, must satisfy their relative Churches as to their religious belief and character. Subject to the Conscience Clause, the time set apart for religious instruction or observance must be not less than use and wont. Further, the authority must appoint a supervisor of religious instruction, though without remuneration, who is approved by the Churches concerned. It is interesting to observe that, while the two provisions just mentioned are mandatory upon the authority in respect of transferred schools, they are not so in respect of the other schools under the authority.

Religious bodies and denominations may establish schools in the future which, with the consent of the Department, may also be transferred in the manner just indicated. Moreover, the education authority may establish such schools if the Department is satisfied of their necessity on representations being made either by the authority or the religious bodies concerned. The Act obliges the authority to maintain a transferred school for at least ten years, thus differing from the Act of 1872.

5. ADVISORY COUNCIL. This is an entirely new factor in Scottish education. His Majesty in Council may by Order establish such a council, of which at least two-thirds of the members shall consist of persons qualified to represent the views of various bodies interested in education. Its duty is to advise the Department on educational matters, and any advice or representation made must be taken into consideration by the Department. The advisory council will act as a mediating influence between the central authority and the local educational bodies, no doubt with advantage to both.

6. FINANCE. (*a*) *Local.* So far as the finance of an education authority is concerned there is little change except in so far as the "school fund" of the school board and the "district education fund" of the secondary education committee are merged into one under the designation of "education fund." Any deficiency in this fund in any education area is to be met by an "education rate." This is to be levied upon the parishes of the area according to their respective valuations in the Valuation Roll. As it is competent for the individual parishes to determine the amount of abatement on one class of property as against another, this may work out in practice to a different education rate in each parish in the area. The only new expenditure contemplated is that incurred by school management committees and local advisory councils. Members of an authority will be paid their necessary travelling expenses in attending meetings as well as an allowance for personal expenses and time lost.

(*b*) *Central.* The Education (Scotland) Fund, constituted by the Act of 1908, remains under the administration of the Department. In addition to the sums paid (as previously) out of the Local Taxation (Scotland) Account, this fund will receive annually (*a*) a fixed grant (£2,306,835), and (*b*) eleven-eightieths of the excess of the estimated expenditure for education in England and Wales over and above this fixed grant. Should this estimate differ from the sum expended in any year, an adjustment will be made in the succeeding year. With regard to the distribution of the Fund, after certain necessary payments are made under Section 16 (1) of the Act of 1908, the balance in any year will be applied in making grants to education authorities and managers of schools by minutes laid before Parliament.

7. GENERAL. Various other provisions are made in the Act. The powers possessed by the Secretary for Scotland with regard to reformatory or industrial schools in Scotland may be transferred to the Department. A teacher cannot be dismissed unless one-half of the members of an authority are present and the resolution is agreed to by two-thirds of this quorum. The term "Scotch Education Department" is changed to "Scottish Education Department." Finally, six schedules are appended to the Act which deals with such matters as the election of authorities, their meetings and rules of procedure, their co-operation with one another, and the like; with the details connected with school management committees; with the transfer of powers, property, and officers (including compensation); and with the adaptation and repeal of former Acts and enactments. J. STRONG.

EDUCATION SINCE 1800, GENERAL SURVEY OF.—No slight effort of imagination is required in order to figure to oneself the educational condition of England and Wales at the opening of the nineteenth century. The ancient universities of Oxford and Cambridge held practically the entire field of higher education, but their usefulness was very limited as compared with what it is to-day. At Oxford a nonconformist had no rights whatever, and at Cambridge only the right to become a student. Moreover, the curriculum was narrow, and the qualification for a degree amounted to little more than "keeping terms." Secondary education was represented by the public schools and grammar schools. There was no organized system, no attempt to meet local requirements, no adequate mode of ensuring the proper use of endowments, and little consciousness of the need of reformed methods and curricula. Elementary education was provided for, inefficiently and sporadically, by means of private establishments, mostly kept by ignorant "dames"; the charity schools, developed during the preceding century by the Society for Promoting Christian Knowledge; and the Sunday Schools movement, which had been initiated by Robert Raikes and had for twenty years been spreading rapidly. The "circulating schools" of Wales, taught by peripatetic teachers, had languished, leaving Wales even worse off educationally than England. (See WALES, EDUCATION IN.)

It is a far cry from the conditions sketched above to those we find at the opening of the twentieth century, with a complete system of elementary schools, something approaching a national scheme of secondary education, a renovated Oxford and Cambridge, and a band of younger universities meeting local needs. An account of the educational developments of the century may fall conveniently into three parts, the first taking us as far as 1833, and the second to 1870.

The First Third of the Century. In the sphere of elementary education, the first third of the century may be described, in contradistinction to the subsequent periods, as one of unaided voluntary effort. Philanthropists, both in and out of Parliament, were making out a strong case in favour of schools for the people. They had less difficulty in doing so because of the social conditions brought about by the industrial revolution. The factory system tended to bring great masses of people into small areas, and in these crowded districts the most appalling social conditions often prevailed, especially among the child population. One remedy, at least for the evil of parental neglect, was obviously the provision of schools. But where were the schools to come from? There were no buildings, there was no organization, and, above all, there were no teachers, and no means of obtaining teachers. In these circumstances we need not wonder at the enthusiastic reception accorded to a plan, almost simultaneously "invented" by Joseph Lancaster and Andrew Bell (*q.v.*), by which one adult could teach as many as a thousand children, through the agency of monitors. Lancaster, a poor Southwark lad, was of Quaker family; whilst Bell, an enterprising Scotchman, was a clergyman of the established church. Religious differences thus caused the monitorial system to develop on two lines, the dissenting party founding the British and Foreign School Society, and the church party the National Society. The system is of great historical interest, but neither of its founders had any educational ideas worth speaking of in comparison, for instance, with those of Robert Owen (*q.v.*), the socialist mill-owner of New Lanark, who about the same time was thinking out a far superior plan for the education of the children of factory hands, and of the children employed in factories. Meanwhile, popular education was much discussed in Parliament. Mr. Whitbread's Parochial Schools Bill of 1807 passed the Commons, but was thrown out by the Lords. A few years later, Henry Brougham began a series of indefatigable efforts to raise public opinion on the subject. His bill of 1820 displeased the dissenters, and was withdrawn. In 1833 Mr. Roebuck, in a brilliant speech, which still deserves to be read, proposed a plan, but without immediate effect. In the same year, however, a very practical and significant step was taken, for Parliament voted a sum of £20,000 to be spent on school buildings, and to be administered through the National and the British and Foreign Societies. This step marks an era in the development of the English primary school system.

The most interesting events relating to *secondary education* during this period occurred in connection with Brougham's efforts on behalf of primary education. In 1816 he obtained the appointment of a Committee to inquire into the education of the "Lower Orders of the Metropolis." Under the impulsive guidance of Brougham, this Committee extended its inquiries to such schools as Westminster, Charterhouse, and St. Paul's, on the plea that the investigation of abuses of charitable endowments meant for the poor was justified by the terms of reference. Again, when in 1818 the limitation of the Committee's inquiries to the Metropolis was removed, Eton and Winchester, and even the colleges of Oxford and Cambridge, received the Committee's attentions. These indiscretions led to the omission of Brougham's name from a Commission, set up by an Act of 1818, on charities in England for the education of the poor. This Act initiated a series of inquiries which were pursued for nearly twenty years, and led to the detection and reform of great abuses relating to charitable funds.

In regard to *university education*, at Oxford the system of "public examinations," begun in 1800, gradually raised the studies of the university from the abject state into which they had fallen. These examinations, in which printed questions began to be employed in 1828, superseded the older disputations and exercises, and became the chief instruments of testing and stimulating studies.

At Cambridge the mathematical tripos had existed since 1747, and the problems, as distinguished from book-work, had been printed from 1779 onwards. In 1824 the classical tripos was added, though mathematical had to precede classical honours. Here, as at Oxford, the oral disputations gradually fell into disuse. The continued exclusion of dissenters and of poor men from the ancient universities raised the question of a university for London, and in 1828 the institution in Gower Street, now known as University College, was opened with classes in arts, law, and medicine; theological studies being strictly excluded. Though it was commonly known as London University, it was but a proprietary institution, and efforts to obtain a charter of incorporation, empowering the proprietors to grant Degrees, proved unavailing. Meanwhile, a charter was obtained for King's College, established for the purpose of combining a " useful education " with theological instruction according to the standards of the Church of England, and the college was opened in 1831.

The Middle Third of the Century. The second of our three periods (1834–1870) is marked by considerable advances in the provision of the machinery of elementary education. Parliament appointed a Select Committee in 1834, which examined witnesses representing the " British " and the " National " schools. The Committee was re-appointed in 1835, when evidence was also given by Samuel Wilderspin, who had been advocating and establishing infant schools. Another Committee in 1838 made definite recommendations, but decided against the formation of a Board of Education. By a dexterous ministerial device, however, this very thing was done in 1839, when the Committee of Council on Education, known later as the Education Department, was formed. The first permanent secretary, Sir J. P. Kay-Shuttleworth (*q.v.*), a very able and far-seeing administrator, realized that no progress was possible so long as the monitorial system of teaching was relied upon. Foiled in the attempt to establish a State Normal School, through the opposition of the church party, he secured government aid for the National and British and Foreign Societies in founding residential training colleges, and such institutions as those at Chelsea, Battersea, Whitelands, and Borough Road came rapidly into being. Realizing also that a more precise knowledge of the existing facts was necessary, Shuttleworth secured, in 1840, the appointment of the first Inspectors, on condition, however, that church schools should be inspected by clergymen approved by one of the archbishops. The information thus acquired led him to propose, as a partial remedy for the deficiencies revealed, the apprenticeship of promising boys and girls as pupil-teachers. By a Minute of the Committee of Council (1846), the pupil-teacher system was established, as well as a scheme of scholarships enabling the ex-pupil-teacher to proceed to a training college. Meantime the " religious difficulty," which Shuttleworth in his zeal underrated, became still more acute, and prevented any progress in Parliament. The whole subject of popular education was, in 1858, referred to a Royal Commission, under the chairmanship of the Duke of Newcastle. The Commission's report, presented in 1861, was exhaustive and valuable, but unfortunately Mr. Lowe, then vice-president of the Council, ignoring all the recommendations save one, made the report a pretext for establishing the vicious principle known as " payment by results." This principle, embodied in the Revised Code of 1862, continued (notwithstanding the protests of teachers and of many inspectors, including Matthew Arnold) to dominate elementary education in England for the next 35 years, with the result that, whilst schools accumulated, education decayed. But even the provision of schools proceeded, because of religious rivalries, and differences of opinion regarding the functions of the State, by slow and painful steps. At last the Act of 1870, with its " Cowper-Temple " compromise (*q.v.*) and its " permissive compulsion " as regards attendance, secured an adequate supply of schools, board or voluntary, though it did nothing to improve the teaching profession or the quality of the education given.

Though the organization of *secondary education* was long to remain a hope deferred, the middle third of the century saw progress made in the better use of endowments. Brougham's Commission continued its labours till 1837, but in 1835 a Select Committee made recommendations based upon the reports so far as then published. Again, in 1849 the Chichester Commission examined the reports, which by that time were complete. Most of the changes thus recommended were embodied in the Charitable Trusts Act (1853), which created the Charity Commission. The Grammar Schools Act (1840) had given facilities for the introduction of modern subjects. More explicit intervention began with the Public Schools Commission (1861–4) (*q.v.*), followed by the Public Schools Act (1868), which dealt with a few of the great boarding schools. Meanwhile, the Schools Inquiry Commission (1864–7), with Lord Taunton as chairman, had completed its exhaustive report on Endowed Schools outside the scope of the Newcastle and Public Schools Commissions. Upon the report of the Taunton Commission was based the Endowed Schools Act of 1869, which set up the Endowed Schools Commission, whose functions were later transferred to the Charity Commission. Notwithstanding much hostile criticism, these Commissions are agreed to have been great powers for good in improving the amount and kind of education available for the children (girls as well as boys) of the middle classes.

During this period, *higher education* developed by the establishment of new honour schools in natural science, history, and theology at Oxford, and in moral science, natural science, and law at Cambridge. But the old anomalies in the constitution of the ancient seats of learning, and the disabilities of dissenters, were incapable of reform from within. Accordingly, Royal Commissions were appointed, both of which reported in 1852; and the effects of subsequent legislation were largely to abolish oaths and declarations, except in connection with Divinity, and to remove many restrictions in regard to fellowships and scholarships. Near the end of the period, non-collegiate students were recognized at both universities. In London, separate charters had been granted in 1836 to University College, and to the " University of London," now constituted as a mere examining body, to whose examinations students from University and King's Colleges, and from " other bodies for education " were to be admitted. These " other bodies " came to be recognized without much discrimination, and eventually, in 1858, a new charter abolished the exclusive connection of the University with affiliated colleges, throwing

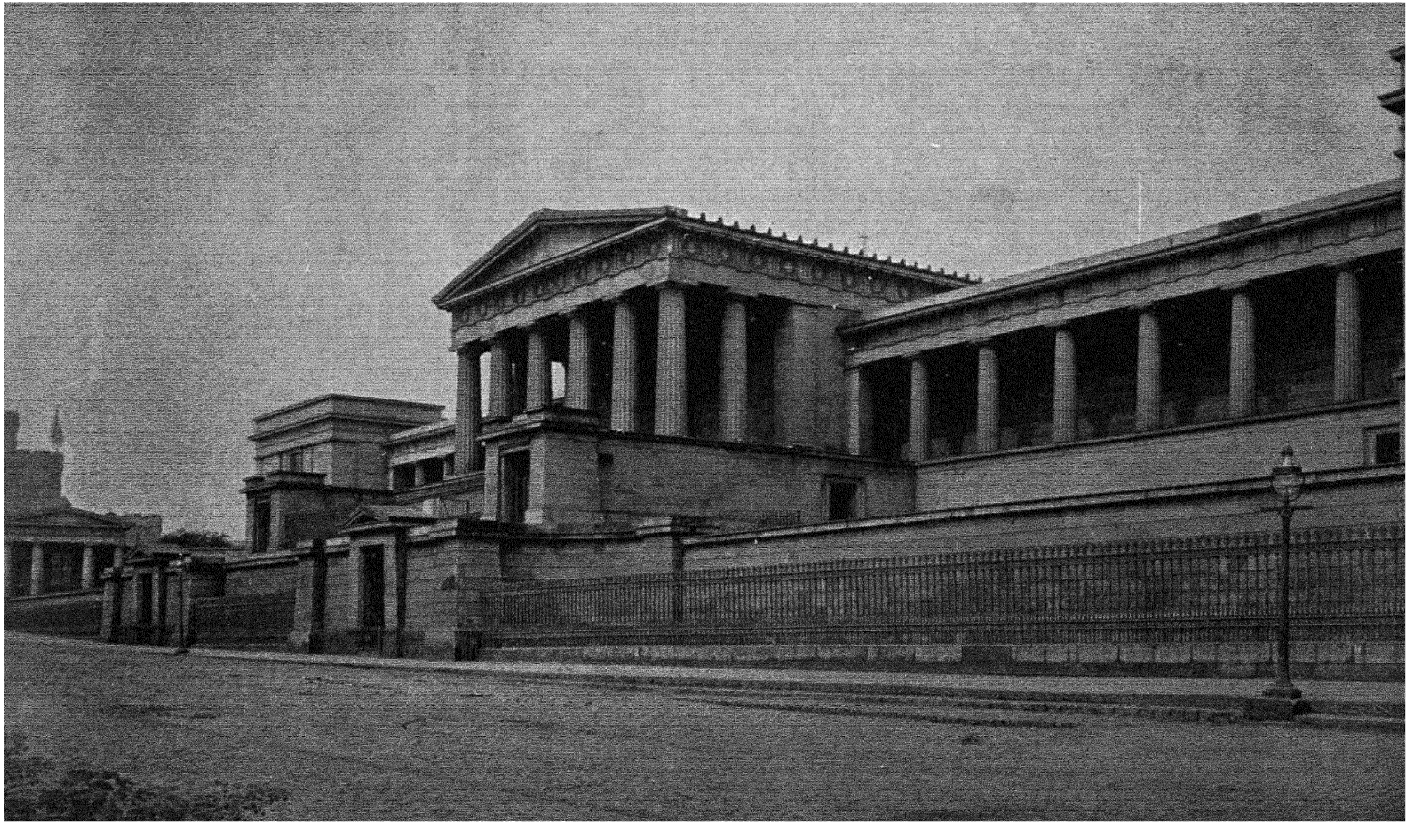
open all degrees, except medical degrees, to all comers. The University thus became entrenched in its position as a purely examining body. That position had its beneficent aspect in times when facilities for higher education were few, but a hard problem was created for future advocates of a teaching university in London.

The Last Third of the Century. A complete system of elementary schools was set up by the Act of 1870, but the sort of education given in them remained unimproved. For though in 1875 financial encouragement was given to a somewhat more generous curriculum, its effect was largely negatived by the principle of "payment by results." Lord Sandon's Act of 1876 improved and extended the machinery set up in 1870, especially with regard to school attendance; and Mr. Mundella's Act of 1880 went further in the same direction, compelling school boards to make by-laws for compulsory attendance. Mr. Mundella also revised the grant-earning machinery, and in doing so took the first faltering step towards modifying "payment by results." All through these years, however, public interest in education fastened itself chiefly upon the position of the voluntary schools (*i.e.* the schools which were unaided by local rates). So keenly did the Church party feel upon this subject that in January, 1886, when a stop-gap Conservative ministry was in power, a Royal Commission was appointed, under the chairmanship of Sir Richard (afterwards Lord) Cross, "to inquire into the working of the Elementary Education Acts." The real object of the appointment of this Commission was undoubtedly to find means of easing the "intolerable strain" placed upon the voluntary schools. Upon this subject the division of opinion was hopeless, and a minority report, therefore, accompanied the report itself. Still, the Commission had not laboured entirely in vain. For, on its recommendation, day training colleges began (1890) to be established in connection with local university colleges, the better instruction of pupil-teachers at "centres" was further extended, and the principle of "payment by results" was still further modified. A few years later (1895) that principle was definitely abandoned, after its blighting hand had rested upon the system for over thirty years. Meantime the greater school boards had proceeded to the establishment of schools of "higher grade" than elementary. In so doing, the school boards had, with the connivance of the Education Department, gone beyond the powers accorded them by the Act of 1870—(see COCKERTON DECISION, THE)—a failing that certainly leant to virtue's side, seeing that the country had as yet refused to face the important question of secondary and technical education. To that question we now turn.

Though decisive State intervention on behalf of *secondary education* did not take place until the twentieth century had opened, notable movements marked the last thirty years of the nineteenth. The establishment of the Girls' Public Day Schools Company (*q.v.*) in 1872, and of the similar Church Day Schools Company in 1883, set up new ideals in the education of girls; and in 1889 Wales obtained her Intermediate Education Act, enabling her to lead the way in the provision of a national system. The greater problem of a national system for England was attacked by the Royal Commission on Secondary Education (1894–5) under the chairmanship of Mr. Bryce. Its recommendation relating to the constitution of a central authority was substantially carried into effect by the Board of Education Act (1899), the new authority taking the place of the old Education Department, including the Department of Science and Art, and having assigned to it also the educational functions of the Charity Commission. The way was thus paved for the drastic re-organization of the whole system, and the sweeping changes in local administration effected by the Act of 1902. Technical instruction had been cared for by the county authorities since the Act of 1889, and higher-grade and organized science schools had been fostered by the Science and Art Department, so that the possibility of a complete and co-ordinated system—elementary, secondary and technical—was left to be realized by the newly constituted authorities.

Very important developments took place in *university education* during this period. At the older universities, religious tests were abolished, except in the case of divinity, by an Act passed in 1871. In London, the need began to be acutely felt for a university which should stimulate intellectual life by other means than examinations, and an association for the promotion of a teaching university was formed in 1884. The thorny question of adjusting the existing university to the proposed new conditions was reported on by two Royal Commissions, and, at last, in 1898, the University of London Commission Act was passed, resulting in the division of the university into an Internal and an External side; the examinations and degrees of the former being open only to students at schools of the university, whilst those of the latter were open to all comers. Meanwhile, the university colleges in the great provincial towns, which had generally prepared their students for the examinations of London University, one by one obtained university privileges for themselves. Another remarkable development was that of university education for women. Girton had been founded in 1869 and Newnham in 1872. As early as 1878 London took the radical step of throwing open all degrees and honours to both sexes on equal terms, and the same arrangement was made in the newer universities. Durham came into line in this respect in 1895.

Finally, a brief reference may be made to the gradual *organization of the teaching profession.* The College of Preceptors had been founded as long ago as 1846, but the last thirty years of the century saw the successive establishment of the Head Masters' Conference and the National Union of Elementary Teachers (1870), the Head Mistresses' Association (1874), the Teachers' Guild, and the Private Schools Association (1883), the Assistant Mistresses' Association (1884), the Head Masters' Association (1890), the Assistant Masters' Association (1891), and the Association of Head Masters of Preparatory Schools (1892), for all of which see separate articles. The bare recital of this chronological list suggests reflections on the gradual awakening of a professional consciousness. That awakening is exemplified also in the attempts made to establish a Register of Teachers. The first professional attempt in this direction was made by the College of Preceptors, which was instrumental in getting Bills introduced in Parliament in 1879, 1881, and 1889. Meanwhile, the Teachers' Guild began to advocate training as well as attainments as a condition of registration, and this view was shared by the Bryce Commission of 1895. The



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The Royal High School, Edinburgh

PLATE XXXIII

Board of Education Act of 1899 set up a consultative committee charged with the duty of framing regulations for a register, but the committee's scheme did not meet with general approval, and was abolished in 1906. After several years of controversy a new Council was formed (1911), and the issue of the conditions of registration in 1913 afforded the teaching profession the opportunity of becoming consolidated. (See TEACHERS' REGISTRATION COUNCIL, THE.) The obliteration of hard-and-fast lines between different grades of teachers is obviously in general accordance with the tendency of educational administration in this country since the great re-organization began in 1902. T. R.

EDUCATION SOCIETY, THE.—Early in 1875, Mr. Brudenell Carter read a paper on "The Artificial Production of Stupidity in School." This was followed by a letter in the *Journal of Education* for May of that year, in which Mr. C. H. Lake contended that, if the art and practice of education are to improve, the present generation must be familiarized with the notion that education is a science founded upon intelligible and certain principles, which may, through ignorance, be violated, but cannot be violated with impunity. He advocated the formation of a Society for reading and discussing papers with a view to the development of the Science of Education. He also pleaded for educational experiments, of which the results should be recorded. The birth of the Society took place at a meeting at the College of Preceptors on 31st July, 1875, with Professor Joseph Payne in the chair. Mr. Lake moved the resolution, and a committee was formed with him as Hon. Secretary.

The Society consisted of a President, Vice-Presidents, a Council, and a Committee. On the Council were men and women well known in the educational world. To them, special questions requiring expert knowledge were to be referred. The Rev. F. Barham Zincke, the first President, delivered his inaugural address at the end of the year 1876. Mr. Lake, in conjunction with Professor Meiklejohn, drew up a detailed programme of work. Papers were read and discussed; model lessons were given and criticized. The Council were, however, unable to carry out the Society's programme fully owing to lack of funds. Mr. Lake was assisted during the latter part of his secretaryship by Mr. Edward Blair. In 1878 the state of his health caused his retirement, and he was succeeded by Mr. Blair and Mr. Francis Turner, who were followed, in 1881, by Mr. W. C. Stewart and Mr. W. H. Widgery. The following have been Presidents: Professor Bain; Dr. J. H. Gladstone, F.R.S.; the Rev. J. M. Wilson, Head Master of Clifton College; Mr. James Ward, M.A., Fellow of Trinity College, Cambridge; Rev. H. Montagu Butler, Master of Trinity College, Cambridge; Rev. E. Thring, Head Master of Uppingham; Rev. R. H. Quick.

Work of the Society. In the autumn of 1879, when the Society seemed to be in a very critical position, it was saved by the interest aroused by the discussion of Professor Bain's book, *Education as a Science*, which was all the more valuable through the chair being occupied throughout the session by Professor Bain as President. The following are the concluding words of his presidential address: "I have endeavoured to answer the question—Is a Science of Education possible now? It is, I believe, just as possible now as it will be ten years hence; and you may as well enter upon it at once. It will take a long time to bring the mother science of Psychology to a decisively improved condition of certainty; the Science of Logic is nearly as good for education purposes now as it is likely to be in the beginning of the next century; the science of Rhetoric is more capable of improvement, but probably not of radical change."

Many valuable papers on the application of Logic and Psychology to Education were read by Mr. Sully and also by Mr. Lake, Mrs. Bryant, and Mr. Courthope Bowen. The subjects were, among others: Physical Education and Hygiene; Object Lessons; English Grammar, History, and Geography; How to teach a poem; Arithmetic, etc. Two of the Presidents took moral questions as the subjects of their presidential addresses: Mr. Wilson, "Morality in Public Schools"; and Dr. Montagu Butler, "The Teacher an Example to His Pupils."

At the beginning of the year 1887, the Council of the Education Society decided to ask the Council of the Teachers' Guild to undertake the work hitherto carried on by the Education Society; and the amalgamation of the two societies was completed in February, 1887, when many of the working members of the Council were elected on the Council of the Guild and were appointed to serve on a special committee appointed to carry out the objects of the older Society. E. BLAIR.

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BAIN, A. *Education as a Science.*

EDUCATIONAL EXPERT, THE.—One who has been long occupied in a field of skill or knowledge and practised in its details must needs be expert. The outcome of his experience is a special facility and attainment. The adjective is used substantively—he is an expert; and there is usually some contrast between theory and practice.

The expert is the man of active experience in the particular province of accomplishment: a specialist in his vocation. The theorist is not frequently regarded as an expert in the common meaning. Yet the *educational expert* is the man who can teach the schoolmaster the principles—if not the practice—of his profession!

We must distinguish, however. Dr. Johnson declared that all there was to be known about education had long been known in his day; and it is only in the last half-century or so that education has been at all recognized as a science. Any apparent paradox arises from the extension of educational thought of late years, and from the consequent authority of the educational specialist. Local Education Authorities, too, have been eager to appoint education officers to advise them, and these Directors of Education are *educational experts* in a particular meaning. A. E. L.

EDUCATIONAL HANDWORK ASSOCIATION, THE.—(See SUMMER SCHOOLS.)

EDUCATIONAL LADDER, THE.—This has been much talked of, and particularly since the Act of 1902. The same authority could now co-ordinate schools, and schemes and systems. Council scholarships, by which poorer children of ability could pass from the primary to the secondary school and thence to the university, were now potential and almost immediately actual. Here then is the "educational ladder." A more generous ideal still

is the removal of every hindrance to the free climb of the ladder, except a want of attainment and capacity for each successive step upwards. It must be understood, however, that the curriculum of each type of school should be complete in itself; yet with such convenient and early exit as may be necessary for advance to the next stage. A. E. L.

EDUCATIONAL SETTLEMENT COMMITTEE, THE.—The reform of the public elementary school system had, in 1910, been before the country with insistence and definition of purpose for a quarter of a century. The Cross Commission had been constituted in 1886, and had issued their final report in 1888. Then had followed the Free Education Act of 1891 and the Voluntary Schools Act of 1897. Later, and of outstanding importance, was the Act of 1902 (*q.v.*). Since then had appeared the Bills of Mr. Birrell (1906), Mr. McKenna (1908), the Bishop of St. Asaph (1908), and Mr. Runciman (1908)(*qq.v.*): all abortive, yet serving still further to clarify public opinion and show what might be thought practicable in the way of legislation and what not. So far as dispute was keen and bitter, it had become religious rather than educational, and ecclesiastical rather than religious. It had seemed reasonably certain that no successful legislation could be expected that did not at the same time (1) secure a general public control and (2) safeguard the "rights" of parents to obtain for their children the religious instruction which they desired. On these lines, progress appeared possible, and at the close of 1908 an Educational Settlement Committee was set going. Meetings were held then and later. The object of the Committee was "to promote and maintain religious teaching as an integral part of the national system of education, and to work on non-party lines for an educational settlement which will respect all forms of conscientious belief." More than a thousand members were quickly enrolled, and a plan—"Towards Educational Peace"—was published by the Executive Committee in 1910. In detail, the plan proposed "(1) a national system of educational organization under public control; (2) religious teaching as an integral part of school life (subject always to the right of withdrawal under the Conscience clause), and adequate opportunities for such teaching in all schools and training colleges under public control; (3) administrative arrangements favourable to sincerity and reality in such religious teaching, with full respect for various forms of conscientious belief among parents and teachers alike; (4) the removal of the grievances which exist in areas in which there can be no effective choice of schools; (5) the recognition (where the parents so desire) of denominational schools or other alternative schools in districts where an effective choice of schools can be given; (6) avoidance, so far as is compatible with the above objects, of religious division within the school." A Bill embodying these proposals was "presented" to the House of Commons in 1911, and duly ordered "to be printed." A. E. L.

EDWARD VI (1537–1553), KING OF ENGLAND.—The education of the boy-king is fully described in the *Literary Remains of King Edward VI*, edited by J. G. Nichols. It was at the beginning of King Edward VI's reign that the second Chantries Act, 1548, contained the dissolution of the Chantries begun by Henry VIII's Act of 1546. Since the Chantries (*q.v.*) included, in many cases, educational work, their dissolution involved the withdrawal of old educational facilities, and, as Mr. A. F. Leach has so trenchantly maintained, the continuation of some of the old foundations, as "King Edward's" Schools, does not entitle the boy-king to be credited with being the great *founder* of grammar schools. (See also GUILDS, EDUCATION IN MEDIAEVAL.)

F. W.

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LEACH, A. F. *English Schools at the Reformation*, 1546–1548. (London, 1896.) [This is the work which first illustrated convincingly the important position of the Chantries as educational institutions in England.]

NICHOLS, J. G. *Literary Remains of King Edward VI*, in Roxburghe Club publications.

EFFORT.—Effort has been defined as the process of trying to realize an end, to achieve a purpose. In true play, there is no purpose beyond the activity, and therefore no real effort. Competitive games, on the other hand, aim definitely at a desired end, and therefore involve all degrees of effort. The number of steps between desire and achievement will vary according to the remoteness and complexity of the aim. Thus, in seeking to realize the desire to visit a friend, the stages may be comparatively few; the number involved in the attempt to reach perfection of character is very great. The processes may also be different in quality; some may be congenial and some uncongenial; some easy and some difficult.

The genesis of effort is to be found in desire. For example, some object may arouse the instinct of acquisition. The cognition of the object and the emotion incident to it are accompanied by a conation towards the object, the whole mental condition being known as "desire." The effort put forth is the result or expression of desire, and is primarily muscular in its nature.

The teacher's function is, therefore, to lead his pupils to see and feel the worth and purpose of their work in school, sometimes by demonstrating its practical value and sometimes by disclosing higher purposes in such an inspiring way that their values may be appreciated and their achievement made to appear desirable. When a child perceives that the work he is asked to undertake leads directly to the attainment of his desires, he will be willing to attack it, no matter how arduous or painful it may be. There will be little need of compulsion or of coaxing—methods which tend to distract attention from the real purpose, and which may result in the cessation even of this distracted attention as soon as the stimulus is removed. If the teacher follows the course Nature reveals, minor errors on his part, such as over-praise or lack of encouragement, the undue prominence of punishments or rewards, making lessons too pleasant or unpleasant, may fail to distract the pupil from his purpose or to diminish his effort. W. G. S.

EGYPT, THE EDUCATIONAL SYSTEM OF.—As regards the masses of the people, education in Egypt is still in a backward state. According to the Census returns of 1907, only 85 per thousand of the Egyptian male population, and 3 per thousand of the Egyptian female population, could read and write.

The schools in Egypt belong to two distinct systems—the Vernacular and the Europeanized—which are of different origin.

Vernacular Schools, concerned chiefly with

theology and subjects ancillary thereto, have existed in Egypt from an early period. Each of the mosques built by the various Mohammedan conquerors contained, as an essential element, a *Maktab*, or place in which children were taught the Koran and (incidentally) writing. A few of the mosques became seats of learning on a higher plane. Under the Fatimite Caliphs (A.D. 969–1171), the mosque of Al-Azhar, in Cairo, vied with those of Baghdad as the most important centre of Moslem erudition, attracting to its courts the most learned theologians and Arabic scholars of the Mohammedan world. In the thirteenth and fourteenth centuries, it was attended by 20,000 students.

This system of seminaries has undergone petrifaction and decay. The Mosque of Al-Azhar is still attended by nearly 10,000 students (of whom about 700 come from other Mohammedan countries), and the Ahmadi Mosque at Tanta by nearly 3,000 students; but the study consists mainly of the crystallized knowledge handed down in voluminous treatises from past ages. A special census of the Maktabs taken in 1897, when the first serious effort towards their reformation was initiated, showed that there were scattered over the country some 8,000 Maktabs, attended by 173,000 boys and 3,000 girls; but they were, for the most part, of little educational value. The teachers were incompetent and often illiterate; the buildings were insanitary and dilapidated; the only school-equipment generally consisted of a tin writing-tablet and a reed pen.

Modern education in Egypt owes its initiation mainly to the military necessities of Mohammed Ali Pasha, the founder of the reigning dynasty. Mohammed Ali was appointed Pasha of Egypt in 1805. After ridding himself of the unruly Mameluke Beys by assassination in 1811, he determined to consolidate and strengthen his power by creating an army and navy modelled after the European fashion. To officer and administer these services, he required men trained in other than Mosque schools. In 1816, he accordingly commenced to send to Europe, at first, young Mamelukes and Turks, and subsequently Egyptians, to study soldiering, civil and military engineering, naval construction and navigation, administrative organization, medicine, pharmacy, etc. On their return, he set them to translate books and teach. Between 1824 and 1834 he established, besides some ten primary schools, schools of medicine, infantry, cavalry, and artillery; a naval school; a veterinary school; an engineering school; etc. In 1836 he created a Council of Education, and transferred the direction of education from the Minister of War to a Minister of Education. In the following year, this Council raised the number of primary schools to fifty, and created a secondary school, a school of agriculture, a school of administration and accounts, a school of translation, and a technical school. All were organized more or less on French models. The rate of progress was, however, too ambitious for the stage of development of the country. In spite of the fact that the pupils were lodged, fed, clothed, and subsidized by the State, and were counted as in Government employment from the date of their enrolment, the schools could be recruited only by arbitrary force. Many of the schools were closed within a year. Comparatively few survived beyond 1841. The reduction of the army on the cessation of the Pasha's military adventures, the suppression of the Government monopolies, and the closure of the State factories, led eventually to the output of scholars being far in excess of the opportunities for their employment. Numbers of State-created servants were thus left on the hands of the Government without prospect of utilization. Abbas I, on his accession in 1849, suppressed all the surviving schools except the school of medicine. Ismail, on his accession in 1863, re-established the schools on a more ambitious scale than before, only to reduce them later, when he found that the expenditure yielded no immediate results. Financial embarrassment led to further retrenchment. At Ismail's deposition in 1879, State expenditure on education had shrunk to £E.29,000 a year.

Such are the historical origins out of which the two existing educational systems—the Vernacular and the Europeanized—are at present being moulded and developed. For many years after the English occupation in 1882, whilst the "race against bankruptcy" was still doubtful, the utmost economy had to be practised, and little could be attempted. Later, as funds became available, public works and fiscal relief took precedence over educational claims. It was not until 1890 that the Finance Department was in a position to increase the sum spent by the State on education to £E.81,000. Since then, and more especially since the Anglo-French Convention of 1904 gave to the Egyptian Government the free use of its own resources, the grant for education has steadily increased, and important progress has been made. In 1906 a separate department of the Ministry of Education was established for the development of technical education of various types and grades. In 1914, before the war, the budget of the Ministry of Education amounted to £E.525,000, of which £E.423,000 was for general education and £E.102,000 for technical education. War economies have since necessitated a temporary reduction.

Since 1910, the efforts of the Ministry of Education have been supplemented by the provincial councils, upon whom large powers for the development of education (more especially elementary education, including training in manual trades and agriculture) were then conferred. The super-tax on land, which the councils were empowered to raise, places at their disposal a revenue of over £E.250,000 a year for educational purposes. All the schools under the Provincial Councils are regularly inspected by the Ministry of Education. The Technical and Agricultural Schools belonging to the councils are assisted by grants-in-aid from the Treasury.

Actually, the vernacular system of schools consists of—

(*a*) Boys' and Girls' Maktabs (or elementary schools), in which the course extends over four years, and comprises instruction in the Arabic language and writing and arithmetic (together with needlework in the girls' schools), as well as religious instruction. There are 217 Maktabs belonging to Government departments, and 440 to Provincial councils; whilst 3,359 of the primitive Maktabs have been brought voluntarily under the supervision of the Ministry of Education through a simple system of grants-in-aid. These Maktabs are attended by 240,000 boys and 36,000 girls. The establishment of separate Maktabs for girls is being everywhere encouraged; at present, only ninety-six Maktabs are set apart exclusively for girls. Memorizing the Koran still occupies too large a proportion of the school time-table (in deference

to traditional prejudices); but efforts are being made to make the course more practical by the progressive introduction of "occupations" into these schools, commencing with the girls' Maktabs.

(*b*) TRADES SCHOOLS, admitting pupils from the Maktabs, and providing apprenticeship in various trades (carpentry, metal-work, leather-work, inlaying, furniture-making, weaving, carpet-making, tanning, dressmaking, etc.). There are three Government trades schools, eleven belonging to provincial councils, and four private institutions, with a total attendance of 2,600 boys and 100 girls. The Government Reformatory contains 800 boys and 100 girls.

(*c*) FARM SCHOOLS, admitting pupils from the Maktabs, and giving practical training in agriculture, in addition to a little general instruction. The Provincial councils have established seven of these schools, with a total attendance of about 300 pupils.

(*d*) DOMESTIC SCHOOLS, for training girls from the Maktabs in needlework, cookery, laundry, and housewifery. There are four of these schools, with a total attendance of 189 girls.

(*e*) SCHOOL FOR MIDWIVES, attached to the School of Medicine and Kasr-el-Aini Hospital, and dating back to 1837. It is attended by forty girls, recruited mainly from the Maktabs.

(*f*) HIGHER ELEMENTARY SCHOOLS, for boys and girls, with a four-years' course in the boys' schools and a three-years' course in the girls' schools. These aim at providing a practical general education supplementary to that provided in the Maktabs. In the boys' schools the course is differentiated for urban and rural schools. In both types a practical bent is given to the teaching by the inclusion (in addition to the usual school subjects) of manual training (clay modelling, wood-work, metal-work) and instruction in measuring and surveying; whilst in the urban schools the pupils receive lessons on machines, materials, and manufactures; and in the rural schools, practical work in the school garden is co-ordinated with lessons on rural science and Nature study. In the girls' schools, special attention is devoted to domestic subjects. These schools represent a new development to which the Ministry of Education attaches great importance. There are at present some twenty of these schools in process of development, with an attendance of 1,300 boys and 300 girls.

(*g*) TRAINING COLLEGES for preparing qualified teachers for the elementary schools and higher elementary schools. The Ministry of Education maintains two elementary training colleges for schoolmasters and two for schoolmistresses, and the provincial councils maintain thirteen for schoolmasters and six for schoolmistresses. The total number of students under training is 1,000 men and 500 women.

(*h*) THE NASRIA TRAINING COLLEGE for preparing sheikhs as teachers of the highest grade for subjects connected with the Arabic language and Islam. It contains 310 students.

(*i*) THE SCHOOL FOR CADIS, for training, on more modern lines than in the Mosque schools, judges to dispense Mohammedan Law. The school at present contains about 400 students, of whom about three-quarters are in the lower section.

(*j*) THE MOSQUE SEMINARIES, like Al-Azhar, previously described. There are thirteen of these schools, attended by 16,000 students.

Europeanized Schools. (*a*) PRIMARY SCHOOLS, with a four years' course, including instruction in the English language. The Ministry of Education maintains thirty primary schools for boys and three for girls, attended by 6,200 boys and 400 girls. The provincial councils maintain thirty-two boys' schools and seven girls' schools, with an attendance of 3,600 boys and 600 girls. There are also forty-two private boys' schools and seventeen private girls' schools, attended by 7,600 boys and 1,900 girls, under the inspection of the Ministry of Education.

(*b*) SECONDARY SCHOOLS, with a four years' course, bifurcating at the end of the second year into a literary side and a scientific side. In these schools the teaching of English is entrusted to Englishmen. The Secondary Certificate Examination, based on the Secondary Course of Study, is held in two stages: Part I being taken before the bifurcation commences, and Part II (Literary or Scientific) at the end of the course. There are six Government secondary schools, attended by 2,500 pupils; and fifteen private secondary schools, with an attendance of 2,900 pupils, under inspection for grants-in-aid.

(*c*) INTERMEDIATE SCHOOL OF COMMERCE (318 pupils), INTERMEDIATE TECHNICAL SCHOOL (368 pupils), three INTERMEDIATE AGRICULTURAL SCHOOLS (220 students), and the SANIA TRAINING COLLEGE FOR WOMEN TEACHERS (51 students). These, like the secondary schools, admit pupils after completing the Primary Course. There is also a SCHOOL OF FINE ARTS, attended by 120 students, for painting, sculpture, etc., maintained by Prince Yusef Kamal, and managed by the Department of Technical Education.

(*d*) HIGHER COLLEGES FOR MEDICINE (266 students), LAW (239 students), ENGINEERING (192 students), AGRICULTURE (121 students), VETERINARY MEDICINE (46 students), COMMERCE (81 students), PHARMACY (32 students), and TEACHING (241 students). Owing to the lack of up-to-date textbooks in Arabic, the courses in these colleges are necessarily given for the most part through the medium of English, and the staff comprises a large European element.

(*e*) POLICE SCHOOL, attended by 57 cadets, and MILITARY SCHOOL, attended by 76 cadets.

Besides the schools maintained or aided by Government Departments or the Provincial councils, or which have placed themselves under the inspection of the Ministry of Education, there are a large number of schools—Egyptian and foreign—which are entirely independent of the Government. Some of these are organized on similar lines to the Government schools, and follow the official courses of study. Most of the Egyptian schools belong to Moslem or Coptic benevolent societies, or to private *wakfs* (*i.e.* religious trusts). Most of the foreign schools are associated with missionary enterprise. The number of these independent Egyptian and foreign schools is shown in the *Statistique Scolaire de l'Egypte* for 1914–1915 on the next page.

A law placing all schools under Government supervision passed through preliminary stages in 1913, but has not yet been finally approved.

Education in Egypt is not compulsory. In the Departmental schools, in general, fees are charged, though a proportion of the pupils in the Maktabs are free, and there are scholarships to the secondary schools and Intermediate Technical School; whilst in the trades schools, the elementary training colleges, the Sania Training College, the Nasria Training College for Sheikhs, and the School for Cadis, no fees are paid. R. A. B.

SCHOOLS NOT UNDER GOVERNMENT INSPECTION.

	Egyptian:		Foreign:		Total:	
	Egyptian Schools.	Egyptian Scholars.	Foreign Schools.	Egyptian Scholars.	Schools.	Egyptian Scholars.
Maktabs . .	3,625	99,000	—	—	3,625	99,000
Other Schools .	565	54,700	253	16,500	818	71,200
Total .	4,190	153,700	253	16,500	4,443	170,200

EGYPTOLOGY, THE TEACHING OF. — (See ORIENTAL EDUCATION IN GREAT BRITAIN.)

EIGHTEENTH CENTURY, EDUCATION IN ENGLAND IN THE. Locke and Newton. The two greatest intellectual influences in England in their educational efforts during the eighteenth century were the works of John Locke and Sir Isaac Newton. Locke's work was of direct educational influence, in laying stress on the psychological basis of education. In developing a general account of psychology, and still more particularly, in his emphasis on the psychology of the individual, Locke (1632–1704) is the pioneer of the psychological standard education. Locke held that, since all our knowledge is founded on sensation, the right method of early instruction is the training in a knowledge of real things. But he insists on the essential importance of accurate expression in words. English, therefore, is the basis of instruction, not Latin; and English composition is more important than Latin. Locke sees that encyclopaedism, however ideally desirable, is impossible. The right study of the sciences is not so as to increase the possessions of the mind but to increase the mind's activity and powers. Hence his idea of the educational process has been described as disciplinary. (See article on LOCKE, JOHN). Locke's whole educational system seems to be that of common sense—and to some critics—that of common place. His insistence on the educational import of habits, on the cultivation of reason, and the educational aim of truth seeking, go to the very root of all later educational thought. In education, Locke's principles meant the complete overthrow of the old form of authority and tradition (*e.g.* in the position of the classics)—a movement strongly developed since the time of Francis Bacon; to which Locke gave the *coup-de-grâce*. Rousseau followed thus in immediate sequence, developing the effort to establish education on a non-traditional, or "natural" basis.

English and Latin. De Foe applied Locke's principle of rational scepticism to the final issue with classicism as the staple of education. De Foe (*Compleat Gentleman*, 1728) declared "you may be a gentleman of learning, and yet reading in English may do for you all that you want." The atmosphere of the later eighteenth century became more and more anti-traditional (*i.e.* anti-classical), democratic, hopeful of the power and influence of education as preached by educators, accompanied by a natural deterioration in the old classical schools, by the associations of new, badly taught, but (on syllabus) pretentious subjects of English mathematics, natural philosophy and modern languages; and particularly by extremely badly taught Latin. Actual education in the successful (judged by numbers) commercial and tradesmen's schools, was often marked by educational bluff. The grammar schools had so deteriorated that parents sent boys to pretentiously advertised private schools.

There were, on the other hand, some excellent progressive private schools, of which there has been, in the history of education, scant notice taken. The value of their work in the eighteenth century needs to be emphasized. Thus, for instance, from 1740–50 Joseph Randell kept a private academy at Heath, near Wakefield. He had a large room near the academy fitted as a public library of 1,500 volumes, with scientific apparatus, and here lectures were given and experiments performed in astronomy and natural philosophy. Randell had 130 pupils from all of the three kingdoms, and of several foreign parts, and of "all ages from man's estate to 8 years of age." English was avowedly studied as preparatory training for Latin, but if pupils were not to study Latin, they were required to make history a main feature of their education. The chief English literary authors were to be read, and training in literature included reading aloud in a becoming manner. English History is taught from the earliest school-year, that "it may grow up with them." Afterwards at York, Randell had a system of "houses" or hostels, containing six pupils each, and limited the boarders in his own house to six. It is a type of best country private adventure school.

The Cheam School. Amongst the best class of private schoolmaster was the Huguenot refugee. For instance, a refugee's son, David Sanxay, took over a private school established in 1666 by a London schoolmaster who brought his boys from London to Cheam to escape the plague, and then stayed on and was assisted by his sister Claudia.

On David's death in 1739, the school passed on to David's son James, who rebuilt the school and furnished it with a beautiful little chapel. In 1752 James Sanxay passed on the school to Mr. William Gilpin, who conducted it for thirty years. He substituted for corporal punishment a system of trial by jury by boys themselves, and a code of fines, to be spent on the school library, fives courts, and the giving of bread to the poor. He encouraged boys in gardening, in business habits, and in the accurate use of the English language rather than Latin. He was one of the earliest masters to introduce cricket as an organized game. He spent his summer vacations in sketching tours through English counties, and gave an impetus in school work and, generally, to the observation and study

of nature, and to the development of interest in landscape, picturesque travel, and sketching. He sold his original drawings and founded with the proceeds an elementary school at Boldre, in the New Forest. Pupils were so numerous for Gilpin's school at Cheam that candidates for admission had to wait for vacancies. He was succeeded by his son; and it was the same school that was purchased in 1826 by Charles Mayo, and became the centre of the Pestalozzian influence in England; and the school still flourishes.

Dissenting Academy at Warrington. The most cultured private, or at least voluntary, institution in the eighteenth century was probably the Dissenting Academy at Warrington; typical of the aims of at least 100 of these institutions in the eighteenth century. (See article on DISSENTING ACADEMIES.) Warrington Academy was begun by Rev. John Seddon, 1753-55, who collected subscriptions for the purpose of training not only ministers, but also professional and business men. The Academy is associated with the names of Dr. Aikin (father of Mrs. Barbauld), William Enfield, Gilbert Wakefield, and Joseph Priestley (who was perhaps the most enlightened and progressive educationist as well as chemist in England in the latter half of the eighteenth century). The first educational, traditions of teaching in English literature, composition, in the teaching of history, in science, and in the general idea of a liberal education in the eighteenth century probably came from these academies, and particularly from Warrington.

Locke and Rousseau. Behind these progressive movements was the driving-force of Locke's educational views. Rousseau's (*q.v.*) views (in as far as they were of practical value) were essentially based on principles derivable from Locke. By far the most important contribution to English education, to be traced to Rousseau, was the impetus given to the idea of experimental education as seen in the educational activities of Thomas Day and the Edgeworths. (See EDGEWORTHS AND THEIR CIRCLE.)

Sir Isaac Newton. Besides the influence of Locke and the formation of his principle of reason *versus* authority, the eighteenth century experienced the intellectual stimulus of Sir Isaac Newton, 1642-1727, whose vigour of genius carried with it the men of thought of England and of all countries, and raised all who followed his era-making discoveries on to a higher plane of the meaning of evidence and proof, and illustrated by a living example that devotion to the attainment of truth by means of appeal to increasing reasoning, which Locke saw as in a vision. Newton combined the best side of Bacon's optimism, with a more surely grounded scientific method. Bacon's inventive method founded on logic was eclipsed by Newton's intuition into the choice of subjects of investigation, and his substitution of mathematical for logical methods, and along with it, the progress of mathematical knowledge itself. (See NEWTON, SIR ISAAC.)

Locke and Newton. As Locke's general outlook may be regarded as that of the educational democrat, from Locke education in the eighteenth century chiefly gained in the "extension" of the idea. Locke's psychological attitude is necessarily democratic, for education, philosophically considered, is interested in all minds—good, bad, and indifferent, normal and abnormal. Newton stands for the "intension" of the term education. The eighteenth century and later years were raised, at a bound, to a higher level of knowledge, to a nobler intellectual world, to a keener apprehension of the value of education at its best, to an actual educational revolution.

The Mathematical Tripos. The mathematical tripos, effectively, dates from 1750, and its institution may be regarded as a crucial university event in the significance of "modern" education, for mathematics is essentially non-Aristotelian, and non-authoritative from mediaeval times. The real change to modernize the outlook in education is far more concerned with the substitution in schools and universities of mathematics for logic, than with the replacing of Latin and Greek for other subjects.

Newton and Education. Newton affected the curriculum of educational institutions (responsive to new developments), from the university student to the young child (in well-to-do families), by the direct introduction of experimental science. Grammar Schools and Charity Schools were unaffected by the new studies. Thus, in the private school of Mr. Thomas Watts, in 1723, in Little Tower Street, Benjamin Worster taught experimental philosophy, including laws of motion, mechanics, pneumatics, hydrostatics, optics—"according to Sir Isaac Newton's principles." Some of the Dissenting Academies included natural and experimental philosophy in the curriculum.

Schoolmasters. The eighteenth century, low as it allowed its old educational institutions of colleges and schools to sink, produced scholars who will compare with any period, Richard Bentley and Richard Porson amongst the greatest of English scholars in the ancient Greek studies in any modern age. And there were Samuel Johnson and Samuel Parr, all of whom were teachers in schools at some time in their careers. The general level, however, of the old endowed schools was unsatisfactory. The eighteenth century was the period of the beginning of the making of the "great" Public Schools. Were it not for the decadence of the ordinary free grammar school of the period, we should probably regard the later part of the eighteenth century as a remarkable era of education, in its idea of inner school organization. For Edward Barnard at Eton, Joseph Warton at Winchester, John Nicholl at Westminster, Thomas Thackeray at Harrow, and Thomas James at Rugby were predecessors, of the eighteenth century, of the Thomas Arnold, whose name is better known to our generation. The fact is there is a prejudice against the eighteenth century because the social and democratic spirit had yet to be developed, and we have come to judge an age educationally by its interest in the schools of the people.

Education and the Democracy. The eighteenth century, however, was not without its own kind of interest in the poor, as we see in the Charity Schools (*q.v.*). These schools in their (to us) repulsive underlying principles, were described by Joseph Addison in 1713 as the "glory of the age we live in." Similarly, in the later part of the century, Sunday schools (*q.v.*) performed a great and noble service, and although we may be more impressed, educationally, by their past shortcomings and educational deficiencies, yet they bridged over difficulties which we do not easily realize, in secular education, and developed a standard for their own specialized religious work, which may serve as a basis for a yet more definitely advanced procedure, when their pupils shall have had the advantage

of higher day-school knowledge, and the teachers better trained preparation in the future.

The fact is, of course, that the French Revolution abroad, and the Industrial Revolution at home have so changed the outlook and the possibilities, as well as the necessities of popular education, that we are more apt to look upon education as a democratic right, and to test its progress, in statistical details beyond all thought of the eighteenth century. Yet the atmosphere of life and thought which made possible a John Locke, an Isaac Newton, and the founders of the great public schools, supplied a qualitative output, which even in our statistical age, is worthy of deep educational thought, and was of high significance as a preparation for the highest educational advances of the nineteenth and twentieth centuries. (See also GIRLS AND WOMEN, HISTORY OF EDUCATION OF.)

F. W.

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EIGHTEENTH CENTURY, EDUCATION SINCE THE.—(See EDUCATION SINCE 1800, GENERAL SURVEY OF.)

EISTEDDFOD, THE WELSH.—A history of Welsh Education would be incomplete and, in part, unintelligible without some account of an institution that has played so large a part in the life of modern Wales as the Eisteddfod. The Eisteddfod is widely known as a celebration peculiar to the Welsh people, but its real nature and significance are still incompletely understood outside the borders of the Principality. The word itself is equivalent to "session"; and an Eisteddfod is, in fact, a session publicly held for the judgment of competitors in literary composition and in musical competition and execution.

The practice of holding eisteddfodau is one of immemorial antiquity, and written history has mention of eisteddfodau held as early as the twelfth century. In olden times, they were summoned under royal or princely authority: the last recorded Royal Commission to hold an eisteddfod was issued by Queen Elizabeth in 1568; the document is still extant. In modern days they are planned and organized by local committees of private persons. No eisteddfod, however, of any magnitude would be regarded as legitimately held unless summoned with the sanction of the Order of Bards and proclaimed and opened with the time-honoured ceremonies which have been used probably since the sixteenth century, though a far more remote antiquity is claimed for them.

The Bards. The rank and privileges which ancient custom and law accorded to the bards did not survive the Angevin conquest in the thirteenth century; but its position and authority in eisteddfodic matters are still secured to the Order by popular sentiment. Admission to it is granted in respect of literary ability, particular importance being attached to proficiency in the four-and-twenty ancient metres of Wales; or in recognition of skill in music. To the cognate orders of "druids" and "ovates," distinguished visitors to eisteddfodau are admitted *honoris causâ*, ministers of religion being eligible for the former, laymen for the latter. Every member of an Order, on his admission, is granted a bardic appellation, by which it is etiquette to address him in future in eisteddfodic affairs. In the Middle Ages, the bards were the professional poets, historians, genealogists, and tutors of Wales; and the contests of the Eisteddfod had largely a professional cast. The literary competitions of the modern Eisteddfod are mainly of an amateur character, and the bard is seldom a man who makes literary pursuits his main profession. Among the musical competitors, on the other hand, are many whose aim is a professional one. Not a few well-known members of the profession of music owe their start in the world to their appearance as amateurs in the Eisteddfod lists.

The Modern Eisteddfod. During the seventeenth and eighteenth centuries its observance fell into desuetude, and the Order of Bards well-nigh ceased to exist. Before the close of the eighteenth century, however, a vigorous revival took place, and by the second quarter of the nineteenth century the Eisteddfod was again an established feature of Welsh life. Its popularity and influence went on increasing during the rest of the nineteenth century, and have been maintained to the present time. To hold an eisteddfod is everywhere in Wales a recognized method of celebrating a public holiday. Eisteddfodau are organized of all degrees of magnitude and pretension; by a village, by a college or school, by a district, by a province, or in the name of the whole country. Since 1860, the annual National Eisteddfod has been regularly celebrated, alternately in a town of North Wales and in a town of South Wales (for eisteddfodic purposes, Liverpool and Manchester being held to be in the "hinterland" of North Wales, and London in that of South Wales). Offers to hold the Eisteddfod are made two years in advance, and a selection from the towns desiring it is made by the bards jointly with the National Eisteddfod Association. These National Eisteddfodau are on a colossal scale; they last four days, each six or seven hours long. The pavilions seat from six to fifteen thousand people, and are often filled to overflowing. Each day is ended by a concert in the great pavilion, two evenings being devoted to single great works and two to miscellaneous music. As much as a thousand pounds has been offered in prizes at a single Eisteddfod.

The Eisteddfod is not limited to Wales in the geographical sense. In the great towns of England and Scotland, in the Dominions and in the United States, wherever a sufficient number of Welsh people reside, it is sure to be celebrated. In at least one English town it has taken root in purely English soil.

The National Eisteddfod Association. In 1881 an additional guiding authority came into existence. The National Eisteddfod Association, the membership of which includes most of the bards as well as the leading *eisteddfodwyr*—as habitual frequenters of the Eisteddfod are termed—encourages historical

and antiquarian research by offering substantial prizes at eisteddfodau, on condition that the Eisteddfod is conducted in accordance with the Association's regulations; thus its main object, that of ensuring continuity of policy, is secured. The management of a great Eisteddfod is ordinarily undertaken by a voluntary committee of the inhabitants of the locality in which it is to take place, and the pecuniary risk is accepted by a local body of guarantors. Admission to the meetings and concerts is charged, mainly at popular prices; and the assets are augmented by voluntary subscriptions. If a surplus is realized, it is applied to some public object. Of late years, a moiety of the surplus of the National Eisteddfod has been assigned to the National Eisteddfod Association or to some national purpose approved by it.

Educational Importance. It must be clearly understood that there is nothing whatever of a didactic character about a modern Eisteddfod, and no pretence of a "mission" to "improve" or "instruct" their neighbours on the part of the management. The Eisteddfod is essentially a popular institution, based (in the main) on the popular taste, carried on under popular management, and dependent on popular support. Its high aims and serious tone are spontaneous and unaffected. What the Eisteddfod is, the audience is; and the audience is the Welsh people at large. The key to its popularity and influence is the unusual interest which all classes of the Welsh people take in questions of literature and music. This interest is not of modern growth; there is evidence of its existence as far back, at least, as the twelfth century. It may be a nice question how far it is to be considered as the cause or the effect of the Eisteddfod; it is certain that the two have constantly acted and reacted on each other. Until nearly the end of the nineteenth century, Wales was almost the worst provided country in Europe as regards the means of education; nevertheless, thanks to the Eisteddfod and to the equally spontaneous institution of the Welsh Sunday School, there were few countries where an interest in literature had penetrated deeper. The Welsh vernacular had been assiduously cultivated, and the trade in Welsh publications had already become a heavy one. Composition in Welsh verse had been, throughout the nineteenth century, a common form of recreation among the working classes, whether in the villages or in the industrial centres. Towards the end, it is true, it had largely yielded to the newer attraction of choral singing, an art which is widely and assiduously practised all over Wales, and in which the best amateur Welsh choirs were for long unsurpassed. The change has reflected itself accurately in the Eisteddfod, which, predominantly literary at the opening of the century, had become predominantly musical before its close. It will not, at least, seem surprising that the people who furnished the eisteddfodic audience should have shown a ready appreciation of the advantages of education and a desire to gain them for their children.

But the Eisteddfod played a more direct part even than this in the history of Welsh Education. That history is itself largely a popular one. In the absence of a fixed centre of affairs in Wales, the Annual National Eisteddfod, drawing together a multitude of people from all parts of Wales and Welshmen from beyond the borders of Wales, managed, to some extent, to supply the place of a capital. The "bardic peace" proclaimed at Eisteddfod time precludes political subjects from public discussion in its neighbourhood; but, in the course of the four days of a National Eisteddfod, men of all parties have opportunities of assembling in subsidiary meetings to consider public questions not in the political category, and societies having a national scope fell into the custom of holding their annual meetings at Eisteddfod time. During the nineteenth century it was largely under these circumstances that movements for the general intellectual benefit of the Welsh people took their rise. Since 1880, a formal arena for conferences of such a kind has been regularly furnished by the Honourable Society of Cymmrodorion, a time-honoured Welsh literary association seated in London, which holds a series of meetings in connection with each National Eisteddfod for the discussion of educational and social questions. It was in the meetings of the Cymmrodorion section that the movements for the utilization of the Welsh language in education and for the foundation of the University of Wales alike first took shape. I. O.

ELDON, LORD.—John Scott (1751–1838) was educated at Oxford for the church, but betook himself to the law and was called to the bar in 1776. Being successful in his profession, he took to politics, and was made Solicitor General by Pitt in 1788. In 1799 he was made a judge as Baron Eldon, and from 1801 to 1827 was Lord Chancellor. Lord Eldon had great talents for the law, though he was no orator, and was devoid of literary and artistic tastes. His reputation rests on his judgments, which fill many volumes, and are considered to be remarkably accurate. He was very slow in arriving at a judgment, and is said to have caused more injustice by his delays than inferior judges caused by wrong decisions.

ELECTRICAL ENGINEERING, THE TEACHING OF.—A student who intends to become an electrical engineer should, first of all, pass the Matriculation examination of one of the universities. The question whether it is better for a student to enter the works before or after the college course has often been discussed. There can be no doubt (so far, at any rate, as electrical engineering is concerned) that it is much better for the student to pass his apprenticeship in works after going through the college course. Consider two students—one fresh from school and the other from a technical college—working on the erection of, let us say, a switchboard. To the untrained boy, the switchboard is but a maze of conductors, the purpose of which is unintelligible, and the foreman is far too busy to explain anything to him. He works for weeks, learning nothing more than how to fix down wires with screw clamps. To the college student, the whole board is a magnificent illustration of the things he has been studying in the last three years—circuit-breakers, meters of various kinds, time-limit relays, methods of connection and interconnection—some of which he understands, and the whole of which he can learn to understand before he passes on to another job. The schoolboy does not know enough to begin to learn in an electrical works, and is not trusted with important testing work, the carrying out of which is absolutely essential for the training of an electrical engineer. If, however, he is leaving school at Christmas he may well spend nine months in works before he

enters upon his college course in the following October. The rate of learning in works is very slow to a student who has not had a previous college training, but the works discipline is good. To begin work every morning at 7 o'clock and put in forty-four hours a week under the control of a foreman, is an experience which marks well the transition from the schoolboy to the engineer. Moreover, it is good for the boy to see dozens of machines and processes which are as yet unexplained to him; he comes to the university course with a thousand questions to ask, and a mind much more receptive than that of a boy fresh from school. Any preliminary glimpse of this kind into works before going to college must not, however, be taken in lieu of a proper works apprenticeship, which is usually served after the college training.

The First Year's Work. In the first year at college, the training in general science which has been begun at school should be continued. Mathematics is specially important, and should be taught with constant reference to its application in engineering. Students are much more likely to take a keen interest in mathematics if they see how it serves to solve useful problems, the solution of which would otherwise be impossible for them. In this connection, the introduction of models and apparatus into the mathematical classroom is to be commended. The importance of the study of heat and light is sufficiently obvious to the student to make these subjects of interest to him. The importance of chemistry sometimes has to be specially emphasized, in order that the student may understand how the engineering trades are dependent upon the chemist, and how the trend of electrical discovery at the present day is closely associated with chemical matters.

The first year's work includes courses in mechanics, engineering drawing, and the use of tools. It is also a good plan to give first-year men a broad view of the work done by the mechanical, civil, electrical, and sanitary engineer. For this purpose, a general course of descriptive lectures on these matters should run through the whole of the first year.

The Second Year's Work. In the second-year course, the work of the electrical engineer becomes more specialized. The teaching of electricity, which was begun in connection with physics in the first year, is extended, and deals with electrical instruments, electric light and power, the elementary theory of the dynamo and of alternating currents. The function of the lecturer in these subjects should be to direct the attention of the student to those text-books and supplementary technical articles which deal with the subjects in hand; to summarize and place proper emphasis on certain parts; and, by displaying a keen interest himself, to inspire enthusiasm in the students. The lectures should be of an experimental character, so as to enable the student to visualize the actual processes under discussion.

The mathematics in the second year includes the differential calculus, and numerous practical applications of this powerful instrument should be worked out. As every electrical engineer is expected to be also a mechanical engineer, the study of the properties of materials, the theory of structures, the theory of machines and heat engines, will form an important part of the work. A great part of the time of the student must necessarily be spent in the laboratories, in which he becomes personally acquainted with the laws controlling the physical quantities with which an engineer is concerned. It should be remembered that only a small fraction of the electrical engineering students will become designers of electrical machinery; the greater number of them will probably take posts in connection with the erection of apparatus, the control of works departments, technical correspondence, and commercial work. The study, therefore, of such matters as economics, the law of contracts, and works management should not be neglected.

Final Stages of the Training. The arrangement of the student's work in the latter years of the course depends upon whether he is giving three or four years to his college training. At present, most of our universities have a three-years' course in electrical engineering. This allows for about 3,600 hours spent in lecture-rooms and laboratories. A student may very well have his 3,600 hours apportioned as indicated in Table I. In this table the subjects have been grouped in convenient

TABLE I.

Number of hours given to various subjects.

Subject.	No. of Hours in 3-years' Course.
Electrical Laboratories	570
Mathematics	500
Mechanical Engineering Lectures	400
Engineering Drawing	320
Electrical Engineering Lectures	280
Mechanical Laboratories	270
Applied Physics	240
German	240
Electrical Tutorial	200
Engineering Workshop	200
Electrical Design	180
Chemistry	200
Total	3600

classes; for instance, the class "Mechanical Engineering" lectures covers lectures in all subjects relating to mechanical engineering, steam, and hydraulics. The hours given in the table do not include the time devoted to the subjects at home; but, even making allowance for this, it will be seen that the total time allowed for the acquisition of the extensive subjects is all too short. Consider, for instance, mathematics: we can hardly expect that a student coming from school with a smattering of algebra and trigonometry can, in a course of 500 lecture hours, and, say, another 500 home-work hours, acquire sufficient mathematics to make him a good engineer. The time given to engineering drawing and design is altogether too short; and, in fact, the same may be said of all the times given in the table. At the best, we have a compromise, which everyone admits is unsatisfactory. If we could only add on another year, say, of 1,200 hours, plus homework time, we should be able to add some sort of finish to the teaching of the subjects, and the additional practice in working out the examples would fix the knowledge acquired during the course very much more firmly in the student's mind.

The manner in which these extra 1,200 hours would be apportioned between the various subjects would depend greatly upon the student's natural bent. It is useless to give a great deal of mathematical training to students who you know will never use it, and who are perhaps better cut out for the commercial side of engineering than for the technical side. For an electrical student who has the true engineering faculty, and who can profit by mathematics, one might apportion the 1,200 hours as follows—

TABLE II.

Subject.	Hours.
Mathematics	400
Electrical Tutorial	200
Electrical Laboratory Research	200
Drawing and Design	200
Commercial Engineering	120
Processes of Manufacture and Cost	80
Total	1200

We should thus be able to double the time given to mathematical subjects. The greater part of the extra hours given to this subject should be spent in applying mathematics to the solution of physical problems.

Those students, on the other hand, who wish to take up the commercial side of engineering should attend special classes upon the uses of electrical machinery, the preparation of schemes, correspondence with users, costing, the law of contract, and economics. Most of the German technical universities give facilities for engineering students to acquire considerable knowledge of these subjects.

Training in Foreign Countries. We give in Table III, for comparison with Table I, a list of the number of hours appropriated to various subjects in the four-years' course for electrical engineers at one of the German *Technische Hochschulen.*

TABLE III.

ELECTRICAL ENGINEERING COURSE AT A GERMAN TECHNISCHE HOCHSCHULE.

Number of hours given to various subjects.

Subject.	Total Hours in 4-years Course.
Electrical Laboratories	842
Higher Mathematics	790
Mechanical Engineering Lectures	1140
Mechanical Laboratories	842
Engineering Drawing	634
Electrical Lectures	584
Electrical Design	248
Experimental Physics	248
Chemistry	72
Political Economy	186
Banking and Stockbroking	62
Commercial Engineering	31
Finance	26
Total	5705

In the United States there is a four-years' course in engineering at all the principal technical schools and universities. As a rule, the lectures begin at 8 o'clock each morning and end at 6 o'clock in the evening. A student of Worcester Technical Institute is expected to put in 55 hours a week, but for this purpose a lecture hour is supposed to carry with it two hours for preparation and writing out of notes, so that one hour's lecture on the time-table is counted as three in computing the fifty-five. The students, being at the school from 8 a.m. to 6 p.m., find several blank hours during the day for doing the work expected in the two hours' preparation. We must remember that for the most part it is only while the student is at school and college that he has the opportunity of learning the principles and analytical methods which will afterwards enable him to make new discoveries in engineering. The more highly-trained men we turn out, the more rapid will be engineering progress. After a student leaves college and enters on practical work, he is very apt to let his power of applying mathematics and of solving the more difficult problems fall into disuse, unless he has already acquired considerable facility in it.

Post-graduate Work. It would be well if every student, after obtaining his degree in engineering, could give one year to research work. In this work he is thrown more completely upon his own resources than in the ordinary college curriculum; and even though he is able to specialize on only one small branch of research, the quest for knowledge along an obscure road and the developing of new methods of attack will serve him well afterwards in other lines of work.

After leaving college, the young engineer will generally take up an apprenticeship course in an engineering works. There is at present in this country a great demand for college-trained apprentices; several of the big electrical manufacturers are willing to pay students at a higher rate if they have distinguished themselves at college. M. W.

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ELECTRICITY, THE TEACHING OF.—(See MAGNETISM AND ELECTRICITY, HOW TO TEACH.)

ELEMENTARY SCHOOL BUILDINGS.—(See BUILDINGS, SCHOOL.)

ELEMENTARY SCHOOLS, TEACHERS IN.—(See TEACHERS IN ELEMENTARY SCHOOLS.)

ELIOT, JOHN (1604–1690).—The Apostle of the Indians of New England, born near Waltham, in Essex, and educated at Jesus College, Cambridge, where he excelled in the study of languages. He taught as usher in a school at Little Baddow, near Chelmsford. He emigrated to New England in 1631, and became pastor of the church at Roxburgh. He held this post for fifty-seven years till his death in 1690. Eliot devoted himself to the conversion of the Indians of Massachusetts. He often went to reside with the natives, helping them materially (in improving their physical conditions) and spiritually. "He partook of their hard fare, and was exposed to the attacks of the beasts of the forests, and to the spears and arrows of the Indians, who were fiercer than wolves and more terrible in their howling." He got a young Indian,

a prisoner, to help him to learn the language. He had to teach his teachers, and to bring into rules a language still unwritten, without any relation to any hitherto known language. In two years he preached to the Indians in their own language, and without interpreter. In England, the Hon. Robert Boyle and others instituted a Society for the propagation of the Gospel in New England.

Eliot built an Indian village, with church and schoolhouse, in which a room was reserved for himself called "the prophet's chamber." In 1653, he published an *Indian Catechism*. In 1669, *The Indian Primer;* and in 1672, *The Logick Primer*: *Some Logical Notions to Initiate the Indians in the Knowledge of the Rule of Reason;* etc. Eliot completed the translation of the Bible into Indian in 1663. These "Indian" translations are all in the Mohican dialect. F. W.

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ELIXIR OF LIFE, THE.—(See CHEMISTRY, HISTORICAL DEVELOPMENT OF.)

ELIZABETH COLLEGE, GUERNSEY.—Was founded in 1563, and the present building was erected in 1826. It is managed by a Board of Directors, under the chairmanship of the Dean of Guernsey, and the staff are chiefly Oxford and Cambridge graduates. The College has two divisions: the Lower School preparatory to the Upper School, which prepares boys for the universities, learned professions, Civil Service, and Army. There is an Officers' Training Corps attached to the Engineers of the Guernsey Militia. Fees for day boys range from £8 to £14 per annum; for boarders, from £70 to £75 per annum. The school is well provided with scholarships, exhibitions, and prizes, and the number of pupils is about 140. (See also GUERNSEY, EDUCATIONAL SYSTEM OF.)

ELIZABETHAN SCHOOLS.—England in the days immediately preceding the Reformation had certain possibilities of educational development that are often overlooked, but must be taken into account if we are to understand the position of national education in the age of Elizabeth. The people were very independent and (despite the contempt for the priesthood) very religious, with a notable mystic literature; they were artistic, and devoted art to the organized purposes of trades, with a complete system of apprenticeship; they were very musical and loved the drama. English had already established itself as a great literary tongue. The ancient universities were still intact, despite a century of evil things; the educational tradition handed down from the days of the Roman occupation still survived in the depleted grammar schools; and little elementary schools for all classes (other than the nobility), free and unfree, and of both sexes over the age of five years, had maintained and enlarged their ancient scope despite all national troubles. The revival of the universities at the end of the fifteenth century at the hands of the Lollards made a general revival of education certain. At the opening of the next century, the study of Greek at the universities was revived, with amazing vigour, and new educational life thrilled through the country.

The Effect of the Abolition of the Monasteries. The abolition of the monasteries caused the destruction of perhaps 300 grammar schools, but the cleansing of national religion was necessary; and it has to be remembered that these schools as then constituted were not effective. If they were replaced by better schools, the loss would be more than made up; but it would be idle to underrate the loss, and especially the loss to the intermediate education of women in the convent schools. The lost schools for boys were more than replaced, but the intermediate training for girls (which admittedly could not go on in the pre-Reformation form) was not revived until our time. King Henry VIII was no enemy to learning. Fuller tells us that he had "too much scholarship to rob scholars," and we know (from Holinshed's Chronicles) that he repelled with indignation the proposal to dissolve the university colleges. His legislation of 1529 (21 Hen. VIII. c. 13) and 1536 (28 Hen. VIII. c 13) for the stimulation of university life confirm William Harrison's statement of 1586 in Holinshed. The second Act founded in each university a royal lecturer. The bishops were also stimulating university life; by Injunction of 1536, they directed each beneficed clerk in England worth £100 a year to find and maintain a scholar at the university (*Fox*, Vol. II, p. 389): this, of course, directly stimulated the grammar schools throughout the country. The elementary schools in 1545 were given new life by the circulation of the Royal Primer, with the injunction: "For the diversity of primer books . . . every schoolmaster in bringing up of young beginners in learning, next after their A B C now by us also set forth, do teach this primer or book of ordinary prayers unto them in English." Thus the three grades of direct education were set on a new footing, and, in addition to this, by an Act of 1535 (27 Hen. VIII. c. 25, s. 6), the whole question of apprenticeship was put on a new footing by the provision that beggar children (the fruit of the economic changes following the dissolution of the monasteries and the changes in agriculture), over 5 years of age and under 13, be given over to masters of husbandry or other crafts, "to be taught . . . by which they shall get their livings when they be come to age." This extraordinarily important Act was later supplemented by the statute of apprentices of 1562 (5 Eliz. c. 4), which, however, exempted from compulsory service "a student or scoler in any of the universities, or in any school," thus preventing any clashing between the then highly organized educational and apprenticeship systems.

The Reigns of Edward VI and Mary. Despite the throw-back in elementary education caused by the suppression of the chantries in 1547, the reign of Edward VI was one of great educational activities. The very Act that suppressed the chantries provided for the erection of grammar schools; and under the 8th section of the Act (1 Edw. VI. c. 14), a number of the old schools were revived as King Edward VI grammar schools. In 1548 the famous Sir Thomas Smith carried through the Commons a Bill "for making of schools and giving lands thereto," which, however, never reached the Lords. The King directed the use of the primer in all schools, and enforced the general use of Lyly's *Grammar*, which, about 1540, his father had imposed by Royal Proclamation. The idea of State-supported compulsory education, indeed, was in the air. In 1548 it was advocated by William

Forest in his poem, *The Pleasant Poesie of Princely Practise* (see Starkey's *Life and Letters*, E.E.T.S., p. xcii and 187); and Cardinal Pole boldly supported the same course, the abbeys to be used for the purpose (*ibid.*, p. xcii). Queen Mary, moreover, introduced by statute (1 Mar., stat. iii. c. 9), machinery for the better government of the revived grammar schools, and re-introduced the universal practice of the episcopal licensing of teachers. In Elizabeth's reign this became a rigorous practice; while every diocese, as the Visitation Articles show, thoroughly inspected the elementary schools. This fact helps to explain the rapid flow of scholars into the grammar schools and thence to the universities, which became so notable a feature of the Elizabethan age.

The Work of Elizabeth. Elizabeth found the basis of a great national system of education well laid, and she boldly raised the superstructure. She re-imposed Lyly's *Grammar* by injunction in 1559; she made schoolmasters as free from burdens as possible: thus, in 1558, she relieved the universities and all schools from tithes (1 Eliz. c. 4); all schoolmasters from taxes and special subsidies, though they had to take the Oath of Supremacy (5 Eliz. c. 1, s. 4); and the universities and grammar schools from all subsidies (1 Eliz. c. 4, s. 20).

Visitation Articles provided for the control of grammar schools in matters of religion, organization, and curriculum. Archbishop Parker's Articles of Visitation (IV) of 1567 show us a thorough scheme of inspection. The preparatory school system rapidly developed, the endowment of elementary schools started, the local authorities began to stir in educational matters, and even sent promising scholars to the universities. But the grammar schools and the universities still needed special attention. In 1563 Thomas Williams, the Speaker of the House of Commons, declared that "a hundred schools exist in England, which before this time have been"; but, in 1581, Mulcaster could write that, during the reign, "there hath been more schools erected than all the rest be that were before her time in the whole Realme" (*The Positions*, p. 327). In fact, in Elizabeth's reign, at least 108 grammar schools were founded and 27 were additionally endowed, while 40 non-classical schools were founded and 7 additionally endowed, making a grand total of 182 schools that have survived to our time. In 1571 the universities were incorporated by statute (13 Eliz. c. 29), in 1584 the finances of the university colleges were placed on a new basis by statute (18 Eliz. c. 6), in 1576 the abuses of the election of university scholars were thereby corrected (31 Eliz. c. 6), while in 1597 (39 Eliz. c. 6) commissioners for charitable uses were appointed with power to make schemes for existing schools. Indeed, everything possible was done to knit up the grades of education, to purify the administration of educational trusts, and to secure the best teaching of the best curricula. In fact, educational ideals worked downwards from the universities; while the combined effort of Church and State secured admirable administration (in the teeth of much opposition) of the new secondary system of schools—a system that linked up the entire population of England with the universities. The success of the system was marvellous. In 1612 there were 2,920 students at Oxford. (Gutch: *Collectanea Curiosa* I. pp. 196–203). If the population of the country was 5,000,000, if there were 5,000 students at Oxford and Cambridge, and 20,000 boys at the 200 or more efficient grammar schools (probably an understatement), it would follow that 1 in 500 of the entire male population of all ages had a university training, and that 25 per cent. of the grammar school boys passed to the university. It is known that boys from all classes attended the universities, and the breath of university life inspired the whole nation. That is the ideal at which every educational system should aim. J. E. G. DE M.

ELLIS, WILLIAM.—The work of Ellis for education cannot be understood and appreciated unless it is borne in mind that it was the occupation to which he devoted such leisure as came to him in the course of an unusually strenuous and conspicuously successful business career, beginning in 1813 when he was 13 years old, and, from 1824 to 1878, in a position of responsibility which would have proved all engrossing to the majority of men. In 1820 he made the acquaintance of James Mill and Jeremy Bentham, and, from 1820 to 1824, was one of a circle of men meeting for mutual study, and deriving their inspiration from these two men. Among those in the circle were John Stuart Mill, John Romilly, George Grote, and others worthy to be named with them. It is not difficult to understand that, from his association with these men, his natural bent towards public service was strengthened; the mental equipment of a brief school education wondrously augmented; and the seed sown in his mind from which sprang subsequently his determination to make education, especially in social science, the object of his voluntary labours. From 1824 to 1846 he was engaged in further study and in gaining skill in the exposition of his opinions by writing for the *Westminster Review* and other publications. From 1846 to the close of his life in 1881, he is seen giving prodigally to education time, thought, labour, money. The mind is bewildered in going through the record of his labours during these years as writer, teacher, supporter of schools already in existence; originator of numerous new ones generally in buildings adapted for school work and to some extent carried on at his expense; and, finally, founder of schools in buildings specially erected with much care and thought given to their fitness, and assisted by annual subsidies from his purse.

His Method. No disregard was shown by him for the ordinary subjects of school instruction, but conduct teaching in some form or another was his special care. From the prospectus of one school for which he built premises, the following is taken: "The children will also be instructed in the moral conditions of human well-being." From that of another: "The moral training is based on the principle that the moral feelings, like the physical and intellectual powers, can only be strengthened by actual exercise; that the mere teaching of moral precepts is not sufficient, since they are but intellectual truths for the guidance of the feelings and their acquisition an intellectual operation; they must be carried into practice." There survives, unfortunately, no record made by the head or assistant teachers of these schools of the methods adopted by them in their all important practical work for the benefit of their pupils, in some schools a thousand upwards. The planning and giving of lessons is a customary duty of all teachers, one they know how to deal with, and also how much with every favouring circumstance can be expected from it.

The desire also to influence for good the conduct of pupils both during and after school life is ever present with all teachers. What the writer, with exceptional opportunities for gaining information, has not been able to ascertain is in what ways the methods adopted for influencing conduct in these successful schools, apart from the special lessons given in them, differed from those commonly employed. Text-books on Social Science or Social Economy by writers who worked in some capacity for these schools, when examined, are found inspired by Ellis, and not differing materially from those written by him; so that it is upon his writings that reliance must be placed for knowledge of the work done in his schools. In 1850 Ellis wrote, for the use of his teachers, a little book of 125 pages, entitled *Progressive Lessons on Social Science* (3rd edit., 1889), with a preface of 28 pages and outlines of 100 lessons, together with questions for the use of the teacher in bringing them home to the understanding of pupils. The preface does not deal with the inner working of the schools, nor the mode of making the instruction more than an appeal to the intellect, although it states the object of it to be "to inform the pupil how he ought to conduct himself, to bring him to be careful to inquire and learn when he does not know how, and to dispose him to act up to what he has learned and knows to be right." The Lessons or Propositions may be classed as Economics or Ethics, or both, and the following will serve as illustrations of them—

"Division of labour paves the way for proficiency in knowledge and skill, and hence for the increasing productiveness of industry. . . . To be useful to others is an obligation imposed upon those who adopt division of labour as a means of increasing the quantity and improving the quality of wealth. . . . The principal causes of destitution are removable. . . . Destitution unrelieved is intolerable to a humane people. Where it has not been prevented, it must be relieved. . . . As every individual is partially dependent for his happiness upon the prosperity and good conduct of his countrymen, so every community is partially dependent for its well-being upon the prosperity and good conduct of other communities. . . . To educate—that is, to train in habits of industry, economy, and forethought; to impart knowledge, and to inspire longings for improvement and excellence—is the true way to improve the happiness of a people. . . . The test by which the goodness or badness of conduct is to be tried is its tendency to produce consequences favourable or unfavourable to general well being."

Here there is much more to set a boy thinking and acting in the right direction than is found in the ordinary run of school work. No books were in the hands of the pupils during these lessons: indeed, books of all kinds were conspicuously absent from Ellis's schools, while slate boards were supplied to them in prodigal profusion. Ellis, the man of business, naturally desired that education should be as much as possible self-supporting, and he entertained the belief that parents, out of gratitude for the benefits their children received, would be willing to pay fees which would make the schools independent of outside help. The coming of State- and rate-supported education put an end to any hope of this being generally realized, and one by one the schools of his foundation passed away. One, however, which bears his name was more fortunate than the rest in being provided with an endowment from funds carefully got together and skilfully husbanded by his trustees, who have continued their work with full and confident faith in the value of Ellis's labours. As a secondary school, it entered a field where there was room and need for it. It has surmounted many serious difficulties, has for some years been full, and holds a recognized place among the public secondary day schools of London. In the premises in which it is carried on, the teaching advocated by Ellis has now been given continuously for half a century. In its secondary form, an effort has been made to correlate the lessons with as many as possible of the other subjects; to utilize in giving the lessons the study and research that has been devoted to social science all the world over of late years; and to make the spirit of the teaching live in the work, play, and social activities of the school. E. B. C.

ELOCUTION.—To determine the best method of teaching elocution, the desired result of that teaching must be clearly kept in mind. Elocution is the manner or style of oral delivery; the qualities constituting good elocution are carrying power, ease in production, and pleasing quality of voice, good pronunciation, and appropriate expression. Carrying power, ease, and pleasing tone are the result of good production. Good pronunciation obviously ensures distinctness of utterance. There is a method by which good production and good pronunciation can be taught together.

The production of the voice is determined by the position of the organs of speech while the vocal chords are vibrating, and pronunciation depends on the shapes assumed by the organs of speech. If voice production and pronunciation are to be properly taught, there must be a systematic study of the nature and movements of the organs of speech; in other words, the science of phonetics must be used to attain the art of good elocution.

Phonetics and Elocution. Phonetics does not mean merely the use of an alphabet in which the same letter is always used for the same sound. A teacher of elocution must have a thorough knowledge of the formation of the various sounds which constitute speech, in order to teach quickly a good production of the voice—the first step in elocution. A bad production is the result of ill-controlled breathing combined with faulty mouth-positions. The mouth being held in a position which will not produce the desired sound, compensation for the defect is obtained by distorting some other organ of speech, with results unpleasant to both speaker and audience. Years of experiment and practice by competent phoneticians have resulted in a knowledge of suitable mouth positions without strain on any organ of speech. The value of phonetics in producing pleasing and accurate vowel sounds is particularly great when the pupil is not blessed with a good ear, for, with the help of a mirror, the eye of the learner can do much to correct imperfections of sound undetected by the ear.

Training a voice on phonetic principles prevents one unfortunate result of teaching by the merely imitative method: the necessity, at the beginning of instruction, of the pupil's copying slavishly the teacher's voice. Phonetic training produces the pupil's own voice from the first. A pupil learning to produce his voice in this manner, obtains, at the same time, a knowledge of the varied vowel system of the English language. The written form

of a word is obstinately persistent in the mind, to the detriment of the sound of the spoken word. In English, this is particularly noticeable because of our romantic spelling. Phonetic training is essential for that thorough understanding of the sounds of the language which is necessary for perfect oral delivery. The best classification of the vowels is by the positions of the mouth used in forming the sounds; this classification is eminently helpful in producing the appreciation of the sounds and their relations to each other, which is indispensable for good elocution.

The teacher should keep his study of phonetics up to date, reading new works on the subject as they appear. This will prevent him from teaching pedantic and affected pronunciations, which are only too commonly met with. Often an otherwise good delivery is spoiled by ridiculous affectations, very plainly the result of the speaker attempting to improve his speech by undue attention to the written word, or after reference to antiquated dictionaries and elocution books.

In the endeavour to avoid pedantry, phoneticians have not escaped the charge of adopting a low standard of pronunciation, quite unsuitable for public speaking, and not desirable for private conversation. The teacher must present a high standard of pronunciation to his pupils; refined speech, devoid of absurd affectations, is perfectly possible. It may be added that the reciter or actor will find a knowledge of phonetics not only of great help in avoiding firmly established professional tricks—quite unlik eanything heard in real life—but also most useful in rendering dialect and what may be called *character* speech. The cure of many consonantal faults, such as lisping, lalling, and burring, can be effected by the teacher acquainted with phonetics.

Methods of Teaching. The teaching of elocution is so much concerned with eradicating personal faults and developing personal abilities, that individual instruction is much more satisfactory than class work. It has been urged by advocates of class teaching that when one pupil is being criticized, the rest of the class will learn from the criticism; but this presupposes an amount of attention and patience, combined with an eagerness to learn, by no means universal in classes. There is also a natural objection to criticism in the presence of others, and a not uncommon diffidence in putting forth one's best efforts in such circumstances. In the teaching of expression, the employment of many rules is to be deprecated, as tending to produce a wooden delivery. A few simple elementary rules are needed, such as the necessity for varying pace, pitch, and power. But the wonderful variety of English speech-melody leaves such scope for the elocutionist that it may not easily be bounded by rules. The pupil must, at first, learn the possibilities of expressive speech from the teacher; but, at the earliest opportunity, his individuality must be developed, and with it the power of self-criticism. The teacher of elocution is as much engaged in training the ear as the voice; and particularly must he teach the pupil to hear himself. In almost every profession in which the use of the voice plays an important part, there has been developed a conventional speech-melody inferior, in musical charm and expressive power, to the beautiful speech-melody of our language at its best. The phonetician studies speech-melody, and should be the one to teach it. It is not theory, nor freakish imagination, but the experience of years, that leads to the conviction that, in every way, elocution may best be taught on simple phonetic principles. (See also RHETORIC.)

B. P. MACD.

ELYOT, SIR THOMAS (? 1490–1546).—Belongs to the important class in the history of education of publicists who have become interested in the theory and practice of education. *The Boke named the Gouernour* was issued in London in 1531, the same year that Vives published his *de Disciplinis* at Antwerp, and interesting parallels occur between the two works. The connection between Elyot and Vives gathers additional interest from the fact that the two educationists may have met in England in the house of Sir Thomas More, where each was a welcome guest, in the period 1523–1528, the years of Vives' visits to England. Further, it may be said that Elyot's treatise is to the England of 1531 what Roger Ascham's *Schoolmaster* was to the England of 1570.

Biography. He probably was born in Wiltshire about 1490, and had an education in Greek and Latin in the home of his father, Richard Elyot, a serjeant-at-law and justice of assize; and from the twelfth year of his age had only home-instruction. Elyot states that before he was 20 years of age, a physician (probably Linacre) read with him such works as Galen, Hippocrates, etc., inclining Elyot to both Greek and medicine. But his profession was the law; and, in 1511, Elyot accompanied his father, the Judge on the Western Circuit, as his Clerk of Assize. About 1522, Elyot came into the possession of his father's estate; in 1523 he was appointed Clerk of the Council by Wolsey, but was discharged from it in 1530. In 1528, Elyot purchased the wardship of Erasmus Pym, an infant, who lived to become father of "the famous John Pym." In the autumn of 1531, he became ambassador for Henry VIII to Charles V, an office which he was obliged to resign (*c.* 1532–1533) on financial grounds. He was M.P. for Cambridge, and more than once Sheriff of Cambridgeshire. He married Margaret Abarrow, of N. Charford, near Salisbury, who, like her husband, was a "student" in the "school" (*i.e.* home) of Sir Thomas More. Elyot died in 1546. Elyot's chief educational work, besides the *Gouernour*, was the large *Dictionarie* of Latin-English in 1538; afterwards re-edited, about 1550, by Thomas Cooper, Bishop of Lincoln, under the title of *Bibliotheca Eliotae;* and, finally, published as *Thesaurus Linguae Romanae et Britannicae* in 1565. The prefaces to Elyot's various books contain valuable references for the history of education of the times. For instance, Elyot gives a sketch in the Latin Dictionary of previous continental Latin vocabularies and materials for dictionaries.

The "Gouernour," as its title denotes, is primarily a treatise on political philosophy, which is concerned, at points, with educational implications. Elyot was indebted to Franceses Patrizi, *de Regno et Regis Institutione* (Paris, 1518); Erasmus, *Institutio principis Christiani* (Basle, 1516); and J. J. Pontanus, *de Principe* (1513). On the other hand, Elyot seems directly to have influenced John Sturm, Walsingham, and Sir Walter Raleigh.

As his Dictionary was the first dictionary of Latin compiled by an Englishman, so, too, Elyot was the first Englishman to use the vernacular for a work on political and educational philosophy.

The Gouernour, therefore, occupies an important place in the study of the development of the English language and literature. Naturally, the Governor, *i.e.* the governing class, must be educated in the very best way, in view of the responsibility of the future task. Hence, Elyot gives his opinions as to the highest and noblest form of education. Beginning with the idea of what a republic signifies, he settles in favour of one sovereign governor, and "inferior" governors or magistrates. His educational problem then becomes the determination of the education, or form of bringing up of the child of the gentleman "who is to have authority in the public weal." He first describes the order of learning of the child up to 7 years of age. He insists on the necessity of great care in the education of the young, and would exclude all men except physicians from the nursery, and appoint only approved women-nurses and teachers, though, at seven, a man should be chosen as tutor for boys, and his first duty is "to know the nature of his pupil" and to act accordingly. Study of literature should begin at 7 years, and it should be no reproach to a nobleman to teach his own children. The Greeks and Romans could begin later, because knowledge was for them embodied in their mother-tongues. Latin and Greek have to be learned as foreign tongues. The process of study should be pleasant. Grammar should be of the simplest. Latin should be taught by the direct method, by teaching "the names in Latin of all things that come in sight, and to name all the parts of the body," etc.—exactly what Comenius (*q.v.*) included in his *Orbis pictus*, a hundred years later. Elyot is a realist long before Bacon and Comenius. He says: "I dare affirm a man shall more profit in one week, by figures and charts . . . than he shall by the only reading or learning the rules [in geometry, astronomy, and cosmography] in half-a-year." Music is a good servant, but a bad master. Drawing and carving should be practised for their disciplinary effort as well as for their usefulness. Education should be liberal. Latin is to be the pupil's familiar language. It can be learned as effectively as French, if the child be "not detained too long in tedious grammars." By 12, the child is to read in classics, Aesop, Lucian, Aristophanes, Homer, Virgil, Ovid, Silius, Lucanus, Hesiod, Strabo—*i.e.* as much of them as is suited to the child's capacity, to inflame his courage and to condemn folly. Then follow Logic, Rhetoric, Cosmography. History is taught from the text of Roman historians. At 17, moral philosophy is begun with the reading of Aristotle's *Ethics* and Cicero's *de Officiis;* but, above all, is Plato to be read. Elyot adds the didactic and historical books of the Bible. Lastly, Elyot emphasizes physical training. He particularly advocates wrestling, running, swimming, exercise of battle-axe, riding, hunting, dancing, and shooting. He thus precedes Mulcaster in his advocacy of physical education by fifty years. F. W.

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ELZEVIRS, THE.—For three generations (1592–1680), members of this Dutch family were famous as printers and booksellers. Louis Elzevir came to Leyden from Louvain in 1583, and, in 1592, after having become printer to the University, he published an edition of Eutropius, the first book known to bear his mark. He had six sons, many of whom took their father's lead, setting up as printers and booksellers at Utrecht, The Hague, and Amsterdam, but keeping up at the same time a connection with the University of Leyden. Ten of the descendants of Louis were at one time or another closely connected with the business, and three were especially prominent: Bonaventura, the youngest son of the founder; another Louis, the grandson of the first; and Daniel, after whose death in 1680 the firm declined. In the course of nearly a century, over 1,600 books were published, most of them in Latin, many in French, a few in Greek, Flemish, German, and Italian; and twenty-nine in Oriental languages. A complete catalogue will be found in *Essai Bibliographique sur les éditions des Elzevirs, précédé d'une notice sur les imprimeurs célèbres* (Paris, 1822).

The books which they produced are valued for the elegance and beauty of the type and the choice quality of the paper rather than as critical editions of the text. As they were smaller than was usual at the time when an author's importance might often be judged from the size of his volume, the price was comparatively low. This helps to account both for the large numbers that were sold and the distances which books were carried to take advantage of fairs and markets. Many collectors consider the editions of Virgil, Terence, and the Greek Testament to be masterpieces, but any volume bearing the Elzevir mark is highly valued. Early productions of the firm frequently bear the device of an eagle grasping seven darts. Another device sometimes found on the title-pages is a burning wood fire, which suggests the name (Dutch *else* = an elm, and *vuur* = fire). The common imprints are *Apud Elzeviros* and *Ex officina Elzeviriana.*

Although the Elzevirs were always careful that their enterprises should be profitable, and perhaps never published out of sheer enthusiasm for learning, they yet were instrumental in promoting the higher education of the community. A beautiful book is an attraction in itself, and, besides adding to the pleasure of those who would have read in any case, probably induced some to read who would have avoided the heavy and clumsily-printed tomes common in the libraries of that day. Just at a time when people were calling out for books cheap enough for a moderate purse, the Elzevirs supplied the need, obtaining a profit satisfactory to themselves and also promoting the cause of education by popularizing good literature.

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EMANUEL SCHOOL, WANDSWORTH.—(See WESTMINSTER, THE EDUCATIONAL CHARITIES OF.)

EMBLEMS IN EDUCATION.—The use of emblems may probably be derived from the hieroglyphics of the Egyptians, who, in writing the language of nature, rather than art, used an alphabet of things and not of letters or words. Instead of the word "horse," they made use of a

figure of a horse, and their manner of writing led to the invention of stories which tradition passed on to later ages as truths. European races in the Middle Ages became fond of emblematical devices: every knight of chivalry was distinguished by an emblem indicative of constancy, loyalty, truth, or other knightly virtue, and accompanied by a motto, without which, says Camden, the device was only a "dead, lifeless image." Emblems may be classed as Historical, Natural, and Moral, of which the last are the most important, because emblems have always been largely used by preachers, teachers, moralists, poets, and writers of all nations to illustrate undeniable truths, and to enforce moral lessons and even religion itself. Used with proper caution, they have served valuable purposes, and still do so; but have often been a source of error by settling impressions on young minds which maturer judgment does not warrant, or is compelled to correct.

Francis Quarles (1586) wrote a long description of emblems in common use, with explanations of their mottoes; and the celebrated French engraver, Nicholas Verien (1696), published wood-cuts of over a thousand of the best known examples.

EMBROIDERY, HOW TO TEACH.—Embroidery is decoration added with a needle to a background of woven material. The desire to decorate garments or other domestic objects seems to be universal. Not only is it an aesthetic prompting alike in primitive and in highly civilized people, but it is an impulse common to all times and to all countries. Both in classical authors and in the Bible, we find constant references which prove the antiquity of the art of embroidery. In the graves of the Scythians and Greeks in the Crimea, and in the tombs of Egypt, a few actual specimens have been found which date back as far as from the fourth to the second century B.C. in the Crimea, and from the third century A.D. [though mainly occurring in the sixth and seventh centuries] in Egypt. Representations of embroidery are also to be found in ancient sculptures and wall-paintings. It is quite evident that it was an art that ranked high in public estimation. The history of embroidery is full of interest, and repays careful study.

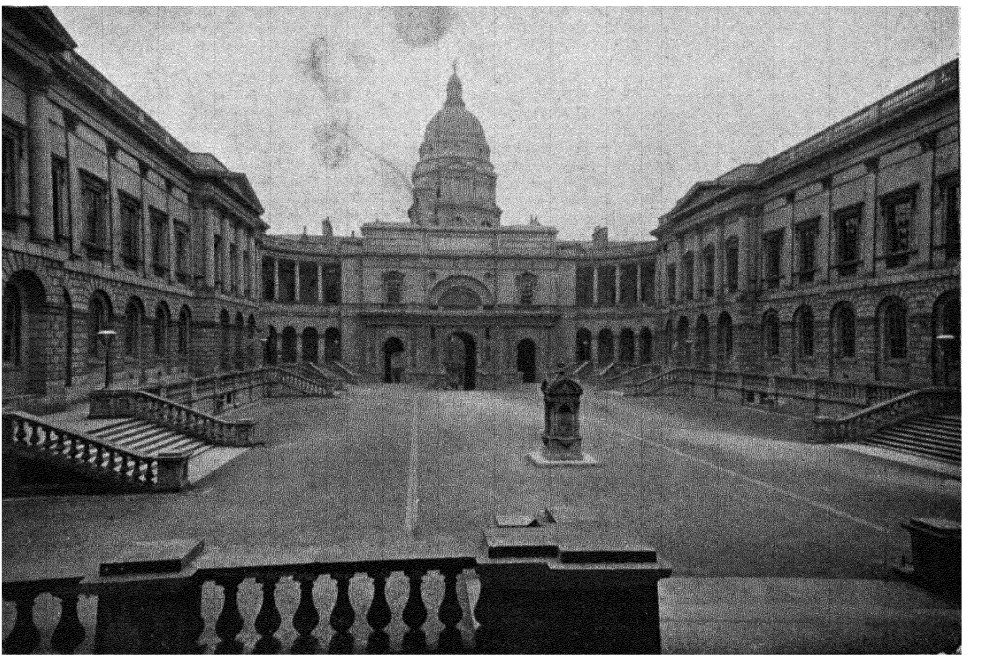
Constructive Sewing. Embroidery seems to have been evolved from necessary and purely constructive sewing. It appears first where the greatest strain and wear exist. It is interesting to trace this gradual evolution; and, if its course is borne in mind, much sounder decoration will result. To weave sufficient material on a primitive loom to make a length for a curtain or garment was a long and tedious occupation. Once woven, it was important, first, to use the precious material to the best possible advantage; and, secondly, to ensure for it the utmost durability. To do this, it would be found wise to strengthen those parts which were ordinarily subject to the greatest wear and strain. Experience would prove that raw edges tore easily; hence a strengthening "hem," which also added weight to the edge of the garment. Stitches placed in an orderly manner would add uniform strength and look better than those placed haphazard: so pattern, at first very simple—perhaps only a zigzag line—would be developed. To these necessary and orderly stitches, others would come to be added for their beauty and for the pleasure the worker had in using them. In these stitches, added in excess of those necessary for the purposes of utility, we see the beginnings of embroidery.

Primitive Garments. On primitive garments the portions first decorated were (1) the neck opening; (2) the front opening and its base; (3) the shoulder seams; (4) an under-arm band; (5) the bottom of the side seams; (6) all hems; and, in narrow materials, (7) the joins. It is useful to note that all the points selected for decoration are those where the addition will protect the garment from wearing. In peasant garments, the joins are usually accepted by the worker as an opportunity for the introduction of colour and special stitches, and so add greatly to the beauty of the whole. In some countries, decoration is often added to a garment as a mark denoting the rank, position, or occupation of the wearer. This is the case, for example, in Borneo, Japan, and China. Special patterns were used in England on the smocks, each trade having its own design, hearts being reserved for a milkmaid and wheels for a carter. Distinctive designs are still used on diplomatic, naval, and military uniforms. Bearing in mind this question of underlying utility, it will be seen that decoration applied either where it augments the use or appears for a specific reason, is always more in harmony than when it is applied indiscriminately. All applied decoration is best when on constructive lines.

Reasons for Teaching. So ancient and universal a handicraft must possess the power of awakening and developing certain qualities in its devotees, and be worth cultivation. It must possess some subtle attraction for it to have succeeded in appealing under very varied conditions to such innumerable types of womanhood. Neatness, accuracy, a sense of colour are qualities of use to a woman, whatever she may undertake in life. If nowhere else, they tell in her house, in her clothes, and in her garden. Embroidery trains these faculties. In embroidery, also, a worker learns through her own experiments, and certainly through her own mistakes; fortunately, they need not be costly. Her lessons can be learned without the waste of much valuable material; often it is only time that is spent. Embroidery requires a happy combination of thought and intelligence, added to manual dexterity. The thought makes it interesting, and the rhythm of its manual side can make it very soothing. In this age of nerves and anxiety, something which keeps a worker interested and at rest is by no means to be despised.

Place in the Curriculum. It is evident that, in respect to preliminary training, embroidery should occupy an important place in the scheme. It should be looked on as a centre from which various *ballons d'essai* can be sent up to test a pupil's capabilities and interests. See if she likes fine, accurate work, or bold, strong effects; find out if she shows an interest in white work or in brilliant contrasts of colour, balanced or restrained by a seeing eye; discover if she has the patience to overcome difficulties of technique and the nice adjustment of detail; or is interested in working out historical parallels by studying ancient specimens; and you will know something of her mentality and be able to make a shrewd guess as to her choice of a suitable vocation in later life.

Ultimate Value. Embroidery possesses the power of developing certain qualities not usually scheduled as embroidery. First, manual dexterity and neat fingers; then judgment in contrasting colours and textures, with a power of matching colours and an



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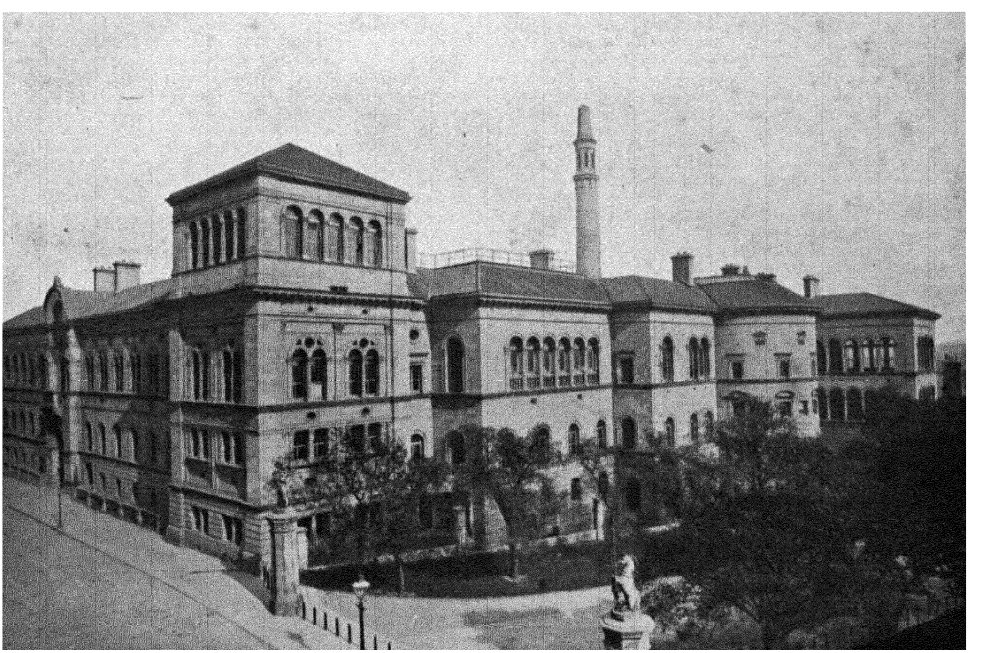
Edinburgh University, Old Quadrangle



Edinburgh University, New Buildings

PLATE XXXIV

appreciation of the value of detail; next, the dull but rather useful characteristics—patience, perseverance, neatness, and accuracy. These qualities often develop slowly and imperceptibly, but they will be found in most good and practised workers, for undoubtedly this craft does bring them into play. Give an expert embroideress and a non-embroideress some unknown craft upon which to experiment. It will be found that the technical knowledge of the former will help her considerably in the initial stages: her embroidery training has already demanded from her a certain adaptability, developed precision in her fingers, and given her sureness of handling. Such characteristics gained are invaluable in successful experimenting with unknown materials, and this craft-knowledge will have been secured with probably less expenditure than would have been required for most other crafts. Though in embroidery much depends on individual taste, still, certain laws or rules must be observed to ensure good or pleasing results. Moreover, it will be noticed that such rules have been followed, possibly instinctively and unconsciously, in all the finest and most beautiful examples.

Fundamental Principles. 1. The principles of construction and evolution should be observed, and the lines of the design be based on structural development or necessity. Do not design a round panel for a square frame.

2. The design and decoration must be suitable both in type and scale to the object decorated and to its use.

3. The materials must be suitable to the purpose for which the object is designed, and the right relation be maintained between the groundwork and the decoration. The background should not be richer in substance than the added decoration; linen, wool, or silk should be used on a linen ground, not linen on a satin ground.

4. In white or monochrome stitching, the balance of weight of texture and stitch must be considered; and the contrast between heavy and light areas, close and open work, be maintained.

5. In coloured work, the just balance and distribution of colour must be considered.

6. The limitations of the material must always be accepted and, by a good worker, can be made a source of beauty. The squareness of texture of linen, the varying dullness or brightness of thread or silk, are all valuable assets.

Granted that these fundamental principles are observed, individual taste should have free play. It is a matter entirely of personal inclination and temperament whether a worker selects fine or coarse work; white, monochrome, or colour; whether she prefers naturalistic or conventional designs, or uses geometrical or freehand stitches. So long as she adds a finished manual craftsmanship, her work will be beautiful, and will surely be a source of joy and pleasure both to herself and others.

The Teaching of Embroidery. So long as a teacher keeps certain main ideas clear in her mind, the question of method is best settled by her individually in relation to her pupils and their needs.

1. Whilst the *hand* is being trained to manual accuracy, the *mind* also must be trained to understand and recognize good work, and to realize by studying the work of others the reasons why they did what they did. Whilst making the pupils expert workers, they must also be made expert critics.

Sir Joshua Reynolds, in his lectures to students, says: "Study, therefore, the great works of the great masters for ever. Study as nearly as you can in the order, in the manner, and on the principles on which they studied. Study Nature attentively, but always with those masters in your company; consider them as models which you are to imitate, and at the same time as rivals with whom you are to contend." This is no less true of embroidery than it is of painting.

2. Remember that good craftsmanship combined with balance of colour, wisely employed upon good design, always gives a good and beautiful result.

3. Avoid always complexity of colour, idea, and design. Such complexity generally points to degeneration.

Teaching should at first be very simple and, if in a class, all pupils should follow the same course. In embroidery, collective teaching is decidedly helpful, if there is a general discussion over each point, difficulty, or stitch as it occurs. The knowledge of good craftsmanship, instead of being individual and isolated, becomes the possession of the whole class. The collective mind of the class overcomes difficulties as the individual cannot do. A few stitches should be learned on a *Sampler* and then applied to a small model. Fresh stitches are learned, and fresh difficulties overcome, on each successive model. The qualification "small" is used before model advisedly, because the pupil does not get weary of it, and can therefore be reasonably expected to maintain throughout a high standard of accurate craftsmanship. The models should be such that the pupil can duplicate them at home with her own variations. For the preliminary training, open hems and some of the rectangular stitches are undoubtedly most valuable, as they lay a foundation of accuracy never afterwards lost. Each teacher considers that she gets her best results by the particular sequence she herself has proved satisfactory. Possibly, the order does not matter; but the following should certainly be included early in the training: Open and square hem-stitched hems; open and weaving borders; eyelet holes; joins; back-stitch; geometrical satin stitch; arrowhead cross stitch; spaced cross stitch and run fringes; and diagonal and long-legged cross stitches. For outline and freehand stitches, amongst the first should come: Stem stitch; chain stitch; fishbone stitch; Oriental stitch; and coral or knotted outline. The work is best done at first in only one colour; then in two, using red and blue for choice; and then in three colours, red, blue, green. After that, use simple primitive colours: red and blue to balance; green for small leaves; brown for lines and stems; and all small details in biscuit, white, and yellow. These are all the colours that it is wise to use for a comparatively long period. Such a restriction is much needed until a pupil has learned an absolutely sure use of her elementary colours, and can balance them unfailingly. The aim of such teaching is simpler work and better craftsmanship, to which is added more of the individual's own thought and headwork. It is important to begin very early to make the work interesting and attractive. If up to the age of 14 or 15 the pupil has been taught to work on good models and to copy good specimens, gradually she can be left more freedom. Possibly a weekly meeting, where the teacher falls into the place of adviser, can take the place of a regular class; she becomes a referee to whom the pupil comes for advice in difficulties and for suggestions as to new work. Older girls and more advanced pupils should teach simple

stitches to less advanced members of a class. Some people may demur at the statement that teaching should be begun early. A country child's eyes mature at 8 years of age, a town child's eyes at 10; naturally, fine work must be delayed until the eyes have attained their full vision. Work, however, on a material on which stitches are easily seen cannot do harm. It is inevitable that a certain amount of time must be spent in gaining the purely manual dexterity; therefore, the lessons at first should be tolerably frequent in order to shorten this time of difficult drudgery. It is useful to vary the actual sewing by teaching, even in the early lessons, the making of tassels, cords, braids, and buttons. Let the pupils make something, using only two or three stitches, and then finish it off themselves in all its details. The foundations of embroidery should be taught in our schools, together with plain sewing and cutting out, for they are subjects that help each other considerably. Blake says: " Enthusiasm is the all in all," and an enthusiastic teacher can do what she will with her pupils. She must remember, however, that she must be learning herself, without pause, all the time. If she is not, she will find that the enthusiasm she has kindled in her pupils is carrying them ahead of her. Fortunately, even this gentle rivalry is good. There is room for all, as the field for the creation of beautiful things is inexhaustible. It therefore only remains for each teacher to see that she gives her pupils such training as will enable them to reach the front rank of workers, and for them to see that they add such interest and enthusiasm that they cannot fail to arrive there. L. F. P.

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EMERITUS PROFESSOR.—(See PROFESSOR.)

EMERSON, RALPH WALDO (1803–1882).—American moralist, lecturer, essayist, and poet; born in Boston, Massachusetts. Graduated at Harvard 1821; " approbated " as Unitarian preacher 1826; resigned from the Church, 1832; and from 1833 till his death lived in Concord, Massachusetts His principal works are: *Nature*, a pamphlet, 1836; *Essays* (First Series), 1841; *Essays* (Second Series), 1844; *Representative Men*, 1850; *English Traits*, 1856; *Conduct of Life*, 1860; *Society and Solitude*, 1870; *Letters and Social Aims*, 1870. Also several volumes of poetry and many minor papers. The influence of any great writer cannot be proved by documents: it is, at best, a matter of speculation. Emerson says—

" The prodigious growth and influence of the genius of Shakespeare, in the last one hundred and fifty years, is itself a fact of the first importance. It almost alone has called out the genius of the German nation into an activity which, spreading from the poetic into the scientific, religious, and philosophical domains, has made theirs now at last the paramount intellectual influence of the world, reacting with great energy on England and America. And thus, and not by mechanical diffusion, does an original genius work and spread himself."

It would be going too far to make Shakespeare responsible for all that has happened in Germany in recent years, or to see Emerson's influence in every impulse towards independent thought and hard intellectual work which America has shown since his inspiring voice was first heard in the land. Yet, if we read Emerson to-day, it is astonishing to find how accurately he pointed out the spiritual defects of his fellow-countrymen, and how fully he represented in himself the advent of a great counter-spirit, a column of force, drawing its power from the antique wells of human wisdom and, indeed, from the sky that lies above humanity. There is no individual in America to-day whose views and temperament have not been tinged with Emerson's thought.

His Message. Emerson represents what might be called the Religion of Conduct. His point of view and methods of illustration remained the same throughout his life, so that any bit of his writing gives the trend of his whole influence. His three earliest utterances may be taken as an adequate summary of his life-work. Sentences from *Nature* (1836) give the basis of his metaphysical conceptions; some from the *Divinity School Address* (1838) give a key to his religious feelings; and others from the *American Scholar* (1836) are examples of his ethical teaching. A digest of his whole thought may also be found in almost any one of his poems.

From *Nature*—

" . . . Philosophically considered, the universe is composed of Nature and the Soul. Strictly speaking, therefore, all that is separate from us, all which Philosophy distinguishes as the *Not Me*, that is, both nature and art, all other men and my own body, must be ranked as Nature. . . ."

" . . . Build therefore your own world. As fast as you conform your life to the pure idea in your mind, that will unfold its great proportions. . . ."

From the *Divinity School Address*—

" . . . The sublime is excited in me by the great stoical doctrine: Obey thyself. . . ."

" . . . It is the office of a true teacher to show us that God is, not was; that He speaketh, not spake. The true Christianity—a faith like Christ's in the infinitude of man—is lost."

From the *American Scholar*—

" . . . I had better never see a book than to be warped by its attraction clean out of my own orbit, and made a satellite instead of a system. . . ."

" . . . The true scholar grudges every opportunity of action passed by, as a loss of power. . . ."

Method and Influence. Emerson's habit in writing was to jot down many things, and, in publishing, to bring together the best of his thoughts, leaving them nearly in the form in which they first came to him. Thus the inspiration which was discontinuous in its origin became continuous in its delivery. The same fire is in all the parts. This is what gives his work its extraordinary stimulating power. A page of Emerson is not a sequence of arguments, but of explosions, each of which commemorates a thrill of sublimated passion—the desire to awake men's hearts, minds, and consciences to the truth which he feels, and to share with others the sense which he himself possessed of living in the focus of the power and glory of the Universe —of being a dynamo, a vessel of the Most High. His life, as he often tells us, ran by for months

without these moments of inspiration, and he knew long periods of deadness and misgiving which alternated with them. His duty lay in recording the glory when it came and in being patient between times. This unimaginable, imponderable, poetic spontaneity is what gives Emerson his place in literature. It cannot be analysed, but its effects upon the world and upon education in America can, to some extent, be traced. In America, every one is an educator. The need for teachers has been so great, that even men who know scarcely anything themselves are pressed into the service. This has been the case ever since Colonial times. A certain deterioration of the intellectual pursuits is incident to all colonization. The standards fall, the population multiplies. Every conscientious person feels an impulse to become some kind of missionary. The people themselves also clamour for teachers, and treat their teachers as prophets. Thus the reverence which, in Europe, is given to artists and scientific men follows the office of the teacher in America. Hence our new religions, our evangels, our enthusiasms. Teaching and being taught are the great spiritual needs of America—her great occupations and pre-occupations. If Nature had not found a way to develop these passions in us, we should have perished. Emerson, then, is the most powerful, most profound, and most brilliant exponent of our national passion for teaching. Seven of his ancestors were New England parsons. The intellectual life which surrounded his early years was doctrinal and ethical, like that of Scotland. Cut off as he was from the art, architecture, and music of the world, his genius broke the jail of current divinity, and found its wings in Neo-platonic mysticism and in the *belles lettres* of the world. This American prophet, whose interests were centred in conduct, found his vehicle of expressions in abstractions which had been the toys of cultivation. At first sight, it looks as if he had been able to make gunpowder out of cucumbers; but, on reflection, we perceive the Hebrew influence everywhere shining through his work. His power flows in two streams: first, in the work-a-day stimulation due to this familiar Hebraic force; and, second, the literary and *belle-lettrist* influence of his vehicle. There are even people who are confirmed in *dilettantism* through the reading of Emerson. For Emerson, after his own peculiar manner, is a literary artist, and we must not quarrel with Fate for having made him one; for this is the amber that preserves him. J. J. C.

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EMIGRATION.—(See POOR LAW CHILDREN, EDUCATION OF.)

"EMILE," THE.—(See ROUSSEAU AS AN EDUCATIONIST.)

EMOTION.—No mental phenomena are less understood than those of emotion. The unsophisticated person would speak of fear, horror, and anger as emotions, and recognize such phenomena as preliminary to action. A simple form of fear, he would say, impels to flight, just as anger often impels to combat. He would also recognize more complex forms of emotion, such as grief, joy, surprise, scorn, reverence, and many others. Analysis of a state of fear reveals (1) an awareness of the object of fear, (2) an impulse to flight, and (3) the emotion of fear, the whole accompanied by peculiar bodily feelings; caused by increased heart-beat, tingling of blood, impeded or vigorous respiration, and other well-known phenomena. It had always been thought that the emotion is the antecedent cause of these peculiar organic sensations. It has, however, been argued by William James and Professor Lange that the organic sensations do not *follow* the emotion, but *are* the emotion. Now, if the emotion is identical with the organic sensations, it follows, inversely, as Professor Stout points out, that all organic sensations must be emotions, or at least those types of organic sensations which produce a generally diffused nervous disturbance. No one, however, ventures to assert that the morning cold bath originates a true emotion. Moreover, when an emotion arises in connection with definite perceptions and ideas—as is the case where an object causes fear—there is *first* a disturbance of the central nervous system, having its mental correlate in what most people would call an emotion. The central disturbance gives rise to organic disturbances which doubtless are in their turn felt, and which augment the original emotion and help to give it distinctive quality. It is clearly illogical, then, to limit the components of emotion to the organic sensations.

Emotion, Instinct, and Action. The close connection between emotion and action has led to discussions in which MacDougall and Shand have been the protagonists. Primordially, the instincts condition what James calls the coarser emotions. According to MacDougall, each principal instinct has its special form of emotion, also innately determined. The instinct of flight or concealment is always accompanied by the emotion of fear, repulsion by disgust, and so on. Many emotions, however, are complex (*i.e.* fusions of the primary emotions). Such, for example, is admiration (compounded of wonder and negative self-feeling and including also an element of pleasure). Other affective states, such as reproach, anxiety, jealousy, etc., are said to be complex emotional states, only explicable in virtue of the existence of some sentiment. Within the sentiment of love are said to be found reproach, anxiety, jealousy, hope, and others. Shand differs from MacDougall in declaring that the same instinct may involve various emotions, and that the same special emotion may lead to different types of motor activity.

Whatever be the final outcome of the study now being given to this subject, all psychologists agree in noting the vital connection between emotion in its widest sense and action or expression. From the instincts, desires are developed; the object of desire is at length clearly cognized, and definite and even remote purposes come into being, the interpenetrating emotions finding vent in different forms of expression. As a rule, the spontaneity and vigour of the expression correspond to the degree of emotion aroused. The fiercely angry man expresses himself quickly and freely in blows or strong language, or undergoes a suppressed

emotional agitation that may threaten his very life.

The Utilization of Emotion in School. While an emotion may be aroused by anything which interests or appears to be important for us, the emotion is quite different from the interest. The latter has a strong intellectual element, the former a foundation of strong organic disturbance. The school must not fail to utilize emotion for both its immediate and remote purposes. On the intellectual side, the emotion of elation consequent on the overcoming of difficulties may result in transforming an uncongenial into a congenial task; the sentiment of patriotism and its expression in civic conduct may develop through an inspiring presentation of our country's history; emotions roused by selecting beautiful forms for study may lead to permanent interest in aesthetic types; the emotional excitement roused when the pupil sees the purpose of a piece of school work may induce permanent interest in the subject. Over and above these aims, it is the function of the school to arouse the emotions which may lead to the religious sentiment and to character formation. It is the business of education to inspire the emotions of which admiration, reverence, awe, and gratitude are compounded. It is to be remembered, however, that the mere arousing of the feelings is not an aim in itself, and that, unless they are directed into useful channels of activity, the ethical purpose has not been achieved. The proper interpretation of children's emotions may be of great assistance to the teacher. As a rule, he can determine whether his methods of teaching and government are on right lines by the emotional response of the class. There is, however, some little danger of mistaking his function, and of imagining that he has to aim at supplying children with merely pleasurable emotions. What he has to do is to supply intrinsically valuable knowledge and capacity in a way which affords the greatest amount of pleasurable feeling possible. W. G. S.

EMOTIONS, THE EXPRESSION OF THE.—Certain types of vital situation arouse in the individual confronted by them certain innate and irrepressible trains of action termed instinctive, and each such train of action is accompanied by a characteristic emotional state of mind. Thus, a situation of physical danger excites a train of acts instinctively self-protective (resistance, escape), and with that a corresponding emotion (anger, fear). Human reactions after this manner are related to those exhibited by animals, and are derived from the latter as from prototypes. The evolution theory accounts for this by natural selection. Every such potent situation, despite varying detail, presents some cardinal type of occurrence which, for millions of years, and to animal ancestors of man, long before man was man or even mammal, recurred not rarely and was critical for the existence of the individual and species. In the face of it, action of one definite kind was on the average the most successful way of issue for the individual. In addition to a specific trend of action thus becoming an instinctive response to each class of situation, a certain specific affective state of mind was developed, doubtless, as being on the average the most helpful mental reaction to the situation: helpful (1) by intensifying conation, *i.e.* increasing the solidarity of the nervous machinery for the immediate end in view by heightened "attention," the main unifying factor for "mind"; (2) by branding an *engram* of the situation and reaction upon the nervous system, thus canalizing the latter for similar reaction again, and stamping the memory so as to bring "profit by experience" in the individual, and suitable innate adaptation in the race.

Instinctive action and emotion go, therefore, hand in hand, and, though few instinctive and emotional modes of behaviour remain, in higher animals, unmodified by intelligence and by habits acquired by intelligence or imitation, certain of them remain less eradicable and more dominant in the constitution of even the human mind. These are the *principal* instincts and their corresponding *primary* emotions, which pair as follows: flight-instinct, fear; pugnacity-instinct, anger; repulsion-instinct, disgust; curiosity-instinct, wonder; parental-instinct, tender emotion; reproductive-instinct, sexual emotion; and so on.

These instinctive modes of behaviour with their corresponding emotional states are of high interest, because they seem the evolutional link between mere reflex behaviour and primitive mind on the one hand, and intelligent behaviour and reason on the other. They are of immense importance, and are the main-springs driving much of even the most intellectual of human conduct. An item of their practical importance lies in the fact that in human intercourse no revelation is more important than that of the emotional life of one individual to another. Hence, such intercourse gives great heed to the signs of emotion, and uses such as indications of character, hints to motive, means of predicting future action, etc. The constant concomitance of certain emotions with certain bodily actions (muscular, glandular, circulatory) brings it about that the latter come to be universally accepted as symptomatic of the former: thus, tears of grief, retractions of the lips of rage, pallor of fear, etc. The naïve view of the mutual relation existing between an emotion and the instinctive act accompanying it (*e.g.* between fear and flight), is that the emotion produces the act. It is, of course, true that an intellectual process, such as the reading of a letter, may give rise to an emotion even of primary kind, and in that case the physiological disturbance (*e.g.* quickened heart-beat, facial action, etc.) is probably induced by the cerebral excitements adjunct to the emotion acting in their turn on the lower nervous centres. But there is reason to think that in some cases the "situation" provocative of the emotion includes stimuli which are directly provocative, through the lower nervous centres themselves, of the physiological reaction responsive to the situation as well as through the higher nervous centres of the psychical and emotional response.

The Contention of William James.—It has been argued by W. James that, for the "coarser" emotions, the bodily changes (*e.g.* quickened pulse and breathing, mimetic action of muscles, etc.) are directly, and, so to say, reflexly, produced by the situation, and that then the bodily changes thus aroused excite, *vid* the nervous system, the emotional state of the mind. The emotion is on this view, a product of the bodily reaction. "We do not cry because we are sorry, but we are sorry because we cry." On this view, to speak, as is popular usage, of the bodily actions as being expressions of the emotions is misleading. And experimentation upon animals supports in some measure James's contention. An animal deprived of its brain (*cerebrum*)

is certainly devoid altogether of mind, of sentience, let alone emotion, instinct, or intelligence. Yet a spring-clip affixed to the foot of the carcass, while it still survives, of such an animal, excites practically the whole complex set of bodily reactions which characterize instinctive self-protection. The pinched foot is withdrawn and struggles as if to free itself from the clip; the other limb starts off running; the neck is turned, bringing the head toward the offending spot; the lips are retracted, baring the teeth for aggression; the heart and breathing are quickened, the blood is withdrawn from the skin and viscera and dispensed to the "organs of effort" (heart, lungs, and muscles); the digestive operations of the abdominal viscera are suspended; the pupils of the eyes are dilated, and the hair stands on end. But a difference between this reaction and that of the normal animal is the former's short-lived and inconclusive character. After a few seconds the reaction subsides, though the clip is still attached. In absence of the mental concomitants of the act, there is failure to prolong and conduct it to a successful issue. This suggests the biological utility of the psychosis, including the emotion. The emotion supplies power and intensity to the instinctive act. Conversely, the bodily physiological part of the reaction reinforces the mental. Herein lies the answer to the old question whether the great actor actually feels the rôle he plays, so that his enacted emotions become reality for him. Hence, also, frequent or long-lasting repetition of significant mimetic postures of face and body tend to leave permanent traces and to prolong tones of mind, so that we can infer habitual mental tendencies from physiognomy even in persons we meet for the first time. Recent physiological discovery has shown that there is a small gland, the adrenal, which, under emotions of anger and fear, discharges a substance into the blood that enhances all those bodily reactions which commonly accompany the emotions of anger and fear. Probably the interpretation of this is that under such circumstances "muscular effort" is demanded, and the adrenalin is a stimulant which favours muscular effort and counteracts muscular fatigue. C. S. S.

EMPIRE MOVEMENT, THE.—"Empire Day" was celebrated for the first time within the British Isles in 1904. On that occasion the chain of celebration round the earth was not unbroken. To-day, however, we may quote and apply anew Webster's famous peroration, and say that the song of praise and thanksgiving to Almighty God for His goodness to our race, and the prayer for strength and wisdom to enable us to fulfil our destinies aright, "following the sun, and keeping company with the hours, circle the earth."

What is the "Empire Movement," the outward expression of which is Empire Day, and what is its meaning? It is an earnest, organized effort to arouse the peoples who constitute the British Empire to a consciousness of the serious duties that lie at their door. Rightly directed, it will be found capable of elevating the moral character of the peoples it influences, and it need hardly be pointed out that it is the character of the people that determines the position a nation shall occupy in the world. It is useless to multiply armies and fleets, to equip them with the most modern appliances of war, if the men behind the guns are ignorant of the meaning of the terms loyalty, obedience, self-sacrifice, courage, and devotion to duty. So, too, in the avocations of peace. A country may possess richly-endowed universities, colleges, and schools; its workshops may be furnished with the best machinery: yet, if its merchants, its manufacturers, and workers are self-seekers, careless of the general weal, idle, dishonest, or dissolute, ruin will sooner or later overtake that country. An effort, therefore, that creates in the minds of the people a higher standard of private and public conduct, a quickened sense of the calls of civic duty, a fuller understanding of Nelson's famous battle-signal, must command the enthusiastic support of all right-thinking men and women.

Ideas. The ideas of the promoters of the "Empire Movement," then, have absolutely nothing in common with the condition of mind popularly known as "Jingoism." They desire no aggrandizement of the State for aggrandizement's sake. They do not believe that the honour of the nation or the reverence due to the Flag can in any way be augmented by wars carried on for mere military glory; they do not desire to flaunt the Union Jack defiantly in the face of any potentate or people. The British have been sometimes unfortunately forced into war, but their wish is to live at peace and in friendship with the whole world. They feel that the best step they can take towards the realization of a world's peace is to consolidate and strengthen their Empire so that no power or powers, however great, shall dare to attack or treat with contumely 400 millions of people, bound together by mutual affection and allegiance to a common Sovereign.

If a true union of hearts can be established among all the subjects of the King, amounting to nearly one-fifth of the entire population of the globe, so mighty a Power will make its influence felt irresistibly throughout the rest of the world, and we believe that the influence of the Anglo-Saxon race has been, on the whole, beneficent. This feeling of satisfaction, however, need not prevent us from seeing, admiring, and endeavouring to imitate the many good qualities possessed by other nations, nor should it blind us to national and social shortcomings, some so serious that, if unchecked, they would threaten the very foundations of our national existence.

Methods. Such being the ideals of the movement, by what means do its promoters hope to see them realized? In the first place, they advocate the introduction into all schools of a form of moral training which aims at inculcating the civic virtues. They wish to see the rising generation taught to subordinate their individual inclinations to the general interest.

Secondly, they urge the celebration of Empire Day on 24th May, or on a day near it if found locally to be more convenient. In some cases it may be desirable to hold the celebration on 22nd June, the anniversary of the Coronation of King George V and of the Diamond Jubilee of Queen Victoria.

If a higher sense of public duty is to take hold of the nation, it will be mainly through the teaching received by the children in the years spent in the classroom and the playground, and it is such patriotic teaching that the "Empire Movement" endeavours to encourage. It places the strongest emphasis on the systematic daily teaching of all matters appertaining to the Empire, and the constant training in the virtues that tend towards the

creation of good men and women, loyal and noble citizens.

What the Schools can do. The facts about the Empire form the subject of lessons in geography and history, but the study of our own past and that of other peoples is of much wider significance, because we find illustrated again and again the truth that certain characteristics lead to national greatness and others to decay. The study of citizenship also helps to lead children to a realization of their heritage and its responsibilities.

It is hopeless to try to engraft the civic virtues on an undisciplined race. Let our first endeavour be to restore and maintain a reasonable and wholesome discipline in the home and in the school, remembering how often lack of control and guidance in youth leads to self-indulgence in later years, which corrupts the well-to-do and makes them idle, selfish pleasure-seekers, and produces tramps, loafers, corner-boys and similar parasites among the poorer classes. Let us see to it, then, that no efforts on our part be wanting to raise up a generation of men and women alive to their responsibilities, and fit in soul, mind, and body to fulfil the honourable though arduous duties imposed upon them through the possession of the high privilege of British citizenship.

It is hoped that every parish and community will find some means of celebrating the occasion of Empire Day. The poorest parish that possesses bells in its church-tower can ring them, even if it does not own a Union Jack and cannot afford to acquire one and fly it from the summit of church, chapel or school-house.

Here is a suggested programme for the celebration—

1. Assembly of Local Dignitaries, Officials, Military, ex-Soldiers Corps, Cadets, Boy Scouts, Girl Guides, and schools.
2. Hoisting and breaking-out of the Union Jack.
3. The National Anthem.
4. Saluting the Flag. *Song*—"Flag of Britain" (Office of the "Empire Movement," Denison House, Vauxhall Bridge Road, S.W.1).
5. Address on the duties and responsibilities attaching to British citizenship; or short lecture on the Empire; or lecture, illustrated by views, of some Colony or Dependency of the Empire.
6. Recitation of a poem illustrative of heroic duty and self-sacrifice on behalf of the nation.
7. Recitation or singing of Kipling's Recessional hymn, "Lest we Forget."
8. The National Anthem and concluding salute.

A personal appeal is then made urging the support of this movement, the watchwords of which are: "Responsibility, Duty, Sympathy, and Self-sacrifice." Its motto is: "One King, One Flag, One Fleet, One Empire," and its rallying cry: "For God, Duty, and Empire."

These sentences are full of lofty meaning, and the ideals they picture are truly worthy of a life's devotion. The Empire Movement urges all British subjects: (1) to love and fear God; (2) to honour the King; (3) to obey the laws; (4) to prepare to advance the highest interests of the Empire in peace and war; (5) to cherish patriotism; (6) to regard the rights of other nations; (7) to learn citizenship; (8) to follow duty; (9) to consider duties before rights; (10) to acquire knowledge; (11) to think broadly; (12) to practise discipline; (13) to subdue self; (14) to work for others; (15) to consider the poor and the suffering. These 15 injunctions are simply partial restatements of four watchwords of the movement: "Responsibility, Duty, Sympathy, and Self-sacrifice." It is our duty to teach the children to try to live up to the ideals represented by these words, and to remember the patriotic words of the poet on visiting the scene of Nelson's mighty struggle for freedom at Trafalgar:

> "Here and here did England help me,
> How can I help England, say!" M.

Reference—

"Empire Movement Leaflets." (Secretary, Denison House, Vauxhall Bridge Road, S.W.1.)

EMPIRICISM.—Probably few topics of general interest exhibit more difference in opinion than the nature and methods of education. During the last half-century much thought and discussion have been expended on the subject. There is as yet no universally accepted theory as to its methods or its aims. Three recent public utterances by men of some authority will illustrate this statement—

1. "We may get some approximation to a real system—a system that does not regard the teaching of a multiplicity of subjects, or the amassing of innumerable facts, or the passing of examinations as the end or ideal of education, but the enthusiasm for learning, the desire to know, not in seeming but in reality the ambition to become, if not the spectator of all time and all existence, at any rate a wise and trustful and earnest seeker after the eternal verities of life."

2. "After this war we should have to face a demand from the public for a complete re-organization in matters of education. We should hear a great deal of the demand for scientific training with a view to technical application, and we should have to teach scientific facts to a degree we had not hitherto taught them. But when we had done all that, we should still be left with the duty of giving them what is called 'outlook.' Our young people must know where they were in time and space. Public-school education in this country has had the effect of giving judgment to the Englishman, even if he might be relatively ignorant."

3. "Some knowledge of chemistry, physics and geology in place of the Greek and Latin languages, literature and philosophy, would quicken the wits and enhance the administrative utility of our public servants."

Opinions so diverse are difficult to reconcile so as to show unity in idea and unanimity in method. The problem is viewed from different standpoints. But method will depend upon the views as to the real aim of education. This may be to qualify the individual for the practical business of life: to this end some would emphasize the development of the mental powers generally, some the foundation of character; others, again, knowledge and capacity for a special sphere of practical utility and work. A combination of all these views may come near to the ideal aim of qualifying youth to play their part; as good citizens, as useful members of society, and contributors to the common welfare.

To this end it is urged by some that education should be *vocational*; that is, specially adapted to the proposed life-work of the individual. This is the utilitarian point of view and may be very properly considered in schools specialized to prepare for a particular career.

One point, however, that emerges from this

controversy is that the method of education will depend upon the prevailing ideas on education, and that, with so many conflicting ideas, there will be diversity of method, at all events at the later stages of school life, each dictated by its influence in qualifying for some specific field of work. Methods are many and tentative; they will vary in detail not only with the end in view, but with the experience and judgment of the teacher: hence such methods are *empirical*.

Empiricism in Science. This term is not explicit: it came into use with the development of modern science, and its exposition by the methods of inductive logic which was the philosophical instrument for explaining the uniformities of Nature. All important stages in the growth of knowledge have been empirical in their origin and early investigations. The wonderful discoveries of scientific research originated from the indefatigable zeal for experiment of men of genius like Darwin, Huxley, Tyndale and Roscoe.

The tendency of the utilitarian school of philosophy was to emphasize the material benefits which followed from their methods of investigation. Emphasis upon the practical application of science to advance material well being, and the advocacy of technical education as a means to increase industrial power and add to economic welfare, indicate the tendency of modern thought on education in its practical aims. The strong advocacy of public expenditure upon education is generally based on its material advantages to the nation. The old educational endowments of grammar schools and universities aimed at intellectual development and the literary culture which were associated with classical and philosophical studies: it took little note of the economic and material aspects. The present age of scientific progress seeks for material results, the increase of wealth and social and national development.

The two aims of mental and material development are not wholly incompatible or antagonistic, though the tendency is for the material to over-shadow the purely mental and philosophical. One distinct tendency emerges: this is, scientific method has punctuated and dominated education; and scientific method is experimental. Enthusiastic teachers will generalize their own experience, but this experience is singular and specialized, hence their conclusions are *empirical*: *i.e.* based upon limited conditions, and they cannot possess the exactness and uniformity of scientific proof. They rest upon individual and limited experience. Applied to such generalizations, the term empirical does not connote distrust, but merely that the generalizations of so limited a character do not satisfy the requirements of rigid scientific method, and cannot be regarded as scientific laws.

Empiricism in Education. The term *empirical* thus comes to be applied in education to generalizations from experiments on a limited scale, for which the law of uniformity cannot be claimed with certainty, as in the rigid sciences such as physics, where tests and exact methods yield a uniform result, and verification can always be obtained. The empirical law falls short of these exact tests: it is a generalization based on a limited and unverified field of observation, not open to universal proof. Most enthusiasts are prone to the logical defect of generalizing their limited experience; hence the term *empirical* is properly applied to their methods and results. Teachers differ greatly in experience and in sentiment: the local conditions also vary. Education is not like a technical industry or a scientific experiment, organized and carried out in known conditions with uniformity and exactness. Nor is an enthusiastic teacher indifferent, like a physical force. The term empirical came to be applied in education to new experiments and methods by a kind of similarity to the experiments of physical science. Physical science gives laws of Nature by its verified experiments, and uniformity; such laws can never follow on the limited experience of school experiments. But the development of science teaching in schools gave prominence to experimental methods and their application to life and industry. Education thus became more scientific in method and direction, at the cost perhaps of some loss to classical study and its long established priority in the school curriculum.

In recent years many new advances in science have tended to strengthen the utilitarian basis in education, and the training of youth with a view to commercial and industrial pursuits has given a bias to the more material direction of education. This is inevitable with the vast development of scientific knowledge and its technical equipment for industry and business.

Education now enjoys considerable State aid, direction and control. It is enforced by public authority and administered under public direction and largely at public expense. A practical utilitarianism dictates the outlay and the regulations, and influences the methods. Aided institutions of every grade under government inspection tend to similarity and some degree of uniformity in their respective grades. By inspections, conferences, magazines and papers they tend to produce something like a science of education, embodying approved views and methods. The interchange of experience, criticism and diffusion of novel ideas and experiments, yield something like common theory. It would be remarkable if, in time, this organization did not yield scientific methods in education. Meanwhile, controversy, criticism, experiments, go on amongst a body, many of whom are enthusiasts in their vocation. New ideas will be promulgated, new methods suggested based upon individual experience and thought. Here we have Empiricism illustrated. Until such methods have been tested by time and experience, and are endorsed by some common adhesion, they cannot be other than empirical. When they have stood the test of criticism and wider application, and are found to be scientific in character, they will become accepted as principles of method; they will then cease to be empirical, and be adopted by succeeding teachers as recognized, proved theories and will become the acknowledged principles of guidance in the science of education. G. A. S.

EMPIRICISTS, THE.—(See ENLIGHTENMENT, THE.)

EMPLOYMENT ACTS (CHILDREN'S).—(See CHILDREN'S EMPLOYMENT ACTS.)

EMPLOYMENT EXCHANGES FROM AN EDUCATIONAL POINT OF VIEW.—Although the work of employment exchanges generally may be said to be in some measure educational, for the reason that it consists in collecting and supplying information to employers and workpeople as to each other's needs, it is in the juvenile exchanges and bureaux

that its educational character is most clearly marked.

Every teacher knows that large numbers of boys and girls, abruptly released from school discipline, acting without any skilled guidance and often without any sense of the importance of the decision they are making, enter the first occupations which present themselves—occupations which, in too many cases, not only fail to provide them with regular work, but often destroy the qualities which have been carefully developed during their school careers.

It is to meet these well-recognized difficulties that juvenile employment committees have been set up by local authorities for education, the Ministry of Labour, etc., almost without exception in close co-operation with the national system of employment exchanges.

The object of these committees is to advise and assist boys and girls to obtain work suitable to their abilities, and to exercise a general supervision over their educational and industrial welfare until they are 18 years of age. These committees have one or more executive officers, and carry out their work through the medium of juvenile exchanges or bureaux.

The Juvenile Exchange. The organization of the juvenile exchange consists of four parts, which are sufficiently distinct to be separately considered.

In the first place, there are the arrangements for attracting the children to the juvenile exchange, and for obtaining particulars with regard to their tastes and abilities. In this work, the teachers give invaluable assistance by forwarding to the committee for each school-leaving child a card giving full particulars of his educational qualifications, his physique, and any views which his parent may have with regard to his future occupation. These cards are filed in a separate register at the juvenile exchange, and are subsequently completed by the addition of particulars of the occupations which the children enter later. The individual cards of this register are very useful when advising children who are leaving school or at later stages in their careers.

Complementary to this work is that of obtaining notifications from employers of the vacancies in their works. Cards on which are entered the conditions of work and prospects offered by each vacancy form a second register. The information contained in this is often supplemented by handbooks showing the prospects and conditions of employment in local trades.

The third part of the work of the exchange is the interview between members of the committee, or more frequently their executive officer, and the child, and perhaps his parent. This executive officer, having before him these two registers giving details of applicants for employment and of available vacancies, is in a position to assist children into the occupations for which their tastes and abilities adapt them. Much good work is done at these interviews in advising children to continue their education, in dissuading them from entering occupations for which they may be physically or otherwise unfit, and in bringing before the parents of a promising boy the advantage of allowing him to enter a skilled trade instead of an occupation whose only attraction lies in high wages and lack of adequate control. Following this interview, the child is sent to an employer with a card of introduction to apply for a specific vacancy notified to the exchange.

After Care. Finally, there is the important work undertaken by voluntary after-care visitors attached to the committee. It is the duty—and the pleasure—of these visitors to take a friendly interest in the boys and girls referred to them by the committee, to encourage them to apply themselves to their work and continue their education, and to bring them back to the committee if they are in need of further assistance.

The committees do not limit themselves to the work which has been described, but endeavour in many ways to improve the conditions of juvenile employment in their areas. In some cases they may hold conferences with employers with a view to improving the child's prospects of learning the trade or his opportunities of attending continuation classes; in others, they endeavour to make more effective the legal protection of child labour; in general, they co-operate with the various agencies interested in these questions, and become the centre for local action in improving the industrial welfare of the juvenile population.

Although in a number of large towns no organization of this kind has yet been set up, in the majority excellent work is being done. Some 150 committees have been set up in various parts of the United Kingdom, and are placing children in occupations to the number of nearly 250,000 a year; while far larger numbers of children come under their influence. With the increasing co-operation, on the one hand of teachers, and on the other of employers, their work in bringing educational and industrial considerations into closer relation is already having a marked effect in many areas, and holds out even greater promise for the future.

F. L.

EMPLOYMENT OF CHILDREN ACT, THE.—(See CHILDREN'S EMPLOYMENT ACTS.)

EMULATION.—This term denotes a natural disposition which leads persons to try to surpass others. It is acquired early in life, and is ever present in the schoolroom. In the ambitious child it is a powerful incentive to attention, application, and perseverance, and may become one of the most useful instruments at the teacher's command. Rivalry arises from antagonism and love of combat or competition. In its lower forms, it may be associated with a feeling of hostility; but in its highest form—emulation—it is a desire to imitate the good and to excel in what is good. Unlike envy, emulation involves no desire to deprive others of what they have gained, but is a striving for success for its own sake.

ENCYCLOPAEDIA AND ENCYCLOPAEDISTS.—An encyclopaedia is a "circle of instruction," and professes to give information in regard to the whole "circle" of human knowledge, or of a specified division of knowledge. The title "cyclopaedia" was first used in 1541 by Ringelberg of Basel, and during the seventeenth century many encyclopaedias were published, such as Mozeri's *Grand Dictionnaire hystorique* (1674) and Hofmann's *Lexicon Universale* (1677), and encyclopaedists began to arrange their information alphabetically. In England, the first works of this kind were a *Universal, Historical, Geographical, Chronological, and Classical Dictionary* (1703); and the *Lexicon Technicum* (1704), compiled by Dr. John Harris. A more important work was the *Cyclopaedia, or*

Universal Dictionary of Arts and Sciences, in two-folio volumes, issued by Ephraim Chambers in 1728. This was arranged in alphabetic order, and contained a system of cross-references. The inquiries into the secrets of Nature and science during the eighteenth century led Denys Diderot and Jean le Rond D'Alembert to take up the scheme of producing a work which was to render all recent discoveries available in such a manner as to make fact destroy superstitious notions concerning Nature. Diderot conceived the idea and D'Alembert wrote the preface, and among the contributors were Voltaire and the Abbé de Cordillac. The work was called the *Encyclopédie*, and its basis was a French translation of Ephraim Chambers' *Encyclopaedia*. Its volumes began to appear in 1751 and 1752, and became representative of revolutionary thought. Great indignation was roused by its articles among both Jesuits and Jansenists, and attempts were made to seize Diderot's papers, but he was protected by Malesherbes and twenty-two volumes were published between 1752 and 1765. In 1768 the *Encyclopaedia Britannica* was planned by William Smellie, Allan Bell, and Colin Macfarquhar, and in 1910 this work reached its eleventh edition in twenty-nine volumes. The modern *Chambers's Encyclopaedia* was first published between 1859 and 1868 in ten volumes, afterwards increased to twelve. Other English encyclopaedias are *The Penny* (29 vols.), and the *English Cyclopaedia* (31 vols.), both edited by Charles Knight; the *New International* (1903-1904); the *Catholic Encyclopaedia* (1907); and the *Encyclopaedia Biblica* (1899–1903).

ENCYCLOPAEDIA BRITANNICA.—(See ENCYCLOPAEDIA, THE EVOLUTION OF THE.)

ENCYCLOPAEDIA, THE EVOLUTION OF THE.—Like the word itself, the idea of the encyclopaedia is Greek. By ἐγκύκλιος παιδεία or ἐγκυκλοπαιδεία the Greeks understood the whole circle of instruction; not a book, but the material of all books of learning. The transition of both word and idea from Greece to Rome was easy, and it was used, still in the same sense, by Pliny and Quintilian.

The *Historia Naturalis* of the elder Pliny may be described as the first encyclopaedia known to us. In its thirty-seven books, divided according to subjects, the author covered the whole field of knowledge as revealed to his generation with the exception of biography. The monkish scholars of the Middle Ages, using the language of Rome, followed along the same lines, and several of them wrote books which may be described as encyclopaedias, although not called by that name. Prominent among these authors were Isidore, Bishop of Seville (*d.* 630), with his *Origines*; and Vincent of Beauvais. Meanwhile in the East, the Arabian Alfarabius had gathered "the whole circle of instruction" of his race into one work.

Vincent of Beauvais, probably a Dominican monk who died about 1264, wrote the most celebrated of these early works. It was called *Bibliotheca Mundi*, or *Speculum Majus*, and it is divided into four parts, called Naturale, Doctrinale, Historiale and Morale. *Speculum Morale*, it should be said, was probably the work of another writer, but even with this qualification the work is a monument to the learning and industry of Vincent.

The invention of printing preceded the next step in the development of the encyclopaedia, and paved the way for its modern expansion. Before that event there was no idea of using the word as the title of a book, or of arranging its information in alphabetical order, or of writing a work of this kind—at least in Western Europe—in the vernacular. Moreover, the "whole circle," although expanding with the widening of knowledge, had not attained its full dimensions, for certain subjects—biography and topography, for example—were yet outside it.

As the title of a book, the word "encyclopaedia" first appeared in 1541, when it was given to a work by J. F. Ringelberg printed at Basel. A little later, Paul Scalich, an Hungarian, wrote a small encyclopaedia; and then in 1630 appeared the much larger and better one of J. H. Alsted (1588–1638), called *Encyclopaedia septem tomis distincta*; it was divided into thirty-five books, and its material arranged in seven classes. Before this, there had been two other interesting developments. Raphael Maffei, or Volaterranus (1451–1522), had written an encyclopaedia which brought biography within "the whole circle"; and in *The Gouernour*, Sir Thomas Elyot had introduced the word into the English language.

Louis Moréri. A great name in the history of encyclopaedias is that of the Frenchman, Louis Moréri (1643–1680). His *Grand Dictionnaire Historique*, published at Lyons in 1673, was an encyclopaedia in the modern sense. Its information was arranged in alphabetical order, and it was written in a living and not a dead language, being the first important book of the kind to make these innovations. Moreover, it contained biographies. It was very popular, running in less than a century to twenty editions, and it found many imitators. Thomas Corneille followed with a *Dictionnaire des Arts et des Sciences* (1694); and then came Pierre Bayle with his *Dictionnaire Historique et Critique* (1697), intended to correct and improve Moréri.

According to modern ideas, the name *Dictionnaire*, as regards these books, was a misnomer, albeit a pardonable one. Our forefathers were long in realizing the advantages of an alphabetical arrangement for books of reference, and when they did so it was the dictionary that took the lead. The encyclopaedia followed suit, and there was, especially in the seventeenth century, a good deal of confusion between the functions of the two, between the book of which the unit was the word, and the one of which it was the subject. Anxious, doubtless, to associate themselves with the alphabetical arrangement, Moréri and his successors called their books dictionaries.

Moréri's other innovation was equally noteworthy, and his is the first encyclopaedia of any importance written in the vernacular. As far back as 1398, John Trevisa had translated a work of this kind, *De Proprietatibus Rerum*, of Bartholomew de Glanville into English, but Latin had remained the language of these works; and in 1677, three years after Moréri's *Dictionnaire* appeared, J. J. Hofmann issued in that tongue, at Basel, his *Lexicon Universale*. He adopted the alphabetical arrangement, but he wrote only for the learned. This work contained an index.

Moréri found an English counterpart in Ephraim Chambers. In 1704, Dr. John Harris had produced a *Lexicon Technicum*, the first encyclopaedia written in English, and one containing illustrations. This apparently gave Chambers his idea, and in 1728 he produced his *Cyclopaedia* or *Universal Dictionary of the Arts and Sciences*. At last the word

"cyclopaedia" was associated with the alphabetical arrangement, and soon its more correct form encyclopaedia would follow.

Ephraim Chambers. We must pass by the great but incompleted encyclopaedia begun in 1701 by the Italian, V. M. Coronelli; the *Universal Lexicon* in German of J. H. Zedler (1706–1760); and the *Universal History of Arts and Sciences* of Dennis de Coetlogon issued in 1745; and trace the influence of Chambers's work. The *Cyclopaedia* was translated into French, and on it was founded the most celebrated of all encyclopaedias, the *Encyclopédie*, which, edited by Diderot and D'Alembert, counted Voltaire, Rousseau, Montesquieu, and Turgot among its contributors. It appeared between 1751 and 1777, and contained information, in addition to the usual subjects, on arts and sciences (*métiers*), but, like Chambers, it excluded biography. In one sense, the *Encyclopédie* was bastard in lineage. It was didactic; it sought not only to convey information, but to influence public opinion, perhaps a tribute to the growing popularity of encyclopaedias.

In Great Britain, development proceeded on truer lines. The story of the foundation of the *Encyclopaedia Britannica* has been told *ad nauseam* to a weary public; here it is sufficient to say that the first edition of that work appeared in three volumes between 1768 and 1771. From it, biography and history were excluded, but both found a place in the second and subsequent editions. For over a hundred years, maintaining its Scottish tradition of sound learning, the successive editions of the *Britannica* were standard works of reference, and its treatises by the most eminent scholars of the age won universal respect.

Nineteenth and Twentieth Century Productions. The nineteenth century saw the production of many other encyclopaedias; two worthy of especial mention being the *Penny Cyclopaedia* of Charles Knight, and the encyclopaedia issued by the Edinburgh firm of Chambers. At the beginning of the twentieth century, a gigantic and novel advertising campaign carried on by *The Times*, as the distributors of the ninth edition of the *Encyclopaedia Britannica*, had an enormous effect in popularizing the word, and was instrumental in selling—indirectly at least—a host of other encyclopaedias. Perhaps the most successful of these was the *Harmsworth Encyclopaedia*. A. W. H.

ENCYCLOPAEDIAS OF EDUCATION. — The enormous widening of the "circle of instruction," the ἐγκύκλιος παιδεία of the Greeks, in the nineteenth century, led to the production of encyclopaedias or cyclopaedias—a truncated form of the word—devoted wholly to one branch of knowledge, In this matter, the lead was taken by the subjects of religion and education. The first encyclopaedias devoted to education were German, one of the earliest being the *Pädegogisches Real-Encyklopädie* of K. G. Hergang, which followed a similar work by I. G. C. Wörle. More ambitious was the *Encyklopädie der gesammten Erziehungs-und Unterrichtungswesen*, edited by K. A. Schmid. This was in eleven volumes, and appeared between 1858 and 1870. A second edition in ten volumes followed only six years after the completion of the first. Three more German works of the same kind are the *Lexicon der Pädagogik*, edited by F. Sander (1883); the *Encyklopädisches Hand-Buch der Erziehungskunde* of Joseph Loos (1906); and the *Encyklopädisches Handbuch der Pädagogik* of Wilhelm Rein, a professor at Jena. Of the last-named, a second edition in ten volumes appeared between 1903 and 1911.

In the French language there is the *Dictionnaire de Pédagogie et d' Instruction Primaire*, edited in four volumes, by F. Buisson (1882–1888); and a *Dictionnaire d' Education*, which forms a volume of Migne's enormous *Encyclopédie Théologique*; the latter is the work of the Abbé Raymond, and appeared in 1865.

In the English language, encyclopaedias of education begin with the *Cyclopaedia of Education*, an American work, edited by H. Kiddle and F. A. Schem, which appeared in 1877. More English in scope and treatment is the *Cyclopaedia of Education* edited by A. E. Fletcher. This appeared in one volume in 1892, and is generally known, from the name of its publishers, as *Sonnenschein's Cyclopaedia*. Before the appearance of the present work, the only encyclopaedia of education in English which could compare with the large German ones was the *Cyclopaedia* edited by Paul Monroe. This is an American work in five large volumes, containing altogether perhaps 3,000,000 words. Its editor was Professor of the History of Education in the Teachers' College of Columbia University, and he secured the aid of about one thousand contributors, experts in all the branches of education. The main interest of this work is American, but education in Britain is treated with great fullness. A very broad connotation is given to the term education; for instance, in the volumes are articles dealing with the various aspects of public health. A. W. H.

ENDAEMONENSIUM REPUBLICA. — (See UTOPIAS, EDUCATIONAL.)

ENDOCRINE STRUCTURES IN RELATION TO EDUCATION, THE.—The application of physiology to education is a matter of the past few years, and even now only a comparatively small number of teachers fully appreciate the influence it should exercise.

Just as it has taken many years to induce the alienist to understand that insanity is not some form of moral and intellectual perversion, but simply a manifestation of disease of the brain, so it is taking even longer to make the ordinary schoolmaster understand that all mental action has a physical basis in brain changes, and that education consists in training the brain to act as perfectly as is possible, just as physical culture consists in training the neuro-muscular system to better action. The present article gives an account of the way in which the development of brain is modified by the condition of the endocrine structures, so called since they elaborate and pass into the blood products which play an important part in regulating the growth and activity of other structures.

In the lowest animals the organs of the body attain their comparatively unspecialized state of development solely as a result of the inherited tendency of each ovum to develop on the same lines as its progenitors. In higher animals, where the inter-relationship of the organs is more complex, two factors come into play in correlating their development: (1) the nervous system, (2) the chemical regulation effected by the products of the endocrine organs.

Thyroid. The Endocrinate which has been most

fully investigated and is best understood is the thyroid, a structure consisting of a somewhat flattened oval lobe on each side of the wind pipe in the neck.

It has long been known that, chiefly in goitrous districts, a considerable number of children are born who fail to develop physically or mentally, and who are known as cretins. This state is associated with a non-development of the thyroid. The growth of the long bones and of those at the base of the skull is arrested, so that the child does not increase in length; while the bones of the head, growing more than those of the base of the skull produce a prominence of the forehead. The lips and tongue are thickened, the hair does not grow, the intelligence is undeveloped and the genital organs remain infantile. The condition may often be greatly improved by the systematic administration of thyroid gland of the ox or sheep.

Such fully developed cases rarely come under the ken of the educationist. But all varieties of hypothyroidism or decreased action of the thyroid are met with among school children, and their recognition is of importance. The child is slow and backward mentally and physically. Its cerebral development, as tested by Binet and Simon's method (*q.v.*), may be that of a much younger normal child, and as it increases in age may not advance. The face may show some trace of the bulging forehead, the undeveloped supraciliary ridges and eyebrows and the thickening of the lips. Appropriate treatment by a medical man with thyroid extracts often improves the condition.

Cases of slightly increased action (hyperthyroidism) may occur among school children, as they undoubtedly do occur in adults. Such individuals are generally thin and of a nervous disposition. They are often quick and intelligent, but are easily fatigued. The heart is easily excited, and flushing of the skin is readily induced. The condition is more common in girls than in boys. It is these children who should be allowed to vegetate.

The Gonads. Perhaps of equal importance with the thyroid in determining development are the genital organs or gonads. It has been for long known that castration leads to the absence of what are called the secondary sexual characters of the male (*e.g.* the bodily conformation, growth of hair and the mental characters of the male). A similar relation of the ovary to growth and development has been demonstrated in the female in many animals.

The action of the reproduction function of the gonads is in abeyance till the beginning of puberty, which varies greatly in different races, in different families, and even in individuals of the same family.

Puberty is characterized both by the physical changes of adolescence, and by the corresponding mental and emotional developments associated with the concurrent development of the brain. Cerebral action becomes more complex, and the course of education has necessarily to be modified. Precocious development of the gonads may occur, and it may be connected with the growth of a tumour in the testes or ovaries, as various cases of the kind have been recorded where removal of the structure affected by the tumour has led to an arrest of and disappearance of the signs of precocity, and in cases of *pubertas praecox* the possibility of this condition being a factor must at least be remembered. Delayed development of puberty may also occur, and must be recognized in grading mental training.

Pituitary. Another structure which may influence the gonads, or at least the testes, and through them the physical and mental condition, is the pituitary body, a structure lying at the base of the brain. The imperfect development of this is accompanied by a peculiar over-formation of fat, with a delayed development of the genitals and a persistence of the childish type of body and of mind. Some of the fat-boys of phlegmatic temperament are probably of this nature.

On the other hand, cases have been recorded of the growth of tumours in the pituitary accompanied by precocious sexual development, with the accompanying development of the secondary sexual character (*e.g.* the deepening of the voice characteristic of adolescence and a stronger development of the bones, etc.).

Cortex Supra Renalis. Another structure, abnormalities of which are associated with abnormalities of the gonads, is the outer part of the supra-renal bodies—two little structures, one situated just above each kidney.

Tumours in this tissue have been found in certain cases of premature sexual development in the male. In females an increased growth of the *cortex supra renalis* may be associated with the development of male characters—hair on the lips and deepened voice. In children and young women who show sexual abnormalities, unilateral tumours of the supra renalis have been observed.

Thymus. The thymus is a two lobed structure lying in the upper part of the chest in front of the heart and lower part of the wind pipe. It reaches its maximum development about the time of birth and grows slowly till puberty is reached, after which it gradually decreases in size. What part it plays in growth and development has not yet been fully elucidated. A certain number of children manifest an enlargement of the thymus, usually along with a generalized increase in the lymphatic tissue of the body. In these the chemical changes of the body are slow. The subcutaneous fat is generally excessive, the gonads are undeveloped, and the pubic hair does not appear at the usual period. The vitality of such children is low, and they more readily succumb to unfavourable surroundings.

D. N. P.

ENDOWMENT OF A FREE SCHOOL AT MILETUS BY EUDEMUS.—In 1904 a Greek inscription of great interest to educationists was discovered at Miletus, in Asia Minor; a stone slab dug up in the Temple of Apollo Delphinius contains the official copy of a decree passed about 210 B.C. in the Assembly of the Milesian people, recording the gift of ten talents by a prominent citizen named Eudemus, with full provisions for the administration of the annual income arising from this endowment and its use for the maintenance of an elementary school for freeborn sons of Milesian citizens. Elaborate arrangements are made for the custody of the ten talents, which are to be handed over to the city treasurers, and each payment to be entered in the "Eudemus Account" at the State Bank.

Teachers. Applicants for the posts of physical instructor and elementary teacher are to send in their applications to the Educational managers by a certain date; their names are then to be posted up in public, and the appointments made at a

meeting of the People's Assembly in the Theatre. After an opening prayer, the applicants are to be introduced one by one and made to swear that they "have not requested any citizen of Miletus to vote for them or instructed any other person to make such request on their behalf." The meeting shall then proceed by open voting to elect four physical instructors and four elementary teachers. The salaries offered are certainly low (30 drachmas a month for the instructors, 40 for the teachers), but stringent regulations are laid down for their regular payment on the first day of each month. The physical instructors are to be allowed to take pupils to compete at athletic festivals, but permission must first be obtained and approved substitutes found to take the place of the absent masters. There is no mention of a head master; the school was probably in the hands of the managers, and we are told that it is to be conducted in accordance with an already existing Education Law, the mention of which proves that State control of education was no novelty at Miletus.

Commemoration. The decree also contains provisions for the keeping of a Founder's Holiday on the fifth day of each month, and the appropriation of any surplus monies to the annual purchase of "the finest ox obtainable," which is to be led in solemn procession and duly sacrificed to Apollo, and then eaten "by all the boys of the school and other persons authorized to take part in the procession." Care is taken throughout that Eudemus and his descendants have a voice in all that concerns the school.

A full discussion of the decree will be found in Ziebarth: *Aus dem Griechischen Schulwesen* (Teubner, Leipzig, 1909), which also contains a somewhat similar inscription found at Teos.

T. H. W.

ENDOWMENTS.—The endowments for educational purposes now in existence in this country are mostly of modern or mediaeval origin, few dating farther back than the sixteenth century. The destruction of monasteries and chantries by Henry VIII put an end to many endowments, including thirty-five grammar schools, some of which originally had been chantry schools. Between that time and 1642, 800 endowments had been founded chiefly by deeds of gift to encourage the pursuit of a liberal education based chiefly upon a study of ancient languages. At the end of the seventeenth century arose a new class of endowed schools, to be known in future as charity schools, which were founded to afford teaching for a limited number of the poor only, but not with the purpose of encouraging intellectual ambition. A rigid line was drawn between the children of the charity school and those of the grammar school, and the charity school boy was discouraged from learning more than was supposed to be necessary for him. The origin of endowments was often the wish of the donor to give for his own spiritual benefit, almsgiving and charitable foundation being considered a profitable form of investment. In a minority of instances, the foundation was the work of a man who disinterestedly endeavoured to benefit others by a useful disposal of his wealth. The first great educational endowment in Tudor times in England was that of Colet, Dean of St. Paul's, London. Colet suddenly acquired, by his father's death, a large independent fortune, and devoted it to the erection and endowment of a school which, by royal licence in 1510, he transferred to the Wardens and Guild of Mercers in London. Before his death, Colet had settled endowments equivalent to £1,200 a year in modern money on St. Paul's School, and the whole cost to him in respect of the school must have been equivalent to £30,000 of present money. Turgot, in the *Encyclopédie*, declares that endowments foster and keep alive the evils they propose to remedy, and often directly demoralize posterity instead of enriching and improving it. The donors form a mistaken forecast of the future, and would have done better to have expended their wealth in their own lifetime. When inquiry began later into the management of endowments, it was found that many were kept up solely in the interests of those who managed them, and that many others were useless, because under changed conditions the original donor's expressed intentions could not be carried out. Colet guarded against these abuses, in his *Book of Statutes of St. Paul's School*, by leaving wholly to the "discretion and charity" of the Mercers "to add and diminish of this book and to supply it in every default." Similarly, John Hopkins provided liberally for an educational foundation at the Baltimore University, leaving the mode of organization to the wisdom of others. When Josiah Mason endowed the great Science College of Birmingham, he left the management to public authorities as "likely to be vigilant, to correct any mistake that I make, and to take care to keep the institution in full-working efficiency." The first Endowed Schools Act of 1840 dealt with grammar schools of royal and private foundation, where Greek and Latin were the compulsory basis of education, and conferred on governors and trustees the power to vary the system and the right of admission, and to establish schemes to apply the revenues, with due regard to the founders' intentions. Another Act in 1860 dealt with religious tests, and provided the right of admission in many schools to children of any denomination. The Act of 1869 was most important, and was intended to render any educational endowment conducive to the educational advancement of boys and girls; from this Act voluntary Schools and State-aided Schools were excluded. The Act of 1874 transferred the powers of the Endowed Schools Commissioners to Charity Commissioners; and the Public Schools Acts of 1868 dealt with the endowments of the public schools of Eton, Winchester, Westminster, Charterhouse, Harrow, Rugby, and Shrewsbury, which had been excluded from earlier Acts.

ENGINEERING, MECHANICAL.—(See MECHANICAL ENGINEERING, THE TEACHING OF.)

ENGLISH, COMMERCIAL.—Although very useful, the expression Commercial English is not very accurate. It seems to imply that English is of various kinds, whereas the only English recognized is correct English. It is, of course, true that the English language may be used for various purposes; but it must always conform to certain principles and rules of correctness, whether used by the inspired poet or by the writer of a directors' report. We may say that Commercial English is correct English applied to commercial purposes, and, consequently, possesses certain characteristics of style in a marked degree. It is in no sense inferior English. Students of Commercial English are studying the language for utilitarian purposes, and the teacher

must make his lessons as valuable as possible from the practical point of view. By following intelligent methods, however, without losing sight of the main point, he may make the subject a means of intellectual development and, therefore, of real educational value. The following hints and suggestions have been drawn up with both these ends in view.

The subject may be divided into two main sections, the first dealing with principles and rules, and including Grammar, Diction, Style, and Construction; and the second dealing with practical applications, including Business Correspondence, Reports, and Précis-writing. In an elementary course, it will probably be found necessary also to include some instruction and practice in spelling.

The Teaching of Grammar. As a rule, commercial students are disinclined to take grammar lessons seriously. They look upon grammar as purely theoretical, not grasping its practical importance. They wish to get on with the work. Much of the matter in a complete grammar is, certainly, of importance only to the philologist; the commercial student should not be burdened with it. The teacher of Commercial English should not spend time on any rules of grammar not bearing directly upon correct composition. He should select from the text-book the "Essentials of Grammar" and devote his attention to these alone. Whenever a rule of grammar is given, it should be immediately followed by illustrative sentences showing both the observance and the breach of the rule, the sentences being such as may occur in ordinary business documents. If the lessons are taken on these lines, students will soon find that grammar is both practical and interesting.

Conciseness of expression is an essential of good Commercial English, and a copious vocabulary is a powerful aid. The more words the writer has at his command, the less likely is he to be diffuse. He is able to pick out the happy word which most clearly expresses his meaning. Regular lessons on the meaning and use of words will assist the student in building up a good vocabulary, and enable him to express himself with precision. By ensuring that the lessons are sufficiently varied, the teacher can make this part of the instruction very interesting. The discovery of shades of difference between the meanings of apparent synonyms, the choice of the most suitable from among several given words, the distinction between words derived from the same root (*e.g. defective* and *deficient; official* and *officious*) are exercises not only of great practical value, but of extreme interest also.

All students should be encouraged to study the standard models of English style; but the teacher should carefully point out that the only important elements of style in good Commercial English are clearness, simplicity, and brevity. Mere ornament is to be avoided. Clearness of meaning depends mainly upon correct order of words and right construction of sentences. Elementary instruction in the analysis of sentences will lead the student to see the inter-dependence of the various clauses of complex and compound sentences, and will teach him to arrange them in his compositions so as to leave no ambiguity of meaning. Only such sentences as are likely to occur or, better still, as have actually been used in commercial documents, need be taken. Very few definite rules for the arrangement of words, phrases, and clauses can be given. The best method of teaching is to take numerous examples of good and bad order, and to compare and contrast them. There are three rules which should be carefully explained and deeply impressed—

1. Qualifying words and phrases must be placed close to the words they qualify.

2. Relative pronouns must be placed near to their antecedents. (This is included in No. 1, but its importance makes a separate rule advisable.)

3. Subordinate clauses should not be gathered into a group at the end of a complex sentence. They should be brought as near as possible to the beginning.

Ambiguity of meaning frequently arises from careless use of pronouns, and this should receive special attention. Simplicity and brevity are obtained by careful selection of words, and by the avoidance of long, involved sentences and the various forms of redundancy. These last will need careful treatment, as they constantly occur in students' compositions. A judicious selection of examples should be made to serve for practice in the detection and removal of tautology, pleonasm, circumlocution, etc. Such exercises will both improve the student's own business composition and provide a necessary introduction to précis-writing.

Practical Applications. This completes our brief sketch of preliminary principles and rules; we now proceed to consider the practical departments of our subject. Although it has been necessary here to observe this order of treatment, there must be no water-tight compartments in actual teaching. Instruction in theory and actual practice in the writing of letters, précis, and reports must go on side by side. The teacher should not exhaust one department of his subject before proceeding with the next; theory and practice should advance by equal steps.

Business Correspondence is the most important of the practical sections and, as such, must take a prominent place in the course. The teacher of Commercial English is not expected to give lessons in Business Training; and although he should widely vary his examples of letters, he should direct his attention almost entirely to the language —to the manner more than to the matter. To make the correspondence as useful as possible from the practical standpoint, it is well to take a series of letters dealing with a single commercial transaction. The following is an outline of an effective method of dealing with correspondence in a commercial English class—

1. Announce the subject (*e.g.* "A request for confidential information respecting the probity of a business firm").

2. Give orally a summary of the main points.

3. Allow the class a given number of minutes for writing the letter.

4. Select a small number of letters, read them aloud to the class, and note any errors in the English.

5. Correct the errors or give them as exercises to be corrected by the pupils.

6. Dictate a model letter which should have been carefully prepared beforehand. The groups of letters upon separate topics provide useful material for exercises in précis.

In dealing with the drawing up of Reports, the teacher will be obliged to give some instruction in the technicalities of the various kinds of reports. These are not strictly a part of English, and belong more to general business training; but the form of a report and the method of drawing it up are

almost as important as the actual language used. The same general method of teaching as that outlined for correspondence will do for reports. If that be followed, the students will find that the drafting of a report presents no special difficulties.

Précis-writing has become one of the most important, as it is one of the most difficult departments of Commercial English. In this section more than in any other, the success of the teacher's efforts depends upon the natural ability of his pupils. By a carefully graduated scheme of lessons, however, methods may be indicated which, if followed out, will always produce a précis of at least fair merit. Before any attempt is made at a précis of any difficulty, a series of lessons and exercises based upon the following should be taken.

1. Vocabulary: The substitution of single words for long phrases.

2. The reduction of the subordinate clauses of complex sentences to their equivalent adjectives, adverbs, and nouns.

3. The removal of ornament by the reduction of figures of speech to plain matter of fact.

4. The removal of all forms of redundancy.

5. The turning of passages in " Direct Speech " (*Oratio recta*) into corresponding passages in " Indirect Speech " (*Oratio obliqua*).

The success of the student who has worked through this course will depend upon his own acumen, assisted by the experience of the teacher. Regular home-work exercises are essential, as exercises of useful length cannot be completed in class owing to lack of time. The students' worked exercises should be carefully marked, and the corrected papers returned accompanied by model answers. The columns of the daily papers furnish the best material for exercises in advanced précis. W. S.

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ENGLISH COMPOSITION, THE TEACHING OF. —There is, perhaps, no branch of English teaching more important than composition, and the increased attention given to it in recent years has resulted in a great improvement in method. In this short article it will not be possible to do more than summarize the results obtained by those who have made a special study of the subject. It is obvious that, for the purposes of essay-writing, pupils must (1) be in command of ideas which they wish to express, and (2) have at their disposal the necessary medium of expression. These principles used to be largely ignored; and pupils of tender age, with a very limited vocabulary, were expected to produce dissertations on such themes as " ambition," " ignorance," and the like. It is now recognized that we cannot expect our pupils to make bricks without straw; and that, if we expect them to write, we must not only see that the subjects set are well within their range, but constantly endeavour to enrich their vocabulary and to train their power of expression.

Early Teaching. Such training can hardly begin too early; and even in the infants' school and kindergarten it is now the practice to require a great deal of spoken (or " oral ") composition from the pupil. (See COMPOSITION, ORAL.) By degrees, children who are frequently exercised in this way find correct expression easy, and feel no timidity when they are old enough to commit to paper the sentences that they have composed.

Methods of Teaching Junior Scholars. At this point the regular practice of written composition may begin, and the exercises given will be of two kinds: the one designed as a gymnastic to develop facility in the use of language; the other continuous, the chief aim being to convey lucidly and correctly some idea possessed by the writer. Exercises of the first kind will afford practice in the construction of sentences and the choice of words; for instance, pupils may be asked to express a given idea in three or four different ways; adjectives, adverbs, and nouns may be turned into equivalent phrases, and disjointed clauses may be welded into one harmonious whole; synonyms may be substituted for one another, and isolated words may be supplied to be used appropriately in original sentences. All the time it is assumed that pupils will be reading and learning by heart a great deal of prose and poetry, which, besides enlarging their vocabulary, will provide models of style for their own efforts. It is therefore important that the lessons in language and literature should be in charge of the same teacher, so that the material used in the one may be utilized in the other.

The character of the continuous exercises written by the pupils will naturally vary with their age and development. Paradoxical as it may seem, composition of an imaginative kind is often better done by pupils under fourteen than by those above that age; for the older the child grows, the more self-conscious and critical does he become, and, therefore, the less willing to commit himself to enterprises which may be the occasion of ridicule or censure. Hence, supposing the subject for composition to be an original fairy tale, the boy of ten will probably acquit himself better (setting aside, of course, matters of spelling, punctuation, and the like) than the boy of fifteen. The habit of self-expression may, however, counteract to some extent the tendency to reserve which is nearly always a characteristic of the adolescent mind. Other things being equal, it will be least noticeable in those boys and girls who have been accustomed to speak and write regularly on themes that interest them.

As a general rule, it is advisable that the first subjects set for composition should be connected with the actual experience of the writers; that is, that they should describe something they have themselves seen or themselves done. Definite objects or actions may be assigned to them for observation and description; for instance, the habits of certain birds or animals may be watched, or the development of a quickly-growing plant, the passengers in an omnibus or train, a fishing-boat coming into harbour, a woman cooking, or a man working in his garden. The advantage of setting such everyday themes is that every pupil will be able to write something, however bald; he will thus have gained some practice in expression, and will have provided the teacher with a text on which to base his criticisms and exhortations. Many other exercises will occur to the inventive teacher, who will thus be able to escape from the dreary and well-trodden path of reproduction of matter supplied by himself. Yet, if it is only occasionally used, reproduction—especially of a story or poem studied in the literature lesson—may be a very useful exercise, since it serves to impress on the pupil a sense of form and vocabulary. In a beautiful poem or prose passage, the author has consciously selected for treatment the most exquisite action, feeling, or object possible, and he has expended on it the choicest words at his disposal. In the reproduction

some, at least, of the original charm will be preserved, and the effort of memory necessary for the exercise will deepen the first impression.

Other methods of composition, such as expanding the outline of a story, or completing one of which the beginning is provided, are especially suitable for pupils whose own experiences are meagre, or who are naturally lacking in imagination and initiative. Such exercises are especial favourites with examiners, who are compelled by ignorance of the special circumstances of candidates to set subjects which may reasonably be supposed to be within the scope of the average pupil.

Methods of Teaching Senior Scholars. As the higher forms of a school are reached, more difficult exercises are available, such as the dialogue, or the opening or conclusion of an essay or story. Sometimes the book that is being read will suggest subjects for composition. Thus pupils may be asked to invent another adventure for Robinson Crusoe; to describe a scene in one of Shakespeare's plays from the point of view of a participant in it; to compose a letter, let us say, from Catherine Morland describing her lover's father, or to write a character sketch in the manner of Addison. By such degrees, pupils will arrive at the regular essay—argumentative, informing, critical, or desultory. It is not at all a bad plan to choose a boy from the class to read a paper on a subject for which he has to acquire the necessary information from special authorities. The prospect of holding the proud position of lecturer, and of using his superior knowledge for the enlightenment of his fellows, will often stimulate a dull or idle boy to additional effort. Similarly, when a dissertation on a debatable matter is required, two pupils may be asked to read papers presenting it from opposite points of view, the rest of the class being invited to add their comments and to discuss the subject at length in their next essay.

Lastly may be mentioned verse composition, an exercise formerly derided, but now increasingly used. It is to be recommended if both teacher and pupil clearly understand that verse, and not poetry, is to be expected, and that the exercise is attempted merely as a means of enlarging the vocabulary, especially in the direction of synonyms, and of acquiring flexibility of style. The necessity of expressing ideas in a form regulated by the laws of rhyme and metre obliges the writer to exercise his memory and invention in search of alternative words and phrases, and the conventions of poetry demand that the expressions used should be the choicest and most appropriate at his command. The best of such efforts may very well find a place in the school magazine; but it is a mistake for proud teachers to present them to the general public as if they possessed any real literary value, or had any importance beyond the circle of the young author's acquaintance.

Such are some of the methods of teaching composition that are now practised in our best schools. Those interested in the subject will find valuable suggestions in the books mentioned below.

C. L. T.

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ENGLISH GRAMMAR, THE TEACHING OF.—Opinions differ as to the basis on which English grammar should be taught. Some think it should be taught as far as possible on the basis of Latin. Others would have it taught entirely on its own basis, quite independently of Latin. Others, again, would not have it taught at all by any formal method, believing, as they do, that any one who reads good literature will unconsciously and inevitably pick up as much grammar as he has any need to know. I disagree entirely with the first and, to a very large extent, with the third of these hypotheses. The second I endorse without reserve, and this is the foundation on which the views and suggestions expressed in this article will be based.

The first question that arises is: What are we to include under the term "Grammar," and what are we to exclude? Without discussing this point at present, we can safely begin with the two items—Accidence and Syntax—which in all cultivated languages are the main constituents of Grammar. To show in what order and by what methods the different branches of Accidence and Syntax may be taught, it will be convenient to subdivide the English grammatical course into a series of stages, each stage being supposed to occupy about one year in the school curriculum, and every new stage to be in advance of, and to some extent based upon, the one preceding it.

First Stage. THE PARTS OF SPEECH. The distinguishing of words into kinds or classes, based upon the different "parts" that words have to play in the forming of sentences, is common to all languages and is the foundation of all grammar. The first stage, then, is the proper time and place for the student to attempt to master these distinctions.

Second Stage. In this stage, Accidence proper—the changes of form, to which certain classes of words are subject in order to express corresponding changes of sense—should be commenced. This part of grammar is called Accidence, because the changes of form to which a word is subject are "accidentals," not essentials. In this stage I would not go beyond nouns, pronouns, adjectives, and adverbs.

Third Stage. In this stage, Accidence might be completed, verbs being the only inflected part of speech that is left. Not only is a verb the most important element in human speech, but it is subject to a much greater variety of forms than any other class of word. For studying the different kinds of verbs (Principal and Auxiliary) and the different variations of form in mood, tense, number, voice, conjugation, participle, and gerund, together with the different purposes for which these changes of form are made, one year is not too much.

Fourth Stage. Having finished Accidence, the student is now qualified to take up the study of Syntax, or sentence-building. The function of Syntax is to explain (*a*) the power which one word has over another to determine its form and its relation to other parts of the sentence; and (*b*) the order in which words have to be arranged for the exercise of this power. Under the former heading will, of course, be included the two Concords, which, so far as I know, are common to all inflected languages—the agreement of a verb with its subject, and the agreement of a pronoun with the noun that it stands for. If, as sometimes happens, there is no peculiarity of form to indicate such agreement, the relation of one word to the other must be understood without it. Parsing in all its

branches belongs to this fourth stage—a practice which seems to be falling into a neglect that it ill deserves; for it is the best safeguard that we possess against speaking or writing ungrammatically.

Fifth Stage. The time has now come for a revision of all that has gone before, together with the study of certain points that may not have been taken in hand hitherto, such as the peculiar Singulars or peculiar Plurals of certain nouns, the different uses of the Possessive Case of nouns, the " familiar " use of Possessive Pronouns, the different uses of the Indefinite Present Tense, the force of *shall* and *will* respectively according to person, the peculiar uses of the Perfect Infinitive, and so on. The student finds it difficult to understand how there can be two Infinitives, when there is only one Infinitive form, or how the Present Participle in *-ing* can be a distinct word from the Gerund in *-ing*. It will help him to understand this, if it is made clear to him that in Old English they were as distinct in form as they still are in function, and that the identity of form is a modern corruption which has been sanctioned by usage and must now be accepted as correct.

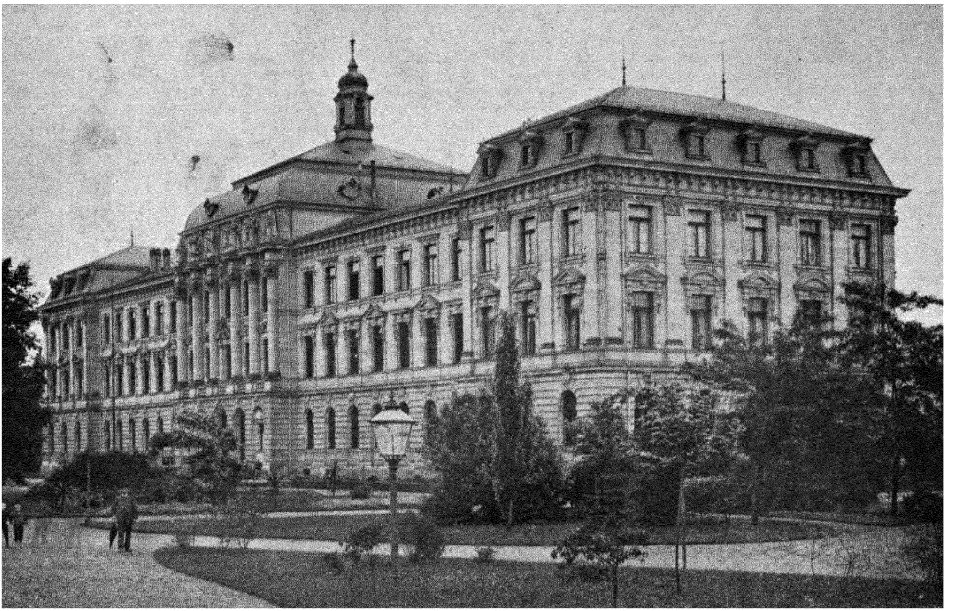
Methods of Teaching. Given, then, the stages and the subjects included in each stage, how is the teaching to be done ? I hold that, in all these courses, oral teaching should take precedence of book-teaching, and that book-teaching should be postponed until the other has had time to filtrate into the intelligence and memory of the student. What is understood is easily remembered, but is not easily forgotten; and it is much easier for a student to grasp what passes orally between himself and the teacher than if he were set to go over the same ground for the first time from a printed book. By degrees, he can be asked to reproduce in his own words or put into writing what he has learnt orally from the class-teacher. In this way he will be encouraged to think for himself, and make his own grammar as he goes on. When there is nothing more to be done by way of oral teaching, then—but not till then—recourse can be had to the grammatical text-book. Though the text-book can be put aside at starting, it would not be safe to dispense with it in the end. Not only will the study of the manual come very easy to a student who has had this oral preparation, but it will reduce what is floating in his memory to shape and order, put everything in its right place, supply any point or points that may have been overlooked in the oral teaching or not perfectly mastered, and serve as a guide for reference. Moreover, the manual will provide a great many examples specially prepared and framed to enforce certain points—a kind of help that cannot be got from any other source. Some students may find it necessary to learn a rule, or a definition, or a list of words by heart. If so, no harm is done; for learning by heart is a very different thing from learning by rote, and the memory is a faculty that deserves to be cultivated as much as any other.

At what age, it will be asked, should the teaching of English grammar be begun ? My own experience has told me that students of a tender age, when they have finished the Primer, have, as a rule, quite enough intelligence to understand the difference between one part of speech and another, if the matter is properly brought home to them. Any average student can be made to comprehend that a word which gives a name to an object is a Noun; that a word which adds something to the name is an Adjective; that a word which takes the place of a noun is a Pronoun; that a word which states some fact or asks some question about an object is a Verb; and so on. The words chosen by the teacher to exemplify these differences should be taken from the reading-book used by the class as they occur, not from a grammar-book: the use of the grammar-book will come later. All teachers would, I think, admit that a very great point has been gained if a student at a tender age can be made to discriminate the functions of one word from those of another, and can take a pleasure in so doing, and feel a desire to learn more.

Should English grammar be taught on the basis of Latin, or independently on its own basis ? Undoubtedly on its own. But as an attempt has been lately made to Latinize our grammar, it is necessary to say a few words on this point. For example, we have been told that instead of contenting ourselves with our simple system of Cases which every one understands—the Nominative, the Possessive, and the Objective—we should go out of our way to borrow the names of five Latin Cases—the Nominative, the Genitive, the Dative, the Accusative, and the Vocative—and apply them to the parsing of English nouns and pronouns. The objections to this method are many and serious. An English Vocative Case is a pure fabrication: there never was such a Case in English, and there never will be. The introduction of a Dative and an Accusative would make the study of English Grammar much more difficult than it is at present, and as an aid to composition it never could be anything but useless. It would give a good deal of trouble to many of the students who learn Latin; while to those who do not learn Latin, and can never have a chance of learning it, it would be a hopeless puzzle. It would, in fact, be prohibitive not only to the great majority of students within the United Kingdom, but to the vast number of scholars belonging to alien races within the Empire or near it—the native races of India, Burma, Siam, China, Japan, Egypt, the Soudan, South Africa, East Africa, West Africa, the Malay Peninsula, the West Indies, etc. English Grammar does not depend on Latin, and is not in any way derived from it. If it *resembles* Latin on certain points, this is because both happen to belong to the great family of languages called Indo-Germanic. We might as well say that English is derived from Greek or from Persian, for these languages also belong to the same great family and have certain points of resemblance to English.

We turn now to three other subjects which deserve to be adopted and included as branches of grammar—the Analysis of Sentences; Phonetics, or the theory of sounds; and Word-building. I exclude prosody, the figures of speech, and the study of style, because these belong to Rhetoric, and are outside the province of Grammar.

Analysis of Sentences. This subject, I think, has received more attention in school-manuals than it deserves. It consists in de-composing a sentence, *i.e.* breaking it up into its component elements—Subject, enlargement of subject (if any), finite verb, object direct or indirect (if any), enlargement of object (if any), complement (if any), enlargement of complement (if any), and extension of finite verb (if any). But, if Syntax, as explained above, has been properly taught, all this tedious de-composition of a sentence into a series of parallel columns should not be necessary. It takes up time which



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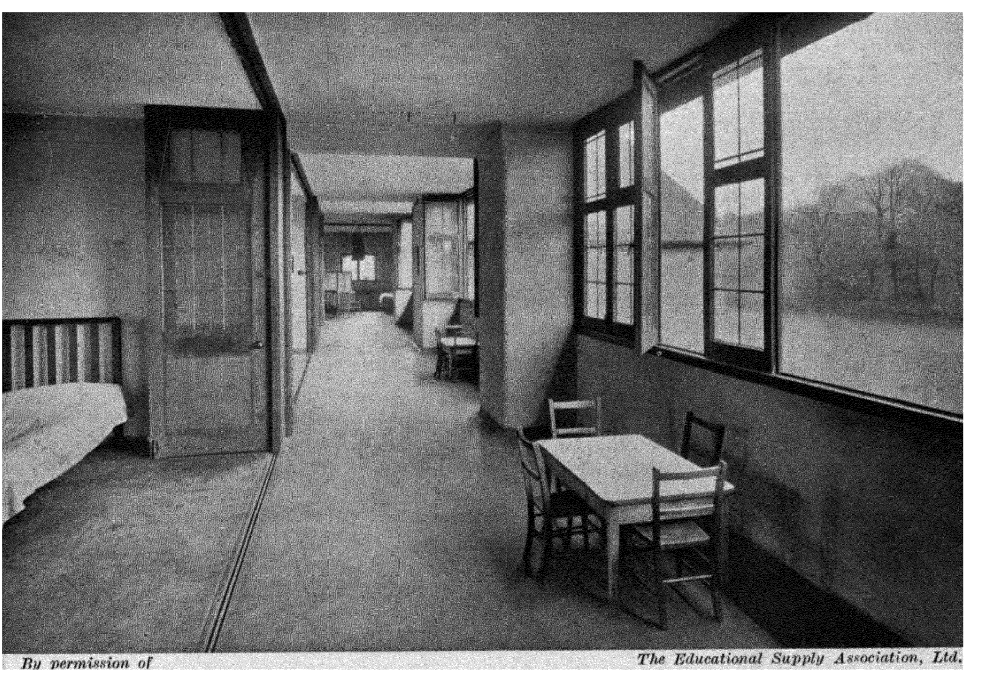

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Corridor showing folding and sliding screens and windows

PLATE XXXV

might be more profitably spent, and it is of no help whatever to accuracy of composition—the great object for which Grammar is studied. De-composition is not composition, but its opposite. In *Cobbett's Grammar* (*q.v.*), the aim of which is severely practical throughout, there are eight "Letters" addressed to his son on Syntax, and not one, or even a part of one, on the subject of Analysis. There is, however, one kind of Analysis which can be made useful, viz., the analysis of a complex sentence into *clauses*—the Noun-clause, the Adjective-clause, or the Adverb-clause. This is all that is now set in the examination papers of London and other universities. By practice in turning sentences from Complex to Simple, from Compound to Simple, from Compound to Complex, from Complex to Compound, and so on, the student can acquire a facility in the art of expression, which may come in very useful in writing a *précis*, a paraphrase, or an essay. The practice, however, is but rarely provided for in handbooks on grammar.

Phonetics (or the sounds of spoken English). This branch of grammar has, in English schools at least, been studied in inverse ratio to its importance. Of its importance there can be no question. The neglect of Phonetics is largely answerable for the strange pronunciations that we hear around us, and for the difficulties and inconsistencies of English spelling. No reform in spelling can be effective until an agreement is established as to what the sounds of spoken English are, and what symbols shall represent those sounds. A movement in this direction, however, has now been fairly started. For some time past, courses on phonetics have been taught at the Training Colleges in Scotland; and the Training Colleges in England have, in recent years, been paying attention to the same subject. The advantages to be derived by the students under training are: (*a*) a clearer articulation in their own habit of speaking; (*b*) improved powers of discriminating speech-sounds when they hear them spoken; (*c*) ability to determine what is wrong in the speech of the school-child, and to teach the school-child how to form the correct sound; (*d*) appreciation of the relations between the spoken and the written language. All these acquirements make the teacher much better fitted for his work.

Phonetics should be commenced at the earliest possible age, when the vocal organs are most flexible. Those who have had experience in the matter can bear witness that the subject, when handled by a teacher who thoroughly understands it himself and appreciates its importance, never fails to interest the class. Such teaching, as in the other branches of grammar, should be oral at the outset. A complete system of phonetics can be taught eventually from the book.

Word-building. I have shown already how in the learning of Accidence and Syntax a student can be taught, under a sympathetic teacher, to "make his own grammar." In the learning of prefixes and suffixes, this process can be seen to perfection. He will have to be told how to discriminate between an inflexion and a suffix; and it must be explained to him that, as a general rule, prefixes alter the meanings of words, while suffixes show to what Part of Speech they belong. Thus there is a very radical difference of meaning between "*pre*-scribe" (to order) and "*pro*-scribe" (to prohibit). Again, "dark-*ness*" is a noun, "dark-*ly*" is an adverb, "dark-*en*" is a verb. When the ground has thus been cleared, the student can begin to make out his own list of prefixes and suffixes from words as they occur in his reading lessons. This list will, of course, be very defective at first; but it will gain in completeness as he goes on; and by the time that he has finished the "Fifth Stage" (as shown above) he will have acquired a knowledge of most of the prefixes and suffixes in ordinary use. His mode of acquiring such knowledge, far from being a disagreeable or irksome task, will have excited his interest and given him an increased sense of power. After such preparation, the formal study of prefixes and suffixes as given in the book will be much more easy and interesting, and, therefore, much more effective, than it could have been without it.

J. C. N.

ENGLISH HISTORY.—(See HISTORY, THE TEACHING OF.)

ENGLISH, HISTORY OF THE TEACHING OF.—Richard Mulcaster in his *Positions* (1581) explains that, while in England the liturgy was in Latin, Latin was the "oneliest principle" in learning. But, with a faith "restored to liberty," English people became directed "by nature" to read first what they spoke first, and to "begin our first learning where we have most help to learn it best." There can be no doubt that the Church, insisting on the use of the vernacular (*q.v.*) for religious purposes contributed to the employment of the vernacular in the schools. But, perhaps, the extended possibilities of the vernacular, for educational and all other purposes, may be said to have been guaranteed, sooner or later, by the invention of the printing press, which created the supply of, and suggested the demand for, reading for all classes of the community, instead of merely appealing to the learned. The great advantage of Latin, for educational purposes, was that it provided a standard of style and vocabulary, and this advantage was emphasized by the Renaissance. The Latin of the old classical authors was fixed; the English of the various English dialects was fluid, and varied so greatly that the English as spoken by a schoolmaster in one part of England could not be understood if he went to another part. Thus, John Palsgrave, perhaps the best student of language in Europe, in 1540, says of the "rude" language of English students at Cambridge, that "not having had occasions to be conversant where the purest English is spoken, they be *not able to express their conceit in their vulgar tongue*," nor to translate Latin into English. In other words, he says they write a letter "right Latin like," and *speak* Latin very well, but they have not put aside their dialect-English, and there was no standard English to which to appeal. Palsgrave adds, that *after* they have acquired conspicuous learning, if called upon to preach or speak to English people, "they have *been forced to read our own English authors* to provide a remedy." When we remember that it was in the period 1540–1640 that the great Renaissance of English literature took place, we can understand the difficulty even of the "remedy" pointed out by Palsgrave: viz., the paucity of good standard literary English for the schoolmasters to study, so as to provide a reasonable English translation of classical authors; and, *a fortiori*, the difficulty of attempting to teach the vernacular which they themselves knew so inadequately.

Early Advocates of Teaching in the Vernacular. Mulcaster, c. 1530–1611 (*q.v.*), is the first thoroughgoing advocate of the use of English in English schools. He advises the beginning of reading first in English instead of in Latin, and urges as a reason that English presents certain difficulties that are absent in Latin, and it is better for children to attack them when young and while memory is plastic. "For," says Mulcaster, "our spelling is harder, our pronunciation harsher, our syllable hath commonly as many letters as the whole Latin word hath." Of the primary sense of the value of the English language as an instrument of expression, there are many passages to be gathered in Roger Ascham's *Toxophilus*, 1545; in Thomas Wilson's *Art of Rhetoric*, 1553; in a letter of Sir John Chester to Sir Thomas Hoby, 1557; in Samuel Daniel's *Musophilus* (1602–3); and, in 1595–6, Richard Carew, in his *Excellency of the English Tongue*, and Francis Meres (himself a schoolmaster) in 1598, in *Palladis Tamia*, show enthusiastic appreciation of the great Elizabethan authors, who had arisen, it must be remembered, since Palsgrave's time. But it was Richard Mulcaster who not only glorified the high value of Latin as well as English, but also advocated its use as the method of teaching, and as a subject of teaching. Moreover, in 1582, he wrote his *Elementarie*, which is largely a schoolmaster's manual of the study of the English language. Others besides Mulcaster were anxious to see the English language more highly recognized. Not only scholars such as Sir Thomas Elyot (*q.v.*) had been, but, still more, men of action—travellers and merchants—saw the future for the vernacular. Thus, in the regulations of 1597 of Gresham College, we see the transition stages, in which instruction was given in both Latin and English, professors were enjoined to deliver their lectures twice a day at eight in the morning in Latin (for scholars *and* foreigners), and at two in the afternoon in English (for "merchants and other citizens"). Sir Humphrey Gilbert intended instruction, in his projected Queen Elizabeth's Academy (c. 1570), "for the youth of nobility and gentlemen," to be, more definitely, English only. The teacher of rhetoric was to see that students' exercises and orations were "chiefly in English."

Text-books in Grammar. All the professors or "readers" were to be required to set forth a "translation" of a learned law into English every three years. The first efforts in the introduction of English grammar text-books were necessarily framed on the model of the teaching of Latin grammar, and imitate them so far as to be *written in Latin*. In 1594 was printed *Grammatica Anglicana* by P. Greenwood; and, in 1619, it was followed by *Logonomia Anglica* by Alexander Gill, high-master of St. Paul's School, who had John Milton as a pupil. Gill's book, though written in Latin, included illustratve passages from English poets (*e.g.*, Spenser, Philip Sidney, Daniel, etc.,) and even prefers Spenser to Homer. In 1633 Charles Butler wrote an *English Grammar*, which was followed, in 1640, by an *English Grammar* by Ben Jonson, both being in English. In 1657 Joshua Poole produced *The English Parnassus*, intended to help pupils to write English poetry. It is supplied with a treasury of practical phrases from English poets, which parallels in its representative comprehensiveness the phrase-books (See LATIN, HISTORY OF THE TEACHING OF) used for Latin prose and verse composition, and excellently illustrates the application of methods of rhetoric from classical authors applied to English poets. After the commonwealth, the private schools and the "English" schools (in towns possessing grammar schools) took up teaching in English entirely, and included some form of English grammar. In the eighteenth century, the teaching of English literature began in the dissenting academies. English composition was not neglected in the Sheriffhales Academy (1663–1697). Joseph Priestley wrote a text-book: *Rudiments of English Grammar* (*c.* 1758) recommending the "introduction" of the subject into schools, whilst Dr. Aikin at Warrington (1761–1780) was perhaps the first systematic lecturer on English literature. In the eighteenth century, also, chosen passages of English were learned by most in girls' schools and boys' schools—usually, however, in the private schools. The great English revival and interest in Elizabethan literature of the times of Coleridge, Hazlitt and Lamb, caused the real impetus to the study of English literature, which finally penetrated into the universities and schools in the latter part of the nineteenth century. No schools were more prominent in their excellent study of English literature in the latter part of the nineteenth century than the new girls' high schools. F. W.

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ENGLISH IN THE SCHOOL, THE HISTORICAL TEACHING OF.—Until recently, elementary books on the History of English dealt, almost exclusively, on the one hand with the genealogical relation of "Anglo-Saxon" consonants to those of Primitive Aryan, and, on the other, with the sources of the Modern English vocabulary. The former involved tables of symbols which looked like algebraic problems, the latter, long lists of words which no one could remember. It is possible that the words *History of English* still call up, in some minds, visions of those tables and of those lists, and it is not surprising, indeed it is highly creditable, if teachers whose conception of the history of English is embodied in some of the deplorable little books formerly so much in vogue, should refuse to admit that such a subject is capable of being taught to school children without inflicting upon them insufferable tedium, and therefore, probably, serious injury.

The generalizations of comparative philology, that is, the genealogical relations of groups of languages to each other, have but a remote bearing upon the history of English as this should be approached in the school; the details of comparative philology have no bearing at all. Again, if the history of English is made to end with "Anglo-Saxon," or at best with Chaucer, it not only ignores the important fact that the history of English is still going on up to the present day, and is therefore grossly defective, but a history of English so conceived would not begin to deal with any of the

facts of which children of school age have any experience.

It is more in accordance with our conception of the history of a language at the present day, and also with the trend of educational effort, to base our course of instruction, as far as possible, upon facts which can be observed in living, actually spoken English; facts which are familiar to the pupil and part of his everyday experience. If the history of English, at least in its elementary aspects, can be taught from a basis of living realities, and if one of the chief requirements be an accurate observation of readily accessible and perfectly familiar facts, and another a habit of reasoning correctly from these facts; then, from an educational point of view, there seems no reason for denying this branch of study a place in the school curriculum.

It is a fundamental axiom of linguistic science that the history, that is, the change and development of a language, never stops, but continues at all ages. In other words, the evolution of English is as active now as in the days of King Alfred. Further, the factors of change are of the same character now as in the remotest ages, and the same kind of phenomena can be observed now in actual process as occurred in the language of the past.

It is now held that the principles of speech development are best learnt, not from forms of language long since passed away, but from existing and living types, and best of all, from those types which are most familiar—that is, from our own mother tongue.

The Study of Modern Spoken English. Here, then, we have a starting-point, one which lies within the experience of all—the study of spoken English.

When we speak of the History of English, we generally refer, not to English in all its forms and dialects, but to those forms only which are exhibited in literature, on the one hand, and on the other, in what is somewhat vaguely called standard spoken English—that is, the form heard in good society, and which is recognized as correct and polite. To deal historically with English, in this restricted sense, is to trace the development of these spoken and written forms back to their source (the London dialect of the fourteenth century), to show the rise and origin of that dialect and consider its relation to the other forms of English preserved in documents of the Middle and Old English periods. To do this we cannot confine ourselves to the study of one single dialect during the older periods, since the London dialect, even in the fourteenth century, was not homogeneous in type, but shows, already, the traces of its various origin. A knowledge of all the main dialect types in Middle English, and of their ancestral forms in Old English, is therefore necessary to a complete understanding of this.

Moreover, during the modern period, that is, from the fifteenth century onwards, the literary dialect and the standard spoken form have been influenced from time to time by other regional and class dialects, and at the present time traces of this influence, exerted during the last two or three hundred years, are distinctly observable. Therefore, even during the modern period, after a standard in speech and writing already existed, we cannot altogether ignore the character of other dialectal forms.

Coming now to closer quarters, the history of any form of language consists of: (*a*) a history of its sounds—of its pronunciation; (*b*) of its inflexions and grammatical forms; (*c*) of its vocabulary, (*i.e.* an inquiry not only into the origin and sources of the elements which from age to age come into it and disappear, but also of the fluctuations in the meaning of these elements); (*d*) a history of the structure of sentences or syntax.

Such, very briefly, is the scope of the historical study of a language.

We may now inquire what we may reasonably hope to accomplish in the school, in this field.

Since the whole idea of the development of language will be new to children, the course of instruction must be very carefully graduated so as to awaken intelligent curiosity, and gratify it in such a manner that the pupils proceed from point to point with full understanding of the significance of each. It is probably wise to give from time to time a general sketch, or bird's eye view, of the part of the subject which is being dealt with, so as to avoid the danger of the real point being lost sight of amidst too much detail. The first thing is to explain clearly what the history of a language is, and to bring it home, by simple means, that English has, as a matter of fact, changed in the past, and is changing still. This latter point may be easily demonstrated. Every child almost has heard it said that the speech of some very old person of their acquaintance is "old-fashioned." What does this mean? Simply that old people speak differently, sometimes pronounce differently, and use words and expressions different from those used by people considerably younger. That is to say, their speech, like their clothes and manners, belongs to a bygone age, of which they are the last survivals, and that the language of that age was in some respects different from our own. If an appreciable change has come about in 50, 60 or 80 years, will not a much more considerable change have taken place if we go back several hundreds of years? Can we test this argument? Yes; but since we can have no *direct* experience of the speech of the past, beyond what we can derive through the oldest living person known to us, if we would go further back still we must have recourse to the testimony of written records of speech. Written records, books, can give us direct information as to the vocabulary, the accidence, and the syntax, but not as to the pronunciation of the writers. If we would gain light on this point we can devise it indirectly from the spelling, in some cases, but more readily from the rhymes of poets. Any child can be convinced at once that in the sixteenth and seventeenth centuries different grammatical forms were used from those which we now employ, and that the vocabulary was in many respects different, by judicious examples (and they abound) drawn from the Prayer Book and the Bible. As regards pronunciation, the teacher may start by quoting the first verse of Cowper's hymn: *God moves in a mysterious way*, to show that *way* rhymes with *sea*. The teacher may further give numerous examples from the rhymes of Pope and his contemporaries to show such rhymes as *obey—tea, days—ease, take—weak, line—join*, and so on.

In a word, it can very easily be shown that, if we go back a hundred to a hundred and fifty years, the pronunciation of those days must have differed from our own to a far greater extent than does that of the oldest living person whom we know. It is not a very daring conjecture that, if we could find out how the writers of the Prayer Book and

of the Authorized Version pronounced, we should find that this pronunciation differed still more from that of to-day than that of Cowper or Pope, just as their vocabulary and grammar are very different from those of the eighteenth century writers.

Thus the secret is out: English has changed considerably, in every way—sounds, grammar and vocabulary—since the period of Elizabeth and James I.

Incidentally, the teacher may insist at this stage, and he must often return to the point, that *sounds* may often so change, although the *spelling* remains unaltered; and further, that in dealing with the history of a language, we are concerned, not with *letters* but with *sounds*.

The teacher must have constantly present in his own mind, and should ever seek to enforce the fact, that language has no life or powers of change of itself. Human language is the expression of thoughts and emotions by means of speech sounds, and has no existence apart from living human beings. The study of living speech, therefore, is the study, primarily, of a certain group of human activities, some of them mental, some of them physical. Thus, in dealing with a living language, we can never get away from those who speak it. When we assert this or that fact about a language, we are simply saying that a certain group of human beings think and feel in such and such ways, and express their ideas and feelings by such and such sounds; in other words, by certain movements of their vocal organs. When we say that English has changed during the centuries in this or that way, we mean that succeeding generations of Englishmen had gradually altered certain of their mental and bodily habits in the course of time. The more thoroughly the attention of the child can be directed upon his own speech, and upon that of his associates, the better will he be prepared to begin to understand something of the history of English.

And first we must call attention to the external aspect of language—the sounds that are uttered by the speaker, and heard by himself and others. This brings us to the first part of our course—Phonetics, and Spoken English. (See PHONETICS IN THE SCHOOL.)

The general aims of this course, and suggestions in outline, are set forth under the heading referred to, and we cannot go into further details here, but a warning may perhaps be uttered that this aspect of the study of English should not be hurried. It will be quite new to the class, and plenty of time must be allowed for them to grasp thoroughly the lessons it is desired to impart, and to apply the knowledge gained.

From the study of speech sounds in general, and the observation of the facts of English pronunciation as exhibited in the individual, it is a natural step to pass to a wider survey of English contemporary speech so far as this is accessible to the pupils. In dealing with the various types of speech, several of which will naturally come under the observation of the children as part of their daily experience, the teacher will do well not to confine himself purely to varieties of pronunciation, though these are among the most characteristic features of any form of speech, but to direct attention also to differences of vocabulary and grammatical usage, as well as to the so-called "mistakes" of illiterate and provincial speakers. (See on these questions DIALECTS OR VARIETIES OF PRESENT-DAY ENGLISH.)

When these lessons, drawn from the study of various aspects of living English, have been well learnt, the pupil, with his linguistic sense sharpened and alert, his interest, let us hope, excited, and his understanding trained to observe accurately and to draw reasonable inferences from his observations, may pass to a more difficult, because less familiar, line of study, namely, the English of the past. This is the last, and the most purely historical part of the suggested course of English language in the school.

The Language of our Older Literature. The Bible and the Prayer Book are the most widely known of all books representing earlier forms of English. Both of them teem with grammatical forms now obsolete, with words and phrases no longer in daily use, and in some few instances with spellings, such as *wine fat* (instead of *vat*) and *plat of ground* (instead of *plot*), which suggest an altogether different type of pronunciation from our own. All these things the judicious teacher will know how to exploit when discovered. The innumerable differences between the language of these books and that of to-day, will surely bring home how much English has changed in style and diction during the last three centuries. Much may be learnt from these familiar documents, but it may well be urged that the instances which illustrate the changes are too scattered, and the documents themselves too vast, to be suitable as a basis for prolonged systematic study.

After the preliminary training sketched in the former sections of this article, it will probably be best, after calling attention to the language of the Bible and Prayer Book, to pass ere long to the study of a text which presents material for comment in every line—namely, some passage of Chaucer.

Here the spelling is sufficiently different from our own to suggest at once that the pronunciation must have been different; the vocabulary and the grammatical forms at once take us back to a state of things very different from our own time. And yet the language does not present, even to young students, the insufferable difficulties of "Anglo-Saxon," while the beauty of the verse and the charm of thought and feeling which inform everything which Chaucer wrote, can hardly fail to touch even the most obtuse. (See CHAUCER IN THE SCHOOL.)

When some progress has been made with the study of Chaucer's language, on the lines suggested in the article CHAUCER IN THE SCHOOL, and a reasonable knowledge of his pronunciation has been gained, the class may proceed to compare this with the sounds of the corresponding words in present-day English, to note the differences, as to inquire into the reasons. This leads to a very interesting part of our study, some of which has been worked out with considerable minuteness.

History of English Sounds. Perhaps many teachers will consider as the most difficult part of their talk, what is nevertheless an essential aspect of the history of English, namely, the history of sounds. At least an outline should be given of the principal sound changes since the time of Chaucer. From this study it will be seen that many of Chaucer's words are not the direct ancestors of the modern forms, but that these are derived from different types, representing in some cases different regional or class dialects, while in others the modern forms are derived from types that arose as doublets, in Middle English. Thus, modern *father* is not from

Chaucer's *fāder*, but from another form *făder*, also used by Chaucer, which originally came from the inflected forms of the word. Points of this kind are essential to accuracy of treatment, and may profitably be dealt with in the advanced classes when the subject is taught.

In any case, the history of English sounds cannot be ignored, since, without some account of the chief sound changes, both isolative and combinative, from Old English downwards, many things which arise in the history of accidence are inexplicable.

The way has been prepared for this branch of the subject, in the treatment suggested in the articles on PHONETICS, and DIALECTS, etc., of the sound of present-day English, and the tendencies to combinative change to which we are still liable in speaking English.

Such an important sound change as that known as *i*-mutation should be treated as part of the history of sounds and not merely under the accidence, to explain the difference between *tooth* and *teeth*, etc. This difference is the result of a purely phonetic principle which governs the relations of dozens of related words in English, and has no primary connection with the distinction between the singular and the plural. The teacher should point out that the same change occurs, for instance, in *seek* compared with *sought*, *deem* compared with *doom*, *gild* compared with *gold*, *filth*, or de-*file* compared with *foul*, and so on. The teacher will do well to make a systematic list of certain phenomena in Modern English which can be understood only by knowing the sound changes of the past which have caused them, and base his account of the early sound changes upon this.

These phenomena may be divided into differences, seen in related words, which affect respectively vowels and consonants. Within this general grouping, more minute divisions can be made, according to whether the quality or the quantity of vowels is concerned, and, in the case of consonants, to whether the distinction of voice and breath, and so on. Thus, under the head of vowels, it may be asked—why do we say *foul* but de-*file*, *child* but *children*, *house* but *hus*band? With regard to consonants, what is the reason for the difference in the final consonants in *breath* and *breathe*, why *think* but *thought*, and so on. The teacher should call the attention of the class to these, and hundreds of other similar familiar facts, and point out that the explanation lies in certain combinative sound changes which occurred in the past history of our language. These changes, although the tendencies which produced them no longer exist in our habits of speech, are yet not essentially different in character from those combinative tendencies which are observable in the unstudied utterance of all of us. (Some guidance to the treatment of this part of the subject will be found in *Growth of English*, by H. C. Wyld.)

The main aim of that part of the course which deals specifically with the history of English sounds and grammatical forms, should be to throw as much light as possible upon the facts of Modern English. Starting with this, we ask how did it arise?

To sum up. The course begins with a study of familiar, every-day speech, notes its varieties, calls attention to the individual tendencies which are now, as ever, at work in shaping and altering English in innumerable ways. The lesson to be learnt is that English, as it exists, is the result of the activities of those who speak it, and of the social and other conditions under which they live. But English has a past, and, just as it is changing now, so speakers long dead, like ourselves, changed it from age to age through the influence of phonetic tendency and of analogy. But we inherit our language from these old speakers, and as we possess it it comes down to us with all the changes which they wrought in it. They altered sounds in different ways according to different phonetic conditions, and thus it is that the same original sound, let us say, in the past tense of a verb, has come down to us in a different form from that which it has in the present, because our ancestors pronounced the sound differently in these two tenses. It follows that in order to understand these and other similar differences, we must find out something about the speech habits of our ancestors. These can be stated in the form of what are known as *phonetic laws*. It turns out that there is a reason for everything which happens in speech. The reason is to be found in the mental and physical habits of those who now speak it, or who have spoken the language in the past. (See DIALECTS OR VARIETIES OF PRESENT-DAY ENGLISH; CHAUCER IN THE SCHOOL; PHONETICS IN THE SCHOOL; in conjunction with each of which the present article should be read.)

H. C. W.

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ENGLISH LITERATURE, THE TEACHING OF.—There is no subject in the whole range of education which is more difficult and more dangerous for the teacher to handle than English Literature. We shall do well, therefore, to face some of these difficulties and dangers at the outset. In the first place, literature is not written for the class-room; and the teacher of literature must never forget that the atmosphere of discipline and restraint is, as far as he is concerned, a sore let and hindrance to success. Literature is written for enjoyment; it is play, dream-land, freedom, life. Once let it become associated with thoughts of work, of the daily round, of the scholastic prison-house, and half—if not all—its magic has flown. Who has not experienced the difficulty of appreciating fine poetry in bad type and ugly binding? Stiff desks, ink-stained walls, and all the memories which these evoke in the mind, may prove an even greater impediment. Again, it should be noticed that literature differs from most other subjects in the curriculum, in that it has, in and for itself, nothing whatever to do with learning or information, or what is commonly

called knowledge. Doubtless in dealing with it, the student is increasing his range of vocabulary; and an excursion into the realms of history, geography, or what-not may be necessary in order that he may fully understand a given poem or play. But all this is of purely secondary importance as compared with the one great aim of all literature teaching, which is "appreciation," or the fullest possible realization of the poet's purpose and mood, and the fullest possible enjoyment of his manner of expressing these. The very book which the teacher holds in his hand tempts him to forget this. Books have no more essential connection with literature than they have with music. They are merely convenient store-houses for tale and song, and have only comparatively recently (as history goes) come to supersede the memories of minstrels. Yet the fact that literature has now become dependent upon books, which are also, and more usually, employed as store-houses of learning, has created a confusion in the minds of many people, so that the teacher armed with the book almost inevitably feels uncomfortable if at the end of the literature lesson he has not taught his class something definite, something he can question upon or get his pupils to "reproduce." It is so much easier to take the line of least resistance, so much easier to instruct than to inspire, and so much more immediately satisfying. For knowledge can at once be tested by questioning or examination, while the "results" of a lesson in literature can be weighed out in no scales yet invented.

Aims and Methods. Literature, in truth, cannot, in the strict sense of the word, be *taught* at all, since the business of its so-called "teacher" is not to communicate new facts, but to introduce two minds to each other—the poet's and the pupil's—and to establish the closest possible relation between them. A literature lesson is an act of creation like a musical recital. A poem is not a number of words on a printed page, any more than music is merely crotchets and quavers. It is an emotional experience in the soul of a poet, worked up into an artistic whole, and expressed by means of a series of sounds. The copy of a poem in a book is simply a record of this experience; and to reproduce it, that is, to read the poem properly, the teacher must have something of a poet's fire and imagination in himself; and must also be able to give full force, by means of intonation, stress, and articulation, to the formal beauty of the piece. The born teacher of literature, in short, is the individual who can enter into the poet's mood and purpose, and interpret them himself or get his students to interpret them in a rich and cultivated voice. Provided he has selected a suitable poem or play—a very important proviso, as we shall see in a minute—he will have done all that is necessary for the literature lesson proper. When the reading is finished, he will probably get his class to talk over what has been read. This, however, is not literature; it is criticism.

It is, then, the human voice and not the printed book that should be the chief instrument in the teaching of literature. The class ought, in general, to sit with closed books as the story, the poem, or the play is proceeding; for the alertness of its attention is the best test of the success of the lesson, and the ear needs as much training as the eye. The tongue must be trained also, and the teacher should by no means be the only, or even the chief, actor on the class-room stage. Indeed, though he must always take a leading part in those "talks between the acts," when beauty of phrase or skill in construction are under discussion, or when the conduct of Shylock, Hamlet, or Andrea del Sarto raises questions of ethics and psychology, his place in the actual performance of poem or play will, as often as not—if he is an efficient actor-manager—be little more than that of prompter. For once he has in his own person exhibited that poetic truth which is "carried alive into the heart by passion," once the class has come to realize what glorious fun the rendering of poetry and drama is, there will be many ready, nay, eager, to imitate him. Shakespeare will be learnt, and scenes given in front of the class; the drudgery of "recitation" will be forgotten in the anxiety to speak one's lines like a man and to show the "other fellows" what a fine piece one has chosen for one's own; prose, too, will find its votaries, and the class-room echo with the sonorous eloquence of our great orators, or its inmates be convulsed with the robust humour of a passage from Dickens. Here, too, the provinces of "literature" and "composition" tend to overlap, since it is but a short step from admiration to imitation; and the recognition of the possibilities of verse-making and even of play-making in the class-room is a growing one. (See *Rudiments of Criticism*, Greening Lambourn, and the *Play-way;* H. Caldwell Cook.) And, if it be objected that all this is not work, but recreation, the answer is that literature *is* recreation—the highest form of it known to man—and that either the teaching of it must be throughout treated as a kind of game or it had better not be attempted at all. This does not mean that it is not to be taken seriously; there is nothing the English boy or girl takes more seriously than play. And, so taught, literature will seem to the children something apart from work, something which is not imposed upon them, but which belongs to them and springs from them; the English lesson will be looked forward to as the treat of the week; and imagination will transform the dusty class-room into a fairy palace of romance. Some day, perhaps, when the value of English literature receives national recognition, every school in the land will be equipped with a miniature theatre, and then we can have forms and houses competing on the stage as well as on the football field.

The Selection of Material. One important aspect remains to be touched upon—the selection of material. This is a large subject, and only a few general remarks can be made upon it here. One is that there is a literature for every age, and that it is fatal to introduce children to literature for which their minds are not yet ripe. This is, of course, clear in the case of "hard" writers like Browning and Meredith, who, with the exception of one or two poems of the former—such as *The Pied Piper* and *How They Brought the Good News* —should be left to the very end of the school career. But the same thing holds no less in the case of certain seemingly simple poets such as Wordsworth, one or two of whose Nature lyrics may be used in school, but whose child-studies are, in particular, quite unsuitable for children. In other words, the successful teacher is one who understands and appreciates not merely the mind of the poet, but also the mind of the child: he is the thoughtful host who knows that he must use care and discrimination as he pairs his guests at the feast. There is no fear of the supplies running short, for in the treasure-house of our literature may be

found abundance of material for every type of mind and every stage of life. (For useful suggestions as to material suitable for children at various stages of development, see two leaflets issued by the English Association: "Early Stages in the Teaching of English" and "English Literature in the Schools.") And one poet—the greatest of all—can be enjoyed at almost all periods. "Tales from Shakespeare" may be introduced to quite young children, though they are better told by the teacher than read from the pages of Lamb; while boys and girls of 12 or 13 are fully able to enter into the spirit of certain striking scenes from the easier dramas. The mistake that is often made is to insist that the children shall swallow their plays whole, the result of which is that they become bored long before the end. It should be recognized that it requires a strenuous effort of attention and large powers of imagination to follow through a play from a book which gives but few stage-directions, and is unaided by scenery, "business," or actors—especially if the play is taken week by week throughout a whole term. The object of the teacher is that his pupils should enjoy their Shakespeare; and to this end he should make the story the centre of interest, or, if he thinks fit, a particular part of the story, such as the "Bond plot" in *The Merchant of Venice*, freely missing out whole scenes which he considers will make little or no appeal to the class, and, above all, passing as lightly as possible and as quickly as possible over the difficulties of language in order not to break the thread.

Ideals. To conclude with one last question: Why do we teach literature? No easy question, this, and perhaps best answered by another. What happens to a class of children when a poem or play is taken in the way we have tried to describe? Their eyes light up, their faces glow, their hearts beat faster; they are thoroughly enjoying themselves. Is joy, then, the end at which we aim? In a sense, it is; the delight of the child is the reward of the teacher—the only possible test of his success. But, if this delight were not the expression of a profound spiritual and emotional experience, it would be worth little. During the literature lesson the child lives a larger, fuller life; he discovers an existence upon a higher plane than the actual; he recognizes in the poet a friend who understands his secret dreams and aspirations; his soul has been awakened and has learnt to take flight upon the viewless wings of poesy.

Yes; but what about the meanings of hard words and obscure allusions, some practical objector asks? Well, of course, we must choose our piece carefully, as has been said. And for the rest, does it matter very much if some passages are a little hazy? Fairyland is none the less enchanting because it contains doors for which we have forgotten the correct Sesame, and poets and children have ever been alike

"Contented if they might enjoy
The things which others understand."

ENGLISH SCHOOLS TO EDWARD VI, HISTORY OF.—The schools of England are derived directly from the schools of Grammar and Rhetoric of the Roman Empire. These schools were themselves adapted from the Greek schools of Grammar and Rhetoric of Athens, and to be found in all Greek towns from Alexandria to Naples and Marseilles. But while in the Roman Empire, East and West, including Roman Britain, the schools were of "pagan" origin and traditions, in Anglo-Saxon England they were identified with Christianity and connected with the churches. They were not descended from Catechetical schools, which were schools preparatory for baptism, and ceased to exist when the whole population had become Christian.

"Our Oldest School" is the King's School, Canterbury, so called from Henry VIII, but descended in unbroken line from that founded by King Ethelbert of Kent (*c.* 598). For Bede tells us that when (in 631) Sigberct became king of the East English after exile in France, "wishing to imitate what he had seen well done in Gaul, he founded a school in which boys might be taught grammar, with the help of Bishop Felix, whom he had got from Kent, who provided them with ushers and masters, after the custom of the Canterbury folk."

Augustine, himself a Roman, introducing sacred books, Bible, prayer-book, and hymn-book in Latin, perforce established a Latin grammar school to enable the converted native to understand them. He also established a Song School to teach the Ambrosian and Gregorian chants for the responses, Psalms, and hymns, which had become the chief feature of the Latin services.

When Paulinus, the apostle of the English north of the Humber, and first Bishop of York in 627, fled, in 633, from a pagan reaction, James the Deacon stayed behind, and, when Christianity was restored under King Oswald in 635, "acted as master to many in church chanting after the fashion of Rome or Canterbury"; while Putta, Bishop of Rochester, was "especially skilled in the art of chanting in church after the fashion of Rome, which he had learned from the pupils of the blessed Pope Gregory himself." So that the twin schools of Grammar and of Song, which were found attached to all the great churches and many small ones at the Reformation, existed at Canterbury, and were imitated elsewhere, from the time of Augustine. We may place the Early English schools in the order of the cathedrals: Canterbury (598), London and Rochester (604), York (627), Dunwich (631), Dorchester (634), Winchester (648), Lichfield (669), Hereford and Worcester (*c.* 685), Sherborne (705). All but Dunwich, Dorchester, and Winchester still flourish; and Winchester only perished, some time in the first half of the sixteenth century, through the competition of its modern rival, Winchester College, founded in 1382. Augustine having been a monk, it has been often assumed that the original cathedral establishments at Canterbury and Rochester consisted of monks, or of monks and clergy mixed, and were monastic. This is, however, inconsistent with the whole practice of monasticism, and largely due to a confusion between monastic and ecclesiastical institutions. The monks Augustine brought with him were sequestered in the monastery of St. Peter outside the walls (afterwards called from him St. Augustine's), to which he and his successors resorted for occasional "retreats" while alive, and for burial when dead. Christ Church Cathedral was staffed by the clerks, priests, or ordinary clergy. The school was in connection with the latter and not the former. These early cathedrals were little more than mission stations settled in the capitals of the several English kingdoms. Their canons, as they were afterwards termed, were the clerks, priests, deacons, and inferior clerics, who acted as

assistants to the bishop in his affairs and in preaching and teaching. As Christianity spread and population increased, new bodies of priests were settled in the larger centres outside the capital cities, in the towns which became the capitals of counties and hundreds, with a central church or minster around which they lived, organized on the same lines as the cathedrals, with the bishop as visitor instead of resident head. These churches became known later as collegiate churches.

Schools Attached to Collegiate Churches. It is almost impossible to date these early Saxon collegiate churches, and the schools which their inmates maintained, as we can the cathedrals. A canon of the Council of Clovesho, held in 747, presupposes a fair supply of such schools.

In 826, a Council held by Pope Eugenius at Rome, definitely recognized as universal the duty of bishops cast on them from the first, by circumstances in England, to provide schools: "All bishops were ordered to take every care that teachers are established, both in their cathedral cities and other places where necessary, to teach grammar schools." A great extension of the collegiate churches and the schools attached to them took place as Alfred the Great and his children, King Edward the Elder and Ethelfled (the Lady of the Mercians), re-conquered Wessex and Mercia; and as his grandson Athelstan, conquered Northumbria, restoring old or building new boroughs. To them were due the great churches and schools found at Oxford, Colchester, Bedford, Warwick, Stafford, Leicester, Derby, Stamford, Shrewsbury, Beverley, Chester-le-Street. King Alfred had himself sent his youngest son Ethelward to the grammar school at Winchester to read Latin and English books. So settled had the policy of education become, that even the Danish conqueror, Canute, after he became a Christian, maintained boys at the borough schools in training for the clerical order—not only freemen, but also some of the poor, whom he often made free. The foundation of Waltham Holy Cross Collegiate Church by King, then Earl, Harold in 1060, shows the schoolmaster—a Dutchman, born in Liège, imported from the school of Utrecht —ranking next to the dean. Whether before the Conquest there were schools in connection with simple parish churches generally founded by lords of manors as manorial chapels, there is no evidence to show. A canon of King Edgar's (in *c.* 960) that priests diligently teach youth, and the Ecclesiastical Laws of 994 that "priests shall keep schools in villages (or, perhaps, manors, *per villas*)" and "teach small boys gratis in their houses," would be surer proof of parochial schools, if these laws were not reproductions verbatim of canons of the Council of Constantinople made in 682 for the Eastern Empire. The instruction given in the English schools was that given in the Grammar and Rhetoric schools of Italy, that is to say, it consisted of the study of classical authors, and of the theory and practice of public speaking. Virgil was the chief poet studied.

The writings of Aldhelm (*c.* 680–705), Bede (*c.* 700–731), and Alcuin (*c.* 780–800) show that Ovid, Horace, Lucan, Terence, and Seneca, with the Christian poets Ausonius, Sedulius, Iuvencus, and Prudentius, were read. Bede wrote on Orthography and Prosody. In Alcuin's *Curricula* (eighth century), Rhetoric, Aristotle, Cicero, and Boethius are included. To Latin the Greek Archbishop Theodore, in 669, added the study of Greek. There is ample evidence of English knowledge of Greek among Theodore's pupils up to the end of the tenth century. A Latin poem by Frithgode, schoolmaster at Canterbury in the tenth century, is freely sprinkled with Greek words. All classes of freemen attended the schools; but the sons of the labouring classes, serfs, or villeins only by special favour and emancipation of some manorial lord.

Norman French Schools. The Normans were at least a century behind the English in culture. They had cathedral schools, no doubt, at Rouen and Bayeux, and other places; but education and culture were chaotic and behind French, Italian, or Dutch. The two first "Norman" archbishops of Canterbury from Bec and Caen were Italians; the first Norman Archbishop of York and his brother-bishop of Worcester were educated at Liège. The displacement of English for Norman French as the school language into which Latin was construed, and the substitution of one Norman lord over wide districts formerly tilled by scores of small English free landowners, must have greatly discouraged education. In the Institution of St. Osmund, the statutes of the new cathedral at Old Sarum, the Normans followed the English and French fashion in making schools an integral part of the cathedral: the grammar school under the Chancellor and his deputy the Archiscola, the Song School under the Precentor and his deputy the Succentor. So at St. Mary's collegiate church, placed in the castle of Hastings, two out of the nine canons were entrusted with the schools as attached to their prebends, being given the *regimen scole gramatice* and the *regimen scole cantus* respectively. When the episcopal see was moved from Thetford to Norwich, the Thetford school was handed over to the Cluniac monks, who took the canons' places; but on a subsequent quarrel, in 1114, was restored by the bishop to a secular dean. At Reading, on the other hand, about 1130, the bishop solemnly decided that the abbey, founded five years before, was entitled to Reading School, and that no one might teach there without its license. Extant documents record at Bedford, Bristol, Christchurch (Hants), Derby, Dunstable, Gloucester, and Huntingdon, grants or decisions transferring the patronage and government of the schools to new Augustinian houses, largely foreigners. Not that the regulars wanted to teach the schools themselves; they sought power, patronage, property —particularly fees for licences to teach within their jurisdiction. In their "dead hand," the schools would have been starved had not the universities sprung up.

The Beginning of the Universities. The University Movement began in the medical schools at Salerno and the legal schools of Bologna, and quickly spread to Paris and the classical Orleans, and Oxford. It was essentially a trades union movement, teachers and students of the various arts and sciences banding themselves together in gilds and corporate bodies (*universitates*) for mutual support and self-defence, and against unqualified practitioners. They aimed at free trade in education as against monopoly and excessive tariffs. Instead of only one authorized teacher in each town, or in each of a few limited areas belonging to privileged churches in each town, universities were founded on the principle of competition, and their schools were limited only by the laws of supply and demand. Like all trades unions, the universities developed highly restrictive rules themselves; but they never

abandoned their main principle of free sale of instruction by any number of teachers, and free choice of teachers by any number of students. As Paris University developed through the rivalry of the ecclesiastico-educational authorities of Notre Dame Cathedral and the collegiate church of Ste. Geneviève, so London owed an inchoate university to the multiplication of rival authorities: the Chancellor of St. Paul's, the canons of St. Martin's-le-Grand, and the Dean of the Arches in the church of St. Mary-le-Bow; and Oxford to the rival schools of the two collegiate churches of St. Frideswide's and St. George's in the castle.

In the first quarter of the twelfth century, the schools of London embraced two elements: first, the grammar and rhetoric boys who, on saints' days, publicly disputed in the churches on grammar points, and recited verses and epigrams to show their skill in Latin, and made Latin speeches to display their proficiency in rhetoric; and, second, the elder scholars, who disputed in sophistry and logic, and demonstrated their progress in philosophy.

On the other hand, at Oxford, by the thirteenth century, the university element, represented in the first half of the twelfth century by Theobald d'Etampes with his sixty or one hundred scholars in grammar and rhetoric, with perhaps also canon law, and Robert of Pullen in theology, had blossomed out into an unlimited number of schools in arts, philosophy, theology, and law—civil and canon—masters and scholars enjoying self-government under a freely-elected chancellor and proctors, with numerous grammar schools for boys, but strictly subsidiary and subordinate. Various attempts at various times to establish similar "general" schools in various towns, such as Reading, Salisbury, Northampton, Stamford, all failed except at Cambridge, where the university, originally started by a secession from Oxford in 1209, grew with unexampled rapidity.

Schools of Grammar and Theology. Meanwhile the bishops, emulous of the University Chancellors, and desirous of keeping at their cathedral schools the elder and advanced scholars who flocked away to Oxford, bifurcated their schools. The schoolmaster changed his title for that of chancellor, and limited his teaching in the chancellor's school to theology, devolving his discarded name, with the ordinary teaching of grammar and rhetoric, to a deputy—the grammar schoolmaster. In 1215 the provision of the two schools of Theology and Grammar, and the assignment of "prebends" or estates for their support, was made, by a decree of the Lateran Council, part of the common law of the Church.

It is to a bishop of Salisbury (Giler of Bridport) that the next great development of corporate educational action—that of university colleges—is due. In 1262 he founded the House of the Valley Scholars of St. Nicholas, the name being taken from a college founded in Paris by an English master of that university. His example was quickly followed by Lord Chancellor Walter Merton, Bishop of Rochester, who placed his House of the Scholars of Merton, at Maldon-by-Merton, in Surrey, in 1264, and moved it to Oxford in 1274; and at Cambridge, in St. Peter's College, otherwise Peterhouse, at first placed by Hugh Balsham, Bishop of Ely, in St. John's Hospital in 1280, and moved to its present site in 1285. These colleges were, in effect, collegiate churches, in which the scholars (or fellows, as they came to be called), filled the place of the canons; and their education and study were the first object, and religion and the performance of services secondary only. These foundations marked the definite decline of the monastic ideal.

In the fourteenth century, and later, ladies and merchants, and others, began to found lesser educational institutions—chantries—consisting of two priests to pray for their souls: one to teach a grammar, and the other a song, school, or one priest to teach both combined: so we get many of our educational institutions, from the collegiate church schools of Howden (1265), Bishop Auckland (1286), Winchester (1382), Eton (1440), Magdalen College School, Oxford (1480), to the chantry-grammar schools of Manchester (1506), Berkhamsted (1523), Sedbergh (1525), Walthamstow (1527), and Horsham (1533). There were also gild schools, such as that of the Palmer's Gild at Ludlow (in existence in 1349); the Gild of Preston School (in existence in 1358); and the Gild-of-the-Holy-Cross School, Stratford-on-Avon (the first mention of a master goes back to 1267). Oundle school was held in the Guildhall in 1465.

Schools, or exhibitioners attending schools, were often planted in hospitals, such as that in St. Katharine's Hospital by the Tower, now in Regent's Park, by Queen Eleanor in 1277; St. John's Hospital, Bridgwater, in 1283; St. John's Hospital, Exeter, 1323; St. Anthony's Hospital, Threadneedle Street, a rival of St. Paul's School in 1440; and St. John's Hospital, Lichfield, in 1490. (See HOSPITAL SCHOOLS.)

Altogether, some three hundred grammar schools may be counted in England, without reckoning Lowland Scotland, where also grammar schools were to be found in all the cathedral cities and boroughs. These schools were, in a sense, technical schools; the education was strictly utilitarian. The Song Schools taught singing for the choir; and became elementary schools, teaching reading and the elements of grammar simply to enable boys to sing the Latin service. The Grammar Schools taught grammar, that is, to read, speak, and write Latin, because, as their founders were never tired of repeating, grammar is the gate or the foundation of all learning. The schools taught Latin, and aimed at giving a thorough knowledge of it, chiefly for speaking it, but also for reading and writing it, because it was wanted for use in everyday life. Latin was not only the language of religion, everyone needing it to read and understand the Bible and the Church services; but it was also the language of the law, including all deeds and documents, and of medicine, and of all forms of learning and literature, and the arts, including even the art of war and cookery recipes. It was the language of diplomacy and intercourse with foreign nations, including commercial intercourse; and it was the language of all clerks, in the modern sense, in which all minute-books and accounts were kept, not only those of cathedral chapters and royal chancellories and exchequers, but those of town councils and gilds, down to the humblest bailiffs of manors. A. F. L.

ENLIGHTENMENT, THE.—The movement in the eighteenth century generally described as the Enlightenment, or *Aufklärung*, was the culmination of a long process; and, in order to understand it and its relation to education, it is necessary to consider, however briefly, its roots in the gradual dissolution of the Mediaeval system of thought and knowledge. The basis of the Mediaeval system was

authority—theological, philosophical, scientific, artistic, and educational. While these various forms of authority were at times openly or implicitly in conflict with one another, and while there were occasional individual efforts to break away from authority in one field or another, they were, nevertheless, so closely interlaced as to form a single—more or less consistent—structure, dominating the whole life of Western Europe and maintaining a traditional culture. But under the hard rind of authority and tradition there was gradually growing a new life, which, in the fifteenth and sixteenth centuries, broke its bonds and passed into the long development of modern European civilization. The new movement may be said to have begun with the re-discovery of the ways of thinking, the science, and the art of ancient Greece—partly through books and partly through a renewed effort to solve the problems raised by the Greeks before the time of Aristotle. Mediaeval learning was inevitably bookish; Greek thinking was free, and dealt directly with its objects. Mediaeval art was symbolic or illustrative; Greek art was spontaneous and human, with a pure ideal of beauty. In its early stages, the modern movement was, to a great extent, a making of bridges to ancient Greece across the gulf of centuries. The literature and art of the Renaissance had a direct Greek inspiration; modern progress in mathematics, physics, and astronomy was, whether deliberately or not, a continuation of the work of the Greeks; the philosophy of Descartes and his successors was similar in spirit and aim to that of Socrates and Plato; and the Greek spirit of inquiry, through observation and experiment, re-appeared in the work of Harvey, Boyle, Newton, and other great men of science.

One of the fundamental characteristics of the new philosophy and science was the ideal of "clearness and distinctness" as the aim of explanation and the criterion of truth. In mediaeval times, numbers of complex propositions and theories were accepted on grounds of authority, and from these, in their various relations to one another, inferences were made by deduction. With the rejection of authority, such a method became impossible; and Descartes suggested that, in order to obtain truth, it was necessary to analyse complex propositions and problems into their simplest elements. A process of this kind is the basis of analytic geometry, discovered by Descartes, which may, indeed, be said to be the governing method of modern mathematics. Its aim is to obtain, by analysis, "clear and distinct" irreducible elements, which *ex hypothesi* are fully known, and by the combinations and relations of which the most complex things and ideas may be explained and the most intricate problems solved. Before Kant, this method appeared in two distinct forms, according as it was applied to (*a*) concepts and (*b*) percepts. A brief consideration of these will help to explain the nature of the Enlightenment.

The Conceptualists. (*a*) The philosophies of Descartes, Spinoza, and Leibnitz have, as their common aim, the explanation of the Universe by means of clear and distinct concepts or ideas. Consistency and necessity of thought is the measure of reality. A clear and distinct concept—the mere content of which necessarily implies the existence of what is conceived—is objectively true. If one such fundamental concept is found (*e.g.* the concept of the thinking self, or the concept of God as the most perfect Being, or as the one all-inclusive Substance), we may proceed to the discovery of other such concepts; and thus gradually approach to the complete logical comprehension of the Universe, which is truth. Thus sense-perception, imagination, and even many reasonings cannot yield truth; they all include elements of error or illusion. Truth is given only by the clearness and self-consistency of the pure understanding; and the business of philosophy and science is to reduce all the complexity and variety of things, as they appear to sense and imagination, to the simplicity of pure and ultimate concepts, analogous to the figures, numbers, etc., of mathematics. In such a theory as this, it is inevitable that will and feeling (including the emotions and passions) should be regarded as subordinate to, or identical with, the supreme understanding. According to Descartes, will and understanding are distinct; but will is a factor in judgment which may lead to error, if it is not entirely controlled by understanding. Spinoza makes will and understanding identical. Leibnitz discriminates between them, but regards will as subordinate. The clear and distinct ideas of the understanding have logical necessity; the will, on the other hand, is free. For Spinoza, freedom of the will consists in the recognition of the logical necessity with which the whole course of things follows from the one Substance. Feeling, also, in Spinoza's system, becomes ultimately a form of understanding.

The Empiricists. (*b*) The other way in which the analytic method was applied appears in the empirical philosophy, which began with Locke and reached its full development in Hume. The simple elements into which complex ideas must be analysed are not clear and distinct concepts, but simple, given sensations, the data of outer and of inner sense. These simple impressions, each clear and distinct from all others, are fundamentally true, because they are imprinted on our minds by real things; in contrast with concepts, which are the work of our minds, and valid only in so far as they can be reduced to combinations of given simple impressions. This philosophy, fully developed, becomes a mental atomism, analogous to the atomism of physical science. The simple ideas (or mental atoms) are combined by "association," which is a process of fact or Nature—like gravitation—and does not imply any necessary connection between the ideas combined. Truth, in short, is "matter of fact," and not logical necessity. Freedom of will is interpreted in a purely negative way, as absence of external restraint or compulsion; and will is determined by feeling, reduced to its simplest elements, pleasure and pain; while understanding has the function of calculating the amount and value of individual pleasures and pains.

The Enlightenment arose out of these two movements: the speculative dogmatism of the conceptualist philosophers, and the scientific, matter-of-fact empiricism of those who made perception fundamental. They were at one in their analytic method and in their belief in the progress of knowledge by philosophical or scientific investigation. Both of them laid the greatest emphasis on understanding; neither of them did justice to feeling and will. The weakness of the conceptualist position was the variety of its solutions of the problems it investigated, and this weakness developed from the side of the empirical thinkers the tendency to scepticism which culminated in Voltaire. It is significant, also, that the analytic method had its inevitable result in the spiritual atomism of Leibnitz,

on the one hand, and the sensation atomism of the empiricists, on the other. The ideal of simplicity, also, in combination with the progress of the sciences of nature, led to the hybrid form of "naturalism" which appears in Rousseau.

Influence on Education. The progress in freedom of thought and investigation was not, however, accompanied by an equal progress in the freeing of political and social institutions from the mediaeval bondage of authority. The old tradition remained in the subjects and methods of education; and it is significant that Locke and Rousseau, who were among the earliest of liberal theorists regarding the State and its institutions, were also reformers in education. Their theories show clearly the influence of the philosophical and scientific movement which culminated in the Enlightenment. They object to a system of education in which children are driven by harsh discipline to study subjects which may be appropriate for adults, but are beyond the range of a child's mind and experience; in which no attempt is made to appeal to the nascent reason, curiosity, and interest of the child; and in which, instead of encouragement to virtue, the main aim seems to be the repression of innate tendencies to evil. On the other hand, they insist on recognition of the individuality of the child; on the careful study of its mental and moral development at various stages, and the choice of methods and subjects suitable to this development; on encouraging the thirst for knowledge and making the child's work attractive; and on the development of virtue by example, the formation of good habits, and the influence of a good social environment. The governing idea of the whole movement was that of "the return to nature," an idea which appears in Rousseau, Bernardin de St. Pierre, and many others; and which expressed itself on the political side in the doctrine of "natural rights." The idea of "nature," as has often been shown, is full of ambiguity; but in the period of the Enlightenment its main significance may be indicated by the contrasts (*a*) between nature as simple and the complex which is relatively unreal; (*b*) between nature as having an individuality or essential character, and the artificial, which is merely put together; and (*c*) between nature as a process which determines itself and authority which is externally imposed. These three characteristics of "nature"—simplicity, individuality, and freedom or self-determination—evidently follow from the main principles of the rationalist and empiricist philosophers. It is hardly necessary to point out that the philosophical systems and educational theories of this period belong only to the first stage in the development of modern thought and civilization. The problems of simplicity, individuality, and freedom are too complex to be solved by the methods of a purely analytic logic; and it remained for Kant (*q.v.*) and his successors to attempt, by a deeper synthesis, the reconciliation of the simple with the complex, the individual with the universal, freedom with necessity, and thus to make possible the further progress of educational theory. R. L.

ENTERTAINMENTS, SCHOOL.—(See CONCERTS AND ENTERTAINMENTS, SCHOOL.)

ENTOMOLOGICAL SOCIETY, THE.—Was founded in January, 1834, for the purpose of holding periodical meetings at which memoirs on entomological subjects might be received and read, experiments for the destruction of noxious insects, and improvements in the domestication of those useful to man suggested, oral communications made and new objects exhibited; and affording a collection of insects and a library of reference for the use of the members. The great object of the founders of the society was to study entomology with a view to its practical utility in the common affairs of life. Within the first two years of its existence, the usefulness of the society's work led the sugar planters of Grenada to call upon the society to take into consideration the ravages which the cane-fly had committed in that colony, and to endeavour to suggest some means of annihilating or at least mitigating the evils of that destructive insect. Royal patronage was granted to the society in its second year, when the Duchess of Kent and her daughter Princess Victoria (afterwards Queen) became patronesses. The society consists of British and foreign ordinary members and a limited number of foreign honorary members. Candidates for membership are admitted on the recommendation of three or more members. The library is open for the use of members, who may introduce friends to see both the library and the collections. Members may also borrow books from the library.

The Collection of Insects was practically founded by the Rev. William Kirby, the first honorary president of the Society, who, in 1835, presented his valuable collection, upon which the first of entomological monographs ever published was formed. This work, *Introduction to Entomology* (Kirby and Spence), put to flight many of the errors of centuries, checked the superstition of the nursery, and assisted to remove many misconceptions of the rural population, dealing with such subjects as the ominous "death-watch," which was so long a terror to the ignorant.

It is interesting to note that the first paper in the first volume of the Transactions of the Entomological Society bears the title "Observations on a mode practised in Italy of excluding the Common House Fly from Apartments," by William Spence, F.R.S., Honorary English Member of the Entomological Society.

The *Transactions* and *Proceedings* are issued five times a year, and bound up in yearly volumes. The former consist of papers read at meetings, or communicated to the society, and are issued at a cheaper rate to the members than to the public.

The office of the Society is at 11 Chandos Street, Cavendish Square, London, W.1.

ENTRY, THE RIGHT OF.—Under the Education Act of 1902, the Local Education Authority is charged with the duty of maintaining in a state of efficiency all public elementary schools within its area, including the non-provided or voluntary schools. The religious teaching in these voluntary schools is usually of a denominational character, and, although the managers of such voluntary schools are required to make a contribution toward maintenance by providing and maintaining the buildings in a satisfactory condition, it is alleged that the maintenance of the school by the local authority does involve a charge upon the rates in respect of denominational teaching. The objection to such rate-aid is accentuated by the fact that in many districts of England and Wales the only school within reasonable distance of the children's homes is a non-provided school. It should be further noticed that in the non-provided schools the

teachers are selected and appointed by the school managers, subject to the consent of the Local Education Authority, but that consent may not be withheld except on educational grounds. Nonconformists have regarded this rate-aid of denominational schools as a very serious grievance, and various attempts have been made to find some solution of the difficulty.

Pros. It has been proposed that the whole of the elementary schools, non-provided as well as provided, should come under the complete control of the Local Education Authority, that the religious teaching should be subject to the provisions of the Cowper Temple Clause (*q.v.*), and that all teachers should be appointed without being subject to any denominational test. Obviously this change would involve an enormous loss to those who contend that the parents who favour denominational teaching should have as large a right to secure such teaching in the schools as those who are content with the teaching under the Cowper Temple Clause; and, as compensation for this loss, it has been proposed that the ministers of the various religious denominations should have a "Right of Entry" to the schools during certain specified hours for the purpose of giving distinctive denominational teaching to those children whose parents desire such teaching. This "Right of Entry" has been claimed mainly in regard to the non-provided schools, but the claim has also been put forward with regard to all elementary schools. It is claimed that the parents who desire to have denominational teaching in rate- and State-aided schools have as large a right to that teaching as would be enjoyed by those who prefer religious teaching free from distinctive denominational formularies, especially as this "freedom" would involve the violation of trust deeds.

Cons. On the other hand, it is contended that while Biblical teaching, the Creed, the Lord's Prayer, and the Ten Commandments may be taught, subject to the provisions of the Conscience Clause, in all schools at the expense of the tax- and ratepayer, the distinctive denominational teaching should be reserved for the Sunday School and the Church. The opponents of the "Right of Entry" point to difficulties which would arise in connection with school organization. Clergy are not necessarily capable of teaching classes of children, maintaining that discipline which is essential. Their other duties would prevent the "Right of Entry" being exercised regularly. In districts where the churches are well endowed, a minister would probably be available for teaching in the school whenever required, but the poorer church communities would in this respect be at a disadvantage.

Many who are familiar with school life declare that young children do not now appreciate the differences which separate one church from another, that they take their religious teaching together, and that in the hands of the wise teacher sectarian distinctions are never emphasized. If they are to be separated, the Roman Catholics in one class-room, the Church of England in another, Nonconformists in a third, and in each group emphasis is placed upon the doctrines which separate the one from the other, then, under these circumstances, the influence upon the children may be the reverse of that desired by those who wish to perpetuate religious teaching in schools. Practical teachers consider that the exercise of such a system would create such a state of unrest, particularly if the denominational teachers were unskilled in the art of teaching, that it would be exceedingly difficult, if not impossible, to restore, when the secular work began, that discipline which is necessary for the successful conduct of school work. E. G.

ENVIRONMENT AS EDUCATION.—The word *adolescence* is happily chosen to indicate that period of life, commencing with puberty and terminating in manhood, during which, by the ordinance of Nature, the child learns to become a man. The term signifies "growing up." Nature's purpose is manifest in all the various phases of adolescent growth. Underlying them all is the development of the sex-instinct, upon the understanding and control of which, more than upon any other achievement in life, depend the happiness of the individual and the well-being of the race.

Signs and Characteristics of Adolescence. The most patent external sign of adolescence is increased height and weight. So considerable is this development, that Nature finds it difficult to co-ordinate all the numberless local growths. That is why children at this age are so awkward, and suffer unduly from physical and mental disorders; and why it is of supreme importance to supplement Nature's efforts by giving adolescents their fill of wholesome food, clean air, boisterous exercise, and sound sleep. To the boys themselves, this period is one of intense sensation. But Reason and Will are imperfectly developed, and Nature bares the soul to the universe, allowing impressions from the outer world to pass in unrestrained; not till the later teens does she give the power of self-control which will enable the young man to utilize wisely his accumulated wealth of ideas. Never are we so susceptible, so teachable, as in early youth. For the same fundamental reason, this is the age when churches win their converts and when criminal careers begin. *During early adolescence, surroundings determine our destiny; we become what external influences make us.* Plainly, in an ideal civilization, this plastic period, as Nature intended, would be monopolized for training. The statesmen of Utopia would see in the young men committed to their charge one thing only—the future: the splendid possibilities of citizenship of which Nature encourages youths to dream. They would, therefore, surround each growing boy with such an environment as would call out his very best. This, unfortunately—except for a tiny section of the population—is not the statecraft of to-day. At the very hour when that all-important sex-instinct is beginning to obtrude itself upon consciousness, we release the mass of our boys from all educational discipline and allow them to sally forth into the world. It is, therefore, a question of superlative importance to examine into what environment they emerge, and to estimate its influence upon their developing personalities. The main features of a boy's environment are his home, his work, the Church, the boys' club and other educational agencies, the picture palace, the music hall, and reading. Let us consider each in turn.

The Home. There are, roughly speaking, three kinds of homes from which working-boys come. In the "superior home" of the well-paid artisan, the boy is usually well trained for his future; in the "indifferent home" of the unskilled worker, from which come the bulk of boy-workers, the boy is not greatly influenced perhaps either for good or for

evil; in the "unsatisfactory home," the boy is definitely shaped towards evil. For the mass of working-boys, the home is either a bad or a negligible influence. The boy at 14 becomes possessed of an income of his own; his parents lack character; and the home is unattractive. Hence the home is a convenient lodging-place and nothing more.

Work. The boy usually works longer hours than the adult, and is mainly doing unskilled work. Owing to the negligence of employers and foremen, he is largely exposed to undesirable influences from the older workers with whom he is associated. Habits of gambling, drinking, swearing, and still worse practices, are frequently picked up by boys during their working hours. But perhaps the most evil aspect of the long and tedious labour is that it cheats the boy's keen senses and eager emotions of their natural activity. When his leisure comes, he is abnormally desirous of thrilling sensation; so, having money and being free from home-control, he can fully satisfy his craving.

Religious Agencies. "There is," says a well-informed investigator, "no adequate provision for the spiritual needs of the great majority (90 per cent.) of young people between 14 and 17." The Sunday School Union state that 80 per cent. of the scholars are lost to the Church when they reach 14 or 15. Churches and Sunday schools are not a part of the environment of adolescents. They fail because industrial and social conditions place the average boy beyond their influence.

Boys' Clubs. Even in those "traps" which the churches and other philanthropic agencies have specially laid for boys, investigators again speak of failure, not success. Boys' clubs tend to get only the better-class, who ought, perhaps, to remain of an evening at home. Of the poorer, it is doubtful if clubs get hold of one in eight. Unfortunately, also, the popularity of a club is in inverse ratio to its religious and educational activity.

Educational Agencies. As for the influence of educational agencies on our youths, we have the definite statement of the Consultative Committee to the Board of Education that those adolescents (male and female) *not* attending any sort of continuation classes were, a few years ago, between the ages of 14 and 15, 64·10 per cent.; between 15 and 16, 76·73 per cent.; between 16 and 17, 81·95 per cent.; between 17 and 18, 86·87 per cent. of the whole number. Latterly, other semi-official agencies, developed in connection with Local Education Authorities and Labour Exchanges, have increasingly set themselves to influence the life of the boy and to shape his career. But, as things stand at present, it is probably true that elevating and educational agencies form practically no part of the average adolescent's environment. Juvenile workers are too jaded for religion and education; too tired, perhaps, even for exercise. Their thwarted instincts demand abnormal excitement. And in "mouching" about the streets, watching football matches, reading "comics" and "bloods"; above all, in patronizing the "movies," they find what they seek.

The Picture Palace. The picture palace is, by far, the most potent influence in the working-boy's life. Almost every boy goes at least twice a week, and their conversation reveals unmistakably the dominating power of this form of entertainment. It would seem as if they there picked up their everyday ideas, their politics, and their religion. Most of the films they see are sensational romances and absurd "comics." These are not degrading, but certainly they are not elevating. The boy's powers of reason, will, and imagination are lulled to sleep. He learns nothing that will fit him for the battle of life.

The Music Hall. Most working boys appear to go to the music hall once or twice a week, thus coming under an influence more debasing than that of the cinema. This is mainly because pictures are a language in which we all see alike; whereas, at a music hall, there is a known unwritten language of vulgarity in which vile things can be said that appear inoffensive in the King's English. Many music-hall songs, which the boys are everlastingly whistling or singing over to themselves, are replete with indecency. But the main charge to be made against the music hall (as against the picture palace) is that it gives the boy superficial and silly ideas about life, without in any way ennobling his character or enriching his mind. Politics, religion, work, and social life are shown in a fictitious and farcical light; drunkenness, prize-fighting, gambling, horse-racing are taken as a matter-of-course; love and marriage and sexual irregularities are the greatest jest of all.

Reading. The boy's reading consists of "half-penny comics" and "penny dreadfuls," which are frequently bought second-hand (or, perhaps, tenth-hand) for fractions of a penny far beyond anything allowed for by the currency. This literature comes third to the picture palace and the music hall as the formative influence of their lives. Its evil effect is not so great as many imagine. It is written expressly for boys, and therefore little attempt is made to exploit the sex-interest, or to ridicule social and current affairs. But "comics" and "bloods," if not positively deleterious, fill their heads with wild and ridiculous fancies. The last three influences undo the work of the elementary school, and their final result is a vast population of inefficient workers, unsatisfactory heads of households, and incompetent citizens. Consequent largely upon this incapacity are low wages, slums, disease, vice, and wretchedness. Among all the panaceas put forward to remedy social evils, none seems more worthy of the attention of philanthropists and legislators than that of the training of youth. Surely the only fundamental way to improve social conditions is to manufacture men and women who can look after themselves. By proper training, we could turn almost every boy in this country into a broad-chested and intelligent man, adequate to his duties as husband and father, worker and citizen. It can only be done by substituting for the working boys' present environment one which includes those wholesome and elevating influences that our secondary schools already bring to bear upon middle-class boys.

A. F.

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ENVIRONMENT UPON EDUCATION OF A WORKING GIRL, INFLUENCE OF.—We are continually being taught, among other things, that nations are enormously stronger if they attach due importance to education; to the clean, healthy environment of those who do the work of the nation, and take thought for the foundations upon which industry is built.

It cannot be claimed that we have always taken an enlightened view of these matters in the past. Many employers, alert enough in some other ways, sufficiently keen to introduce improved business methods or up-to-date machinery, showed themselves woefully lacking in imaginative sympathy and insight when dealing with employees. They made the extraordinary mistake of imagining that the debit and credit side of their human balance sheet could be audited and found correct, when they had paid so many shillings a week in return for so many hours work.

That was a tragic blunder, and we are paying for it a heavier price than is generally realized. Is it not better to have bright, active, intelligent workers than dull and stupid ones? Is it not of enormous importance that the foundations of industry should include the good health, the wholesome surroundings, the welfare, and efficiency of the workers? To these questions, affirmative answers would readily be returned; yet it can hardly be in dispute that we have neglected many of the conditions necessary for the sound foundations of a great State. A considerable part of our industrial conditions was diseased. There is neither hope nor beauty, nor possibility of high attainment in sweating and slum tenements and dirt and ignorance. These, in the end, merely degrade and destroy their victims.

The war burned up or swept away many old things, and systems, and ideas; many people, shaken out of themselves and their conservative prejudices, are prepared to think along new lines, to consider with friendly mind new plans and policies. I am therefore emboldened to plead for new conceptions in regard to the training, education, and environment of women and in regard to their industrial position.

Since the war came, the women and girls of Great Britain have shown themselves capable of rendering much fuller service to industry and the nation than would have been thought possible in ordinary times. We have discovered in days of stress and difficulty a vast reservoir of untapped labour power. It may well be that in the lean years ahead of us, with the country impoverished and eager to repair the ravages of war, a heavier demand than was customary in the past will be made on the energy and work of women. But, if women are to give of their best, more study must be devoted to their training and environment, and to the problems of industrial welfare.

Do we really desire to see in offices, shops, and factories an increasing number of fit and competent women workers whose labour, supplementing but not displacing the labour of men, will add to the total volume of wealth without endangering the standard of conditions? This change, possible and desirable, if the necessary safeguards are insisted upon, will develop and strengthen the women, widening and quickening their entire outlook.

Essential Conditions for the Success of Womens' Work. What conditions are necessary if women are to bring to the national service the best of which they are capable? The work must be something better than monotonous, ill-paid drudgery; the surroundings must not be drab and depressing; and every girl must have the chance to make something of her life, to make of it—if she cares to—a high and spirited adventure, fostering to the best advantage her physical, moral, and spiritual powers.

In all this, the prosaic starting point is food—a sufficient supply from earliest years of plain, nourishing food. Half-starved bodies and ill-nourished brains, reared in homes cramped and ugly, are of small use for any purpose, least of all for good workmanship and hard concentrated endeavour. No high level of physical strength and mental ability can be expected from material of this sort. The nation, if it is to make a fresh start, must set a proper value on strong bodies, rich, clean blood, and quick, clear brains.

Educational Conditions. Then the education at school, especially in its later stages, should bear some relation to what is to follow. A woman's life from start to finish should be more or less of a piece—one group of experiences disciplining and qualifying for wider experiences. As things are, it would be truer to say that the life of a woman worker is more often divided into slices of years, which have in no real sense contributed to a continuous education; but, like a series of watertight compartments, are separate and apart. Schooldays form no adequate training for industrial life, and the latter is usually a poor preparation for marriage. Let it not be supposed that I desire a girl's education to be merely technical in anticipation of some work or profession she may afterwards adopt. That would be unprofitable and foolish in the extreme. Every girl should be given a good general education. Open as many doors to her as possible, and give her the widest possible choice as to the field in which she will work. Whatever the future may have in store for her, her wider knowledge will in every circumstance stand her in good stead. Her reasoning faculties should be cultivated, her powers of observation and deduction developed. Many people are never taught to reason matters out, just as many people are never taught to swim. To be able to look at life and Nature with clear seeing eyes, to be able to read and enjoy the best books, to speak the language of other countries, to appreciate something of the beauties and glories of art, to cultivate a courage and philosophy for daily life—all that represents a tremendous gain which, as far as possible, should be within reach of men and women alike. The new knowledge will benefit not the individual alone, but form part of the permanent possession of the race.

At the same time, it is important that the natural aptitude of girls should be observed during their school years, and that special efforts should be made to equip them for the work that probably lies ahead of them. Were this done, a great mass of slack, incompetent labour would be removed inside a generation; and women, by reason of their skill and thoroughness, would carve out for themselves their true place in commerce and industry. This country in the immediate future, if it intends to hold its own, must suppress many of the old haphazard methods and spend money with less niggardly hand upon scientific and technical instruction. If women are permitted to share in this, the expenditure upon them will not be in vain.

M. R. M.

EPICRITIC SENSATIONS.—(See CUTANEOUS SENSATIONS.)

EPICRITIC SENSIBILITY.—(See PSYCHOLOGY (EXPERIMENTAL).)

EPICURUS (342–270 B.C.).—A celebrated Greek philosopher, born at Samos. He resided at Athens from 306 B.C., and established there the Epicurean

school of philosophy in his garden. He taught that the highest good was happiness, which was to be obtained from the peace of mind which results from the cultivation of virtue. The Epicurean school taught that virtue should be practised, because it led to happiness. After his death, his teaching was much corrupted, and his followers gave themselves up to lives of sensual enjoyment, seeking happiness irrespective of the practice of virtue.

EPILEPSY.—(See INSANITY IN CHILDREN, NERVOUS DISEASES OF SCHOOL CHILDREN.)

EPILEPTIC CHILDREN, TEACHERS OF.—(See AFFLICTED CHILDREN, TEACHERS OF.)

ÉPINAY, MME. D'.—(See "BLUE-STOCKINGS" AND EDUCATION, THE.)

EPISTEMOLOGY (ἐπιστήμη, knowledge, + λόγος discourse).—Epistemology may be compendiously defined as the systematic investigation of the nature of knowledge with a view to determine the grounds of its possibility and its objective worth or significance. It is distinctively a branch of philosophy, and philosophy is a term the meaning and scope of which have varied considerably in the course of historic development. But, broadly, it may be said, philosophy has one comprehensive question addressed to it. What account can it give of the relation in which the human mind stands to the reality in the midst of which it is stationed? And the several departments of philosophical investigation may be roughly distinguished by the various relations that subsist between the human mind and the surrounding reality. Such differences as those recognized by Aristotle between cognitive activity, practical activity, and artistic activity would enable us, in a certain measure, to map out the field. That the treatment of knowledge must necessarily occupy a foremost position in any attempt to deal seriously with the philosophical problem is obvious. For the human mind depends essentially for its very being upon knowledge: its place in the scheme of existence is constituted in and through its processes of knowing. The practical and artistic activities are no doubt distinguishable from the theoretical activity, but all the same they involve the latter as a condition of their possibility.

In the very conception of knowledge there is implied an unique antithesis and relation—the antithesis and relation between knowing or cognizing as an inner process of mind and the outer realm of fact to which the knowing or cognizing is usually said to refer. To the one there has been assigned the technical title *subjective*, to the other the technical title *objective*. And in all knowledge these two factors, the objective and the subjective, appear to be brought together into some sort of harmony. When the order of objective fact is accurately apprehended in, and through, the subjective processes, we speak of being aware of the *truth* about such fact. There comes, then, at once to light a radical distribution of the questions that may, or must, be put with respect to knowledge. On the one hand, knowledge as a body of apprehended truth, or of what is regarded as truth, and, on the other hand, knowing as a state or condition of an individual mental life—these belong evidently to different spheres of investigation and raise quite different issues. An act of knowing is an event that happens or an occurrence that takes place; an "idea," if by that be meant a constituent of truth, is neither an event nor an occurrence. An act of knowing is a concrete existent fact; to an "idea," in the sense just indicated, the term "existence" is not strictly applicable. Accordingly, whatever department of cognition be selected, two sharply contrasted lines of inquiry present themselves. We may ask, on the one hand, how knowing comes about in an individual mind, of what simple factors it is composed, through what stages of development it has passed, on what conditions it is dependent. We may ask, on the other hand, how far the contents of knowledge possess validity as media of our apprehension of objective fact, on what grounds the possibility of such knowledge depends, and what meaning we may attach to it in its widest sense. The former is a branch of psychological inquiry; the latter is the inquiry it has now become customary to call epistemological.

Psychological and Epistemological Investigation. The fundamental problems of knowledge are well-nigh as old as philosophy itself; many of them, for example, are handled by Plato with singular acuteness in the *Theaetetus*. But, as a special department of philosophy, epistemology sprang into being so soon as the contrast between the two sets of questions just referred to evinced itself with clearness. Since the first half of the nineteenth century the term *Erkenntnistheorie* or *Erkenntnislehre* has been current in Germany; in England the term "epistemology" appears to have been first used by Ferrier in his *Institutes of Metaphysic*, published in 1854. The process of disentangling the two sets of questions that are now recognized as distinct may be said to have been begun in a rather vacillating manner by Locke. Yet, in the actual course of his investigation, Locke did not succeed in keeping the two inquiries to their respective fields, and in dealing with the one he is repeatedly to be found drawing upon considerations that properly belong to the other. The differentiation was effected clearly and emphatically for the first time by Kant. Kant lays reiterated stress upon the importance of not looking upon what he calls the *critical* investigation of knowledge as an essay in psychology. As contrasted with the psychological method, the critical method took knowledge for granted, and proposed to inspect it not so far as its historical genesis was concerned, but so far as it purported to be representative of real fact, and for the purpose of ascertaining not the laws under which it was formed, but the conditions implied in its nature. How is knowledge of an object possible?—What is necessary in order that the distinction between knowing subject and known object should present itself at all in the experience of a thinking being? Such is Kant's critical problem. And, although in attempting to solve it he did not always contrive to keep within the limits of the critical domain, the *Critique of Pure Reason* may fairly enough be said to have given birth to epistemology as a science.

The Scope of Epistemology. Epistemology is, however, no longer confined within the somewhat narrow boundaries prescribed for it in the *Critique*. "All our knowledge," according to the Kantian dictum, "begins with experience"; and certainly the first task of a science of knowledge will be to determine the nature of, and the conditions involved in, what is sometimes called "simple apprehension." What is the status of sense-data? Are sense-qualities "given" elements, so far as cognition is

concerned, or do they arise in and through the act of cognizing ? Is the distinction between the real and the apparent relevant in regard to them ? and, in either case, what exactly does that distinction signify ? Such are some of the questions with which epistemology must necessarily start. Proceeding to sense-perception in its developed form, there will fall to be considered the meaning and significance of objectivity—the characteristic, namely, of *standing over against* the cognizing subject. Here the function which the space-character of apprehended contents discharges in the development of experience will be at once forced to the front, and the relation of thing and quality, or of substance and attribute, will need to be scrutinized. Correlatively, the way in which awareness of self, of the non-extended, is possible will call for treatment, and with it the whole problem of the consciousness of time and change will be upon our hands. In that connection, too, the difficult and crucial questions raised by the facts of revival and memory will come up for consideration. Passing, then, to thought, in the stricter sense—the realm of science—the nature of universality and necessity—or, in other words, the nature of judgment—will require to be dealt with, and the basis of logical inference to be exhibited. The significance of the scientific categories of number and quantity, of cause and effect, of end or purpose, will demand examination, and the sphere within which they can be legitimately employed to be determined. Finally, the higher range of rational intelligence—the realm of values—will claim attention, and the momentous problem of the relation of value to existence will form, so to speak, the border-line where epistemological inquiry shades off into the ultimate questions of metaphysics. And, as the culmination of the whole investigation, there will confront us the general problem of the nature of truth, and of the antithesis, as it is sometimes called, between truth and concrete fact.

The Relation of Logic to Epistemology. A word may be added in regard to the position of logic relative to epistemology. A line of distinction between the two is often drawn by emphasizing the consideration that knowledge as the logician is concerned with it is more particularly called " thought," and that logic has to do with the validity of thought only in its general aspect. Logic, according to this view, has for its subject-matter the forms of thought, and it is claimed that these can be dealt with without entering upon the deeper questions remaining for epistemology in regard to the matter of thought. Whether a distinction of this sort can be consistently sustained is more than doubtful. Logical laws and forms are hardly so much as capable of statement except in intimate connection with epistemological principles, and, in point of fact, no logician has ever succeeded in laying out the general structure of knowledge without importing into the exposition considerations which are plainly epistemological in character. At the most, then, logic can only be distinguished from epistemology as a part of the wider whole. How far for educational purposes it is advisable to restrict elementary logic to an analysis of the methods of ordinary thinking, based to a large extent on language, is another matter. Too often logic, when thus restricted, deteriorates into mere triviality, and, as an instrument of education, its value is becoming more and more dubious. On the other hand, it is possible so to indicate the epistemological bearing of the traditional doctrines as at once to impart to the subject, even for the junior student, interest and life. G. D. H.

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EPISTOLAE.—Letter-writing has long occupied a prominent place in the best class of literary productions, and the letters of eminent writers have always been the subject of school study. The letters of Pliny and Cicero were taken as models in the early grammar schools; and in the days when most of the teaching of Latin was oral or conversational, pupils imitated them as providing training in speaking Latin. Methods of using the letters of Latin writing as a means of instruction are described in Brinsley's *Ludus Literarius*, and in Hoole's *Art of Teaching*. The effect of this kind of teaching is to be seen in the practice among English writers of publishing their thoughts, and frequently of writing stories, in the form of letters. The *News Letter* corresponded to the modern newspaper, and the *Spectator* of Addison and Steele consisted very largely of letters. Chesterfield's *Letters to His Son* is a type of more extended literature of this kind; while Sir Walter Scott's *Redgauntlet* is, perhaps, the last important attempt to construct a long story in this style. As a school subject, letter-writing has steadily declined, and at present it occupies only a minor place in the composition lesson.

EPSOM COLLEGE.—The Royal Medical College, Epsom, was founded by John Propert in 1855 to help medical men by educating their sons well and economically. The college was incorporated by Act of Parliament in 1855, and again by a further Act in 1895.

The school consists of foundationers (about fifty boys, orphans or sons of doctors) and non-foundationers (about 260). Boys on the foundation receive board and tuition free of charge; doctors' sons not on the foundation pay £10 a year less than others. There are about twenty masters. The buildings stand in about 80 acres of land on the Downs a mile from Epsom town. They include a gymnasium, a swimming-bath, fives courts, a carpenter's shop, chemical, physical and biological laboratories, a library and museum, and an infirmary.

Exceptional advantages are offered to boys intended for the profession of medicine. Thus, nine of the great London medical schools offer scholarships to Epsom boys. There is also an annual leaving exhibition awarded for proficiency in classics, and eleven other scholarships are offered periodically, some tenable at the universities and others at a hospital. The London offices of the foundation are at 37 Soho Square, W.1.

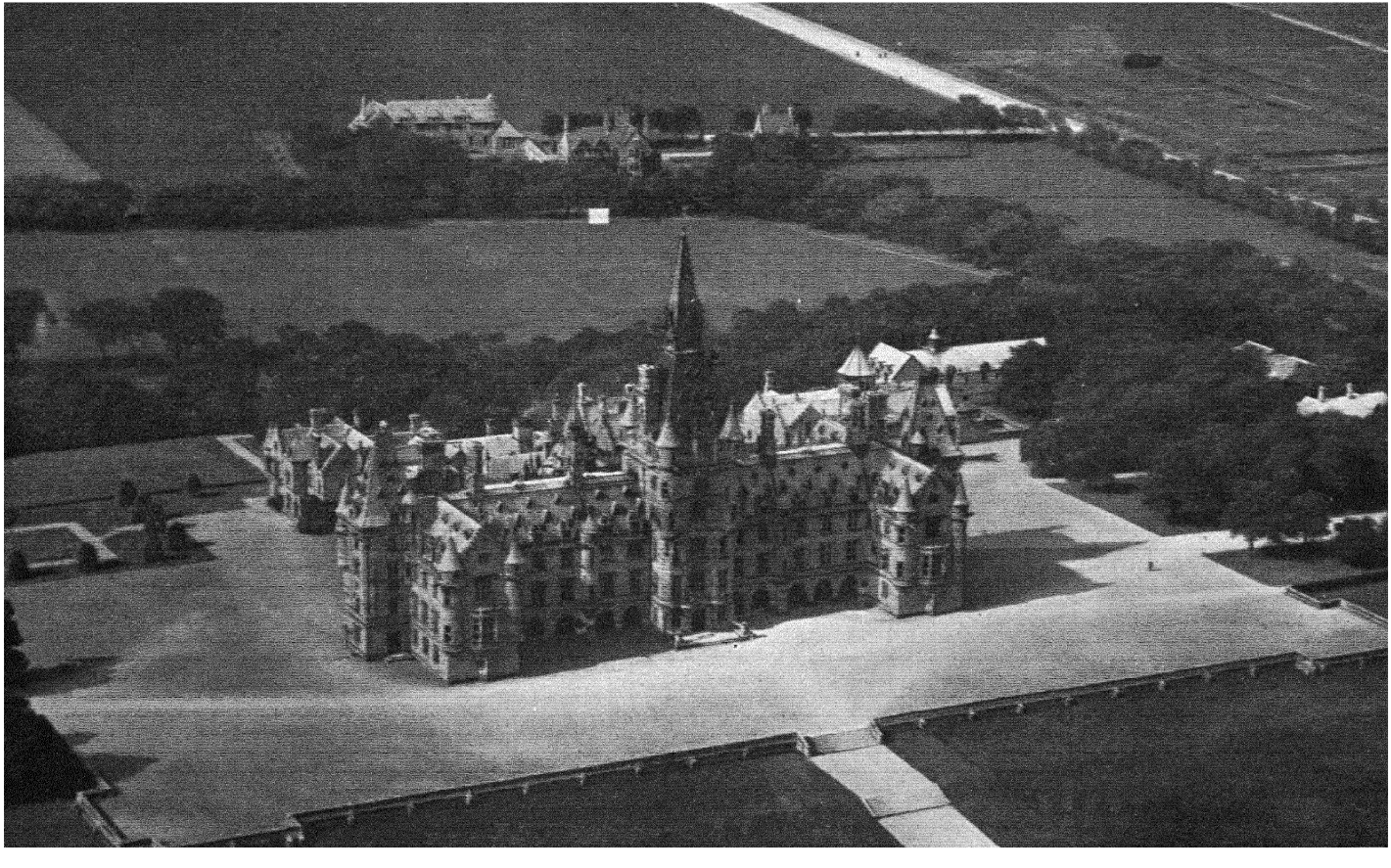

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PLATE XXXVI

EQUIPMENT OF GIRLS FOR LIFE.—(See GIRLS' EDUCATION AS AN EQUIPMENT FOR LIFE.)

EQUIPMENT, SCHOOL.—Since the nationalization of education in 1870, infant schools have undergone far greater changes in both method and equipment than senior departments—the change in method being especially marked.

Those who are able to compare the educational outlook in the decade 1870–1880 with present-day conditions and aspirations, realize how wide and deep the evolutionary movement has been. The meaning of education has almost been transformed: a loftier conception of its purport has taken hold of the public mind. It has outgrown its first limited sphere of instruction and rigid discipline, and taken possession of other realms where things more fundamental than mere instruction exist. Thus we have provision of meals for necessitous children; insistence on personal cleanliness; special instruction for the blind, deaf, physically and mentally defective; care and advisory committees; medical inspection and supervision; and psychological experiments carried out by experts in the schools themselves. In addition to these organizations and expansions of the education authority, numerous voluntary societies have taken the field for child-study on a scientific basis.

If we look for causation in these changes of attitude towards the care and education of children, we shall find that our social instincts have developed fresh roots, and thus acquired a fresh purpose and a growing sense of racial responsibility. The hope of the future lies in the fuller development of this social instinct until it finds its culmination in a national conscience. From this conscience will spring the spirit of a healthy co-operation to serve alike the interests of country and humanity at large. History tells us that all the great constructive work of the world has been wrought by this spirit—the child of a deep-rooted social instinct. This social sense should, therefore, be fostered in the schools, and especially in the class-rooms, for there the children spend by far the greater part of their school life. Class-room conditions under the *régime* of desks, in which the children have their backs to one another, instead of their faces, discourage rather than promote the idea of social relationship. All the organized games, all the playground activities and other occasional social aspects of school life, can never obliterate the dominating anti-social influence of class-room desks. Seated at tables, face to face for much of their work, the children will get an advanced idea of the value of social life and the bearing of individual conduct upon it. Self-knowledge will grow, and self-government gather strength, under such conditions.

While the ideals, especially of infant education, have been completely transformed since 1870, little has been done in the way of school equipment to meet these changes. The generally accepted theory that a child, in the course of its development towards manhood or womanhood, must pass through, in condensed form, the various important stages which the race has experienced in its struggles towards a higher civilization, has been mostly ignored by education authorities, so far as equipment is concerned. The infant should be passing through some of these earlier stages, wherein the force of instinct, sense play, and motor activity are the predominant features; and his whole nature cries out for the exercise of these powers. To place the child in this stage of his development between two fixed boards (a back rail and the desk proper), and to keep him there for the greater part of the school day, is a violation of his nature and natural rights. The monotony of his position is aggravated by the fact that he always faces in the same direction and has a more or less long array of his fellow scholars' backs to determine his perspective. Why this monotony, when the child's craving is for freedom and variety? No device could more completely discourage the social instinct, on which reformers rely for the regeneration of the race.

In the decade commencing in 1870 very large classes were the rule. The individual was lost, so far as character formation is concerned, in a big group, notwithstanding the individual basis of the annual examination, which really only took account of intellectual attainments—the least important consideration in the training of children. Routine, rigidity, formalism of an oppressive type were the order of the day. Mechanical devices were rampant, and every child was expected to fit into the same mould. Dual and other forms of desk were accessories, the fixity of which seemed to suggest the line the children's training took.

Desks are now out of joint with the times: and the hour has arrived for a great change. Equipment with tables and chairs seems the one step needed for progress. Cumbersome furniture has undoubtedly influenced school method adversely, and tended to weary the child and lessen its interest in school life. It has, too, made of some children a disciplinary problem. It is obvious that intellectual and moral progress depend largely on physical conditions—and desks have been, and are, dominating physical conditions in the school.

Essential Conditions of Work in School. As the child spends most of its school life in a sitting position, it is extremely important that the seating accommodation should enable the child to work and rest under the best possible hygienic conditions. Incorrect seating adjustment means incorrect seating in practically all particulars, and too great care cannot, therefore, be taken in this matter.

These conditions include—

1. *An isolated seat for each child.*
2. *The seat should have a lower and an upper back rest.*
3. *The depth of the seat should equal two-thirds of the length of the femur.*
4. *The seat and its counterpart (desk or table) should enable the child to take up correct attitudes with ease.* Three of these attitudes are of fundamental importance: (*a*) the working attitude; (*b*) the resting attitude; (*c*) the standing position.

With regard to (*a*), the backbone should be vertical, the head being bent slightly forward. In order that respiration may not be impaired, the front of the thorax should not press against the edge of table or desk. The legs (knee to ankle) should be vertical and the forearms should rest lightly on table or desk, permitting mobility of hand and free wrist play. In (*b*), the child leans back and relaxes its muscles—it may be called the listening or resting attitude.

5. *The height of the desk or table edge should be the elbow height from the floor when the child is sitting in a chair of the relative height as represented in* (1), *plus an addition of* 2 *in. to* 2½ *in., the arm of the child resting in a vertical position for this measurement.*

6. *A child seated in accordance with these measurements* (5) *has his eyes at the standard distance from the object on desk or table* (10 *in. to* 12 *in. for infants and* 14 *in. to* 16 *in. for older scholars*). *This is essential for the normal child.*

7. *The seat should slope slightly from front to back in order to counteract the natural tendency of the body to slide forward, and the back of the chair or desk should have an inclination of ten degrees.*

8. *The ratio between the height of seat and height of desk or table edge should be for the infant grades* 7 *to* 12 *and for the Senior Departments* 11 *to* 18.

9. *The relative position of seat and desk* (*or table*) *should vary according to the nature of the work in hand.*

In connection with conditions 8 and 9, there are two important measurements known as "difference" and "distance." "Difference" is the vertical height of the edge of the desk from the plane of the seat, or the height of the desk edge from the ground minus the height of the seat. If a "difference" is too great, the child raises his shoulders and takes up other incorrect attitudes, and the eye becomes too near the object. On the other hand, if the "difference" is too small, the child stoops over his work in the endeavour to adjust his eyes to a correct definition of the object. "Distance" is the space between the seat and the desk, each regarded as being in the same horizontal plane. Zero "distance" exists when this space is nil; plus "distance" exists when there is a space between the seat and the desk edge. Minus "distance" exists when the front edge of the desk overlaps the seat. Most of the desks in elementary schools have a plus "distance," though zero "distance" and minus "distance" are undoubtedly best for the bulk of school work, provided the latter does not much exceed one inch; and then it is considered preferable to zero "distance," because it compels the upright position. But it may be urged against the minus "distance" and zero "distance" that it gives little freedom of movement, creates a sense of restraint, and renders the standing position difficult, if not impossible. Again, plus "distance" compels the forward sitting position (*i.e.* compels the child to lean forward for writing, etc.), which is hygienically unsound; and yet this attitude is the ordinary one to be found in the schools.

Desks *v.* **Tables and Chairs.** Now, all the aforesaid restrictions and limitations in regard to desks vanish with the use of tables and chairs, and all the essential principles of seating are preserved by such use. Some of these principles need no explanation; but "distance" may be further exemplified and illustrated in its application to tables and chairs. The chair, being a separate piece of furniture, can be adjusted to the table to suit every possible condition of school life: the plus "distance," for example, in the intervals for rest, and for the girls' knitting and needlework; and zero or minus "distance" for writing and similar exercises. Even the possibility of such changes, to ignore for a moment their actuality, confers a sense of relief which cannot fail to re-act upon the child's mental powers and especially upon his conduct.

There are a few other general principles which should govern class-room furniture, omitting an item like the cupboard, which may or may not be fixed—

1. It should be simple in construction and design.
2. It should be easily mobile, or portable by the children.
3. It should be durable and rigid.
4. It should reduce the possibility of accidents to a minimum.
5. It should be adaptable to all ordinary school needs, and readily permit of the school building being utilized for social purposes and evening classes.

Tables and chairs have enormous advantages over dual desks, as will be seen from the following points—

1. Not only is the seat isolated—a most important hygienic consideration—but it is portable, and can be selected from the various sizes to suit the needs of individual scholars. Questions of "difference" and "distance" can thus be settled on an individual basis—a proper adjustment of a chair to the child, and of the chair to the tables, being made.
2. The independent seat encourages and strengthens the sense of individuality and personal responsibility.
3. Chairs can be rapidly removed into the playground, in suitable weather, for class purposes. Desks, in this case, are practically immobile.
4. The floor of the class-rooms can be made available at a minute's notice for games, folk dances, or other physical exercises; and thus provision can be made for a quick succession of mental and physical activities, which, in the case of infants, is specially needful for general development.
5. Tables and chairs admit of almost an endless variety of arrangement, and they are adaptable to all class requirements; and these qualities alone offer a means of bringing some freshness into the class-room.
6. Tables and chairs would render the class-rooms largely interchangeable.
7. There is a homely suggestiveness in tables and chairs which encourages the development of the social instinct. Individuality and the community are partially symbolized by them.
8. Ease of supervision is strengthened rather than diminished, for the teacher can approach the child from behind and on either side.
9. A child has much greater freedom of movement and can, therefore, the more readily take up a proper attitude of restfulness when necessary, instead of those constrained attitudes which the fixity and limitations of most desks impose.
10. Chairs have both the lower and upper back rest. Desks, as a rule, have only one of those rests. The lower rest is necessary for the upright or forward sitting position, and the upper rest for the backward sitting position.
11. Furniture being individualized, the proper distance of the eye from the object is assured under normal conditions.
12. Greater facilities are offered for cleaning the rooms, the furniture being comparatively light and easily mobile. There are, too, no dust accumulators; and the floors being levelled, accidents are reduced to a minimum.
13. As the number of chairs for the class-room would correspond exactly to its accommodation, overcrowding would be avoided.
14. The flexibility of arrangement possible to tables and chairs lends itself much more readily than desks to sectional teaching—a most desirable expedient.
15. With tables and chairs, the whole of the lower wall space of class-rooms, properly prepared, can be utilized for exercises in drawing both by

teacher and scholar, the easy mobility of the furniture permitting this.

16. Economy can be effected in the study of objects where articles are costly, or quantities are insufficient to supply each pupil or pair of pupils—for groups of 3, 6, 9, and 12 can be easily arranged.

17. With tables and chairs, it is so easy to isolate completely, under comfortable conditions, a child who is suspected of being in the incipient stage of a contagious complaint.

18. Tables and chairs are ideal for all forms of handwork.

19. Finally, tables and chairs extend the utility of the school premises and school equipment. The cumbersome desk has been a great obstacle to social and recreational work, whether applied to the school itself or to the community. The installation of tables and chairs would greatly extend the range of service of the school buildings, without in any way impairing their usefulness for actual school purposes.

It is worthy of note here that all head teachers with whom the writer is acquainted, who have had much experience in the use of tables and chairs, not only express their satisfaction with the efficiency of those articles, but desire the extended use of them to the complete exclusion of the desk.

Cost. While the first consideration must always be educational efficiency, yet the relative cost of equipment must be constantly kept in view. It is submitted that the simple equipment suggested here will tend to promote both these demands, for, in the first instance, about £10 would be saved on each class-room in a school. Under the existing plan of furnishing with desks and "stepping" the floors, the *stepping* of a class-room costs on an average, £5. Equipment with tables and chairs, on level floors, in lieu of desks, would save on each class-room about £1 10s. Further, no blackboard, easels, or wall slates would be required; total savings, £10.

Drawing and Demonstration Work. The available parts of all the walls of all class-rooms should have a Ripolin Compo. surface (colour: chocolate or dark green), 6½ ft. high. This compo. surface should not extend to the floor, but should stop within 20 in. of it. No other equipment in the form of blackboard or wall slates, beyond this, is needed. It will serve all wants generously, and should be equally available for the work of both the teacher and the scholars.

General Remarks. It is generally agreed that the school that aims at a general education should typify life in its most representative features. As a declaration of faith, we might say that Nature is simplicity itself, and the same might be said of the best human qualities. Should not the school, therefore, be equipped on the simplest possible utilitarian lines and thus be, in a general sense, in harmony with external conditions? Is there anything in the world, outside an educational establishment, which bears the remotest resemblance to the equipment of an ordinary class-room in the primary schools, with its "stepping" and its desks? And yet children are being trained in these rooms as a preparation for "complete living" and especially to fit in with the world's working requirements later. Surely the class-room should bear some likeness to conditions outside the school. Chairs and tables (for the bench is the workshop equivalent for the table and the flat-top desk is the office equivalent) are everywhere: and the flat-top desk is gradually displacing the sloping desk of the bank and the counting-house, for the slope is of no importance except for the relatively easy manipulation of heavy ledgers. It is submitted that one fundamental law should govern the choice of equipment for senior departments, viz., every item should have a working utilitarian value, or a fair marketable value, in the life external to the school. This cannot be said of the desk, for outside an educational establishment it becomes mere lumber, and can only be sold for its worth in firewood and scrap-iron. This law appears to be a corollary to the general principle already enunciated, viz., that the school should typify life, etc.

In the world external to the school, inflexibility, in its broadest sense, means ultimate failure. Indeed, the school to be a success must follow on the main lines of those intelligently-directed activities that form the backbone of the nation's industrial and commercial life—activities that must be promptly modified and re-adjusted from time to time to meet present and prospective needs, without any sacrifice of fundamental principles; and these modifications and re-adjustments include both method and equipment.

There are unmistakable signs that the principles which underlie the open-air schools will, in the future, become general in application; and one of the first necessities of this type of school is easy mobility of furniture, which can be adapted to practically every variety of condition. The formidable desk is a tyrant that has governed school-life too long. The first step in any process of re-construction of national education should be one that will keep probable future developments in view, and make provision for a basis that is both broad and elastic. In the light of these two purposes, existing standards must be judged, and what is out of harmony with them should be abandoned.

S. E. B.

ERASMUS, DESIDERIUS (1466–1536).—He was born at Rotterdam, on 27th October, 1466. His father was apparently at that date in priest's orders. He was educated at Gouda; at Utrecht Choir School; and at Deventer (1475–1484), where the school of St. Lebuin was, in part, staffed by Brethren of the Common Life (*q.v.*). Whilst Erasmus was a pupil, Hegius became (? 1483) head master. In after years he spoke with contempt of the "barbarous" text-books (Garlandus and the *Graecismus*) and modes of using them current in the school, but of Hegius he spoke always with respect. Erasmus was ultimately persuaded to enter the Augustinian house at Stein; in due course he took the vows (1488), and in 1492 was there ordained priest. He soon repented of the irrevocable step. For seven years, however, he devoted himself to serious work at the Fathers and the Latin classics, so that in 1493 he had qualified himself to become secretary to the Bishop of Courtrai. In 1495 he entered the Collège Montaigu at Paris, where he studied theology and took pupils, living mostly in dire poverty. On the invitation of Lord Mountjoy, he came over to England (1499), whence arose the long-continued and intimate relations of Erasmus with Englishmen. He spent three months in Oxford; then passed to London, where Colet, Grocyn, Linacre, and Thomas More befriended him. Ignorant as yet of Greek, he returned to France, hoping to find some helpful teaching; but, after a second visit to London (1505),

he determined to study in Italy. At Venice, with Aldus, the publisher, he made his chief sojourn, earning subsistence by editing and correcting for the Press. He rapidly built up a working knowledge of Greek, which he further enlarged at Padua under Musurus. Early in 1509 he went to Rome. The accession of Henry VIII drew him again to England; in More's house he wrote *The Praise of Folly* (1509). He aided Colet in his project of a school of St. Paul's, in which modest humanist ideals were suffused with an earnest Christian temper. It was for Colet that he presently wrote *De Ratione Studii*, *De Copia*, and an amended version of Lyly's *Rudiments of Latin Grammar*. In 1512 he was at Cambridge, where he taught Greek in Queens' College, and held a divinity post in the university, devoting himself to an edition of Jerome and the study of the text of the New Testament; and in 1515, at Basel, he supervised the printing of these works. The Reformation movement repelled Erasmus, who was no fanatic nor a separatist, and, though zealous for the purification of the Church, worked only through the instruments of learning, education, and a quickened moral consciousness in Church and State. He took an active part in the *Collegium Trilingue* at Louvain (1518); but, in 1522, returned to Basel, where he made his chief home for the last strenuous and productive years of his life, writing or editing, and passing through the press a long series of patristic and humanist works, with certain significant treatises concerning the education of the young. He died in 1536.

Erasmus and the New Learning. Like Budaeus (*q.v.*), Erasmus typifies the process of the transfer of the New Learning to Northern and Western Europe. Differing from the great Italians, Erasmus was inspired by a definitely religious end—the amending of social conditions by the absorption of ancient culture. Hence, education aimed at training men and women for social service in Church or State, in the home, the city, the school, and university. By such education, nations might gradually attain to that universal reign of peace and law presented by the Roman Empire in its prime. Further, for him, "within the two literatures of Greece and Rome is contained all the knowledge that we recognize as vital to mankind." Apart from divinity, in technical and professional subject-matter, such as law, medicine, science, politics, war, mathematics, education—antiquity held the key to highest efficiency. Melanchthon agreed with Erasmus. Hence the transcendent importance of classical training for modern progress. Manners and civility—the personal bearing which counted for so much in Italian education—were the expression of the inner refinement wrought by intimate familiarity with the antique order. The ultimate end of education, therefore, was, with Erasmus, the production of devout and instructed leaders in Church and State, owning allegiance not only to city or nation, but to the republic of learning and the Church Universal.

The Training of the Young. He realized that the new education must begin with the young. He has a practical psychology of training. *Natura* is the given capacity which men share with other animals; *ratio*, the active quality of thought which is peculiar to man; *usus* is practice, or application to life of what is learnt. *Scientia*, nearly equal to *eruditio*, is orderly knowledge, which *institutio* adapts to the active and receptive *ratio*. *Mores*, or character, result from the true *institutio* reinforced by *disciplina*, which latter is the effect of example, precept, and firm guidance. *Natura*, though strong, is yet less strong than education. This is obviously not a very deep analysis, and was derived chiefly from Plutarch. Imagination and the artistic emotions seem to him of small account. Ardent Reformers charged him with Pelagianism, in that his doctrine implied innate goodness, entire freedom of the will, and a feeble conviction of sin. With regard to physical education, Erasmus is below the Italian teachers of the fifteenth century.

"De Pueris Instituendis." In the *De Pueris instituendis* (1529), a mature work, he treats of the first steps in education. Inheritance, environment, and unconscious absorption are forces definitely recognized. To the mother belongs the primary training for life, especially in matters of morals and faith. Refined utterance, manners, and gesture are the product of the home. Many parents are more keen in engaging a groom than in choosing a tutor. During the seventh year the boy enters upon systematic education. A civic day-school is preferred; or a skilled preceptor teaching a small group of pupils. The tutor must observe individual bent in his pupils, and must set high personal example. The subjects of teaching are all at this stage associated with Latin. Grammar, however, does not come first, as with pre-humanist masters and with too many of the later teachers. Elementary conversation, many aids to which ("colloquies" or dialogues) still survive; descriptions of visible objects; reading of simple texts, especially the Vulgate (oral work for the most part) help the pupil to the use of Latin as a living tongue. Grammar and vocabulary are thus acquired as they are wanted. Upon such a foundation, the pupil builds up the apparatus needed for the reading of poets, orators, and historians, and for the art of written and spoken composition. About the age of 13, a well-grounded boy will begin the study and practice of the epistolary style through the letters of Cicero and Pliny. Side by side with this, he reads and learns by heart speeches of Cicero, and such orations as are embedded in the histories of Livy and Sallust. Erasmus finds no place for vernacular languages in his scheme of instruction. They typify the separatist principle, hinder international understanding, and provoke racial jealousies and wars. Erasmus was herein blind to the new forces already moulding the European order. With the orators, the poets are read. Terence, however, was studied as a prose writer, the metres not being yet determined. Care was taken to select only suitable pieces of Ovid. Moral lessons are drawn somewhat superficially from incidents and characters in historical writers, but without reference to the causes of the rise and fall of nations, or social development. Erasmus enjoyed the imaginary "orations" in historical narrative, and he urges their invention in composition. Thucydides and Tacitus were held in smaller respect than Plutarch and Sallust. For ethical teaching, Erasmus urges the reading of Terence for living examples; and of Horace for wise sentiments, of Plutarch (in Latin) for patriotic zeal, and the *De officiis* and Seneca.

The Place of Greek. "Without Greek," said Erasmus, "the scholar works always with borrowed lights." Yet Greek literature is the source of what is best in our knowledge of divinity, medicine, philosophy, and science. Poetry derives from Homer, wisdom from Plato and Aristotle, oratory from Demosthenes. There is scant reference to the

tragedians, except Euripides; and Erasmus had a most perfunctory acquaintance with Thucydides and Plato. Methods of instruction were hampered by lack of rudimentary grammars, vocabularies, and texts. There was a most limited supply of available teachers, and what Erasmus advises can apply to a few fortunately-placed pupils. Much time was occupied by dictation to the class of text and grammar; then, in the lack of books, such material had to be learnt by heart. The rate of progress was slow, and thoroughness was rarely attained. Erasmus's Greek scholarship was not to be compared with that of Filelfo. It is likely that, from the point of view of education, Erasmus was satisfied with some modest knowledge of Greek grammar and vocabulary, a cursory acquaintance with the content of the *Iliad*, Xenophon's *Cyropaedia*, and a speech of Demosthenes. But the slightest skill in the language counted for much in the position of a schoolmaster. Such by-subjects as Logic, Mathematics, and Natural Science are always, with him, merely adjuncts to literature. Unlike Melanchthon (*q.v.*), Erasmus had no direct responsibility for the organization of civic day-schools; hence he was not called to formulate his ideas for working purposes. His actual experience of teaching was slight; but, more than any other man, he established a higher standard of qualification and repute in the profession of schoolmaster, which bore fruit in German and English schools after his death. It was largely due to him that teaching school was recognized as a liberal career.

The Education of Girls. To Erasmus, the customary education of girls was wholly unsatisfactory. In large part, this arose from the subordinate place allowed to women in the feudal society of the time. Hence the training of girls was, both on its moral and intellectual sides, different from that of boys. Erasmus held that a trivial and unoccupied mind is the worst peril to morals. To uplift the standard of home life and of the status of women, it was of prime necessity to provide fuller interests, a wider outlook, and keener intellectual activities for girls. He was impatient with the view that needlework and illumination, gossip and romances, with formal religious exercises, were sufficient mental food for the girls of the new age. As wife and mother, the maker of the home, the companion of husband and children, a woman able to think and converse is more and not less competent to bring up the family. There will be no difficulty in making needed adjustments of the classical teaching suitable for girls. However, Erasmus does not lay down details of a girl's course of reading. His ideal was no doubt a learned lady of the type of Lady Jane Grey; and he has in view the daughters of the leisured class. The supreme end of all education is character. The right of the child to a high place in the home is the centre of his doctrine. Do not force boy to the priesthood or girl to a convent. To limit the young to society of their own age is to deprive them of opportunities of mental growth. When the time comes, a youth guided by sound reading, home influence, and the example of his superiors, should be free to choose a career, and develop his own bent and acquired tastes. W. H. W.

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ERGOGRAPH.—An apparatus for measuring and recording the amount of muscular work which can be performed by the human body under certain given conditions. Work is performed by the contraction of muscles, and the apparatus is used to estimate the number and the degree of contractions possible by a set of muscles before fatigue renders contraction impossible. The kind of effort employed in testing is the raising of a weight or the application of pressure to a spring. (See also PSYCHOLOGY (EXPERIMENTAL).)

ERLANGEN UNIVERSITY (Bavaria).—Was founded, in 1745, to teach Protestant theology, law, medicine, and philosophy. It is one of the smallest German universities, having generally about 1,200 students, the majority taking scientific studies. There is a library of 250,000 volumes.

ERRORS, CORRECTION OF.—(See CORRECTION OF ERRORS.)

ERYSIPELAS.—(See INFECTION AND SCHOOL CHILDREN.)

ESKIMO LANGUAGE, THE.—(See GREENLAND, EDUCATION IN.)

ESPERANTO.—The study and use of Esperanto have recently rapidly increased, and there is a growing demand for competent teachers. It is already taught in many educational institutions in other lands; and there can be little doubt that, sooner or later, it will be considered an indispensable part of school curricula.

Britain was at first slow to follow the lead of the Continent, but great progress has been made in recent years. The Board of Education now gives grants to about a hundred Commercial Institutes and similar bodies for the teaching of Esperanto, and in the last three years some twenty-five day-schools have, after experiment, finally introduced the subject into their curricula. Inspectors and teachers alike have been unanimous in testifying to its utility not only as a means of getting the children into touch with children in other countries (a world-wide correspondence has been in full swing after only two months' study), but also on account of its beneficial influence on English, grammar, geography, and on the study of other languages, to which it serves as the best introduction.

The late Professor J. E. B. Mayor wrote: "At 5, children should learn Esperanto; and then pass to French, Latin, German, Greek, in this order." It is unnecessary to point out the practical advantages of Esperanto as a second or auxiliary language in international relations—in scientific and other international congresses, in commerce, travel, and correspondence. They are obvious, and may easily be put to the test; but its educational value as an aid to the study and appreciation of one's own, and other tongues and literatures, may be emphasized.

The principles underlying all good teaching are equally applicable to Esperanto. Teach, first, that

which is simple and frequently needed, and not too much at a time; use various forms of repetition to fix the lesson; examples should precede the rule. Work to a plan, and prepare each lesson, which should be related to those preceding and following: the method should be suited to the age and type of the learner. Nothing has been taught unless it has been learned. Test this by asking for examples, by questions, and by regular homework. The teacher must know the language thoroughly and be able to speak it fluently. The learner should put his knowledge to practical use by corresponding with Esperantists in other countries. From the first, singing may form part of the lesson. The language is perfectly phonetic, with broad Italian vowels. Conversational practice should commence with the first lesson. Relate anecdotes, which the class should repeat from memory; use pictures freely; vary the method and avoid monotony. Conversational games and debates may be introduced fairly early.

Though the direct method is best for the acquirement of conversational fluency, the indirect method has advantages, too; for, as every rule is without exception, and as the whole grammar is so simple that it can be put on a post-card, the *exclusive* use of the direct method would be a waste of time. The average student should be able to read and write with fair ease, and take part in simple conversation, in twelve lessons. Advanced pupils should read works in Esperanto by good authors, especially those by writers of other nationalities, and should join the local group for practice in conversation. Lectures in Esperanto (followed by discussion) should be given on the history of the language, its literature, and other subjects of interest. M. C. B.

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ESPERANTO ASSOCIATION, THE BRITISH.—The inventor of the Esperanto language was Dr. L. L. Zamenhof, who published his first paper on the new language in 1887, and in 1889 an Esperanto Association was formed in St. Petersburg (Petrograd). Swedes and Germans took the language up soon after; and, in 1898, attention was turned to it in England and France. The British and the Spanish Esperanto Associations were both formed in 1904, and in the next year the first Universal Esperanto Congress was held at Boulogne.

The British Esperanto Association (Incorporated) was established to promote the spread of the international auxiliary language, Esperanto. The Association is registered as a corporation under the Companies' Acts. Its objects are to promote the formation of local groups and to give them assistance; to distribute information and literature; to organize and conduct classes for teaching the language; to publish and sell books relating to it; to organize examinations and to grant certificates of proficiency; to promote lectures and to lend collections of literature; and to make arrangements for congresses at home and abroad. All persons who are in sympathy with the objects of the Association are eligible for membership without special qualification. The members pay an annual subscription. At the offices of the Association (17 Hart Street, London, W.C.1) is a reading room for members, containing the principal Esperanto magazines and a small library.

A local group of Esperantists may be affiliated to the Association if it includes at least seven members. There are upwards of a hundred such groups and societies in England, of which about twenty are in or near London.

The British Esperantist (monthly) is the official organ. It records the doings of the Association and its branches, and contains articles in Esperanto and in English, reviews, correspondence, etc.

Examinations are held both at the office and by correspondence. They are of two grades: Elementary and Advanced; and the Advanced certificate guarantees that the holder has a thorough knowledge of the language. This certificate is accepted by education authorities as a qualification for teaching Esperanto. Lessons are given by correspondence at moderate fees, details of which are supplied by the Secretary. The Association publishes a series of text-books for learners, including *Teacher, Manual, Grammar, Dictionary*, exercise books, and a number of readers, novels, and plays in Esperanto.

ESTIENNE (or ÉTIENNE).—The name of a famous French family of printers. Henry Stephens is the English name of the first of the family who established himself in Paris in 1500, and was succeeded, in 1526, by his son Robert, who was distinguished for his excellent productions and appointed printer to the King in 1539. In 1550, Robert was compelled to leave Paris on account of his conversion to the doctrines of the Reformation, and he settled at Geneva. Among his publications were some of the best editions of the Latin Bible, the Latin and Greek New Testaments of the period, and his own Latin Dictionary. His brother Charles took charge of the Paris business in 1550, and published many works of his own. Robert's son, Henry, continued the work in Geneva, and, having collected a large number of Greek manuscripts, issued many editions of Greek classical works and a great Greek dictionary. Others of the family kept up the traditions of the house during the seventeenth century.

ETHICS AND EDUCATION.—Included in the office of the teacher is the task of imparting conceptions of the good and the bad, the virtuous and the vicious, in definite forms. These forms may be arrived at by the teacher's own reflections, or they may be those which he takes to be agreed upon by the community, or to be decided upon by the institution in which he is teaching. The simplest case is that in which education is undertaken by the State: in which teachers are officials, and the forms of good and bad are prescribed: the prescription will include a number of positive commands, and still more numerous prohibitions and also some ideals to be aimed at. In this situation, there is no place for Ethics as a philosophy: a teacher who engages in ethical speculations does so for his own satisfaction; and in his private hours his opinions may be considerably at variance with those which he inculcates in his official capacity. It is, in practice, not very different even in countries where no State code of morals is explicitly authoritative. The common opinion of the country will have to be respected; the children's parents will look for conformity with the moral ideas under which they themselves live; and even in the higher levels of university education where students have some

liberty, a university would be placed in an isolated position if their freedom issued in ideas and practices repugnant to prevalent moral opinion. There is, therefore, only a limited freedom open to the teacher within the exercise of his proper task. But reflection brings to light no small advantage to be gained from such freedom as remains within these limits. It is a very great gain for an active mind to go all the way down to the foundations which it is the province of Ethics to lay. It is proper to a free mind to continue its activity until it is assured that it has found the bed-rock. The teacher who has attained insight into some principles beyond which there is no further passage, will enjoy firmness in his thinking on moral subjects. He will also enjoy the benefit that comes from consistency when he is in possession of criteria very few in number, even if not actually brought to the simplicity of unity. For though inconsistent or even incongruous, variety and richness have attractions of their own and effectiveness in some walks of life; for the teacher, they are less important than the strength, the confidence, and even the enthusiasm which flow from firmness and consistency. In the English-speaking world, a teacher who desires to possess his own ethical theory cannot do less than familiarize himself with the claims of Hellenism, both egoistic and utilitarian; of Rationalism of the type of Butler and Kant; and of what seems most simply described as Perfectionism—the development of personality in the social order which derives from Plato and Aristotle, is developed by Hegel and Bradley, and is the ethical theory at present in possession of most of the professional chairs in the universities of Britain and America.

Christian and Asiatic Ethics. In the countries which constitute Christendom, it is surely advisable that insight should be gained into the foundation ideas upon character and conduct, implicit or explicit, in Christian Ethics. It may be that they are the same as those already accepted from moral philosophy, and that it is only religious sanctions that are added to these; or, it may be, that Christian Ethics brings in some new principles of its own. In either case, only the teacher who is well informed in Christian Ethics will be in a satisfactory position to guide the moral education in countries where the majority of his pupils have received their moral ideas from Christian sources rather than direct from Greek originals or from modern schools of philosophy. And, yet further, the youth of neither Egypt nor America can wisely be left in ignorance of the moral ideas of Asia. In all places of higher education, at least, there will be many students who will some day be placed in direct contact with the great masses of the human race collected in India and in China. It would seem, therefore, that teachers should have some knowledge of the ethical theories underlying Confucianism: not necessarily either to accept them or to repudiate them, but to form some valuations of them relatively to the theories already accepted. For India, as for the countries under the domination of Islam, the ethical codes are bound up strictly with religions; but, even so, the ethical aspects of the religions can be studied, and their relation to European and Christian ethics ascertained.

Teaching Ethics to Children. So far for the teachers: what is to be said on ethical theories, or Moral Philosophy, from the point of view of the learners? It is plain that we can answer this question only in reference to the levels of education upon which the institutions work. In the elementary education which conducts the child to the threshold of adolescence and then commits him to the influence of social life for further aid, there is no scope for the child in the region of ultimate principles. At this stage the moral ideas of the community must be explained and commended in their concretest forms. In Europe, no one of the great ethical theories can be assumed to be official, and only confusion would issue from appealing at one time to one of them, at another time to another. It is because of the divergences in the Schools of Philosophy that so wide a claim is made for resort, in elementary education, to the religion of the community as authority in the moral sphere. How far the intelligence and personality of the children can wisely be evoked by inviting them to criticism at all is a problem of pedagogy, and of casuistry, also, which can only be named here. We should all like to see some independent thinking begun, no doubt; but the practical danger of loosening moral fibre is so acute, that few friends of the child are disposed to launch it upon criticism or speculation when it will leave school for the world at the very dawn of adolescence.

Adolescents. Where the educational period carries the scholars up to the age of 18 or 19, we have an opportunity. In their minds the epoch of inquiry has set in; and the benefit of systematically laying before them the principal ultimate theories seems manifest; and it is within the range of attainability to expound them in their broad features. For this it seems to be judicious to resort rather to literature than to the treatises of philosophers, as appealing more closely to what their minds are already occupied with in their studies. The theories implied in the Greek Tragedies, and in the tones of thought in Virgil and Horace and Lucretius, can be brought into explicitness; and, for all, there is such literature as the *Rubaiyat*, *Rasselas*, Wordsworth's *Ode to Duty*, and Browning's *Rabbi Ben Ezra*—each setting in its own way one or other of the great theories expounded by the philosophers themselves.

Adults. On the university level, the course is clear to those which have refrained from extreme specialization. There the tradition is continued of regarding some introduction to philosophy as a necessary part of general education. In those where philosophy is only one out of many options, it seems to be presumed that inquiry in the field of morals needs no guidance after schooldays are over. It is to be hoped that some reasoned conclusion may be arrived at as to whether provision should not be made for some study of ethical theory either in the later years at school or in the earlier years of college life. To leave it to be a small plot of ground cultivated by a handful of students in a large university must, surely, be a misconception of the scope of education altogether. It is desirable that all teachers should be within reach of the confidence, assurance, and animation that come from being in contact, if not in intimate contact, with the high principles that constitute the bases of moral ideas. A. CALDECOTT.

ETHNOLOGY.—A branch of the science which deals with the study of man. It treats man as a genus and aims at classifying the varieties of man and at demonstrating the relations between them. In other words ethnology is the study of race, and

with this object it differentiates mankind into types according to physical and mental resemblances and differences, investigates the geographical distribution of these types and endeavours to trace them to their origin. The record of facts upon which this study is based constitutes ethnography.

Classification. The basis of classification may be either (*a*) linguistics, (*b*) culture, or (*c*) physical characters. Of these neither of the two first-named affords satisfactory criteria. Owing to the facility with which a language is changed, similarity of language affords no evidence of identity of origin. The people of Great Britain may be taken as an instance: though derived from several different races, each at one time having a distinct language of its own, practically all now speak one language. The same applies to culture which, it is now generally agreed, cannot without the support of other evidence, except in special cases, be used with certainty to indicate anything more than contact. Ethnology, therefore, in classifying the various types of mankind tends to rely entirely upon physical characters.

Classification by Physical Characters. Various features of man's physique are generally recognized as having racial significance. Of these, some are immediately apparent on inspection, especially to the trained observer; others require accurate and scientific measurement with special instruments. The classification of races by the more easily observed characters goes very far back in the history of the world. The ancient Egyptians distinguished the principal races known to them in the representations on their monuments by differences in colour and also by physiognomy, especially in the matter of the beard, the fullness of which is still a racial feature among certain types in Asia Minor, Syria and Palestine. The epithet "fair haired" as applied in Homer both to individuals and to races indicates that the ancient Greeks also regarded colour as racially distinctive. F. Bernier (1672) distinguished four types: white, yellow, black, and Northern Lapp; while Linnaeus (1738–1783) gave white, yellow, black, and brown. The conditions that govern skin colour, however, are not clearly understood. It is neither possible to determine the relative importance of race and environment in regard to skin colour, nor do we know the exact extent to which it can be influenced by climate and environment. Races living under practically identical conditions of climate exhibit great diversities of colour: the black negro of Central Africa and some of the yellow races of Indonesia live in an apparently similar environment, as do dark and fair peoples in parts of the Pacific.

The modern anthropologist, in addition to observing skin colour, attaches considerable importance to eye and hair colour. The tendency, however, is to confine observation of pigmentation to two types only, fair and dark, as it is found that greater refinement in distinguishing tints, at any rate in eyes and hair, requires an accurate colour scale—no satisfactory scale has yet been devised—and considerable training in the observer.

In addition to the colour of the hair, stress has been laid on its texture. Human hair varies in section from round to a flattened oval. In appearance, hair with a round section is straight, and the more nearly it approaches the flattened form, the more curly it becomes, until it attains the kinky appearance found in the Hottentot and Bushman. Taking this as a basis, the types of man have been classified into three main groups: Ulotrichi or woolly-haired, in which the hair is characterized by numerous close interlocking spirals—a group to which the majority of the inhabitants of Africa belong; Cymotrichi, in which the hair is undulating, forming a long curve or imperfect spiral, as occurs among Indonesians and Polynesians; and Leiotrichi, with lank hair falling straight down and usually coarse in texture, as seen in the Mongols and American Indians.

Stature is another feature of racial significance. It is of assistance, however, only on very general lines, as it is found to be very variable within certain limits among the same people. Yet it is possible to classify certain peoples as tall (5 ft. 8 ins. and over), medium (5 ft. 4 ins. to 5 ft. 8 ins.), short (5 ft. 4 ins.), and pygmies (4 ft. 11 ins. and under).

The character of the nose used as a means of race-discrimination is differentiated as prominent or flat; relatively to its length the wings may be broad, moderate or narrow.

The shape of the face is also significant, both as regards the breadth of the cheek-bones—witness the broad cheek-bone of the Mongoloid type—and the projection of the chin and jaws (prognathism), a negroid characteristic.

The feature most consistently used, however, in determining racial affinities is that of head form, generally held to be the most constant as well as the most significant of racial characters. This method was introduced by Retzius (1796–1860). It is most generally employed in the form of the cranial or cephalic index, which depends upon the ratio of breadth to length, the latter being taken as 100. Heads of which the breadth falls below 75 per cent. of the length are called long-headed (dolichocephalic), those of which the index is 75 to 78, medium (mesaticephalic), and above 78, short (brachycephalic). Unfortunately, owing to a somewhat reckless employment of the method, which was pressed by over-enthusiastic theorists to uses for which it was not adapted, the cephalic index for a time fell into disrepute and many craniologists confined themselves to the study of contours and outlines of the skull. There is little doubt, however, that head form, of which, short of graphic representation, the cranial index is the most convenient indication, is, with certain limitations, the most trustworthy of the single criteria of race taken separately.

It must, however, be recognized that no single test is satisfactory, and any attempt at classification of types according to one feature only would be found to have included side by side individuals in other respects widely divergent. As a general rule it is convenient to take some three or four prominent features, such as head form, stature, and hair and eye-colour, and examine these in combination. As a further precaution the number of individuals observed must be considerable, in order to ensure that the observer has examined a fair sample of the population, and has a sufficiently wide field of observation to afford reasonable probability that the limits of variation have been ascertained.

As an example of ethnological method on these lines may be cited the broad racial distinctions recognized in the modern population of Europe. Here three ethnical zones are distinguishable, namely the Nordic, the Alpine, and the Mediterranean. The Nordic peoples inhabit the northern

parts of Europe, their distinctive characteristics being tall stature, fair hair and complexion, light eyes and a dolichocephalic skull; the Alpines are brachycephalic, fair to intermediate in pigmentation, medium to short in stature, and stretch across Central Europe from Asia Minor to the west of France; while the Mediterranean race, belonging to the region indicated by its name, is short and dark with a dolichocephalic skull. From a consideration of the factors which taken together constitute the distinguishing features in the case of these three races, it is apparent that superficial examination of any one character might lead to confusion between races that are in fact quite distinct. The importance of this caution is evident when it is remembered that the types of population of modern Europe are not confined to these clearly delimited areas, but by racial and individual migration they have intermingled and spread in varying degree over the whole of the European area.

Origin of Races and Division of Mankind. Quite early in the history of the science of ethnology two schools of thought arose. One inclined to the view that originally there was but one race; while another, basing its conclusions on the fundamental diversity of languages, argued that peoples speaking radically distinct languages must have had different origins.

The accumulation of evidence since these antagonistic theories were first put forward has not tended to simplify the problem, but the generally accepted view now is that the world was peopled by pleistocene man in a generalized proto-human form prior to all later racial differences. The existing groups have developed in different areas independently by continuous adaptation to their several environments, their divergences being confined to comparatively narrow limits and constituting mere varieties and not distinct species. A suggestion recently put forward by Klaatsch recognizes two early types, Neanderthal man and Aurignacian man, and two types of anthropoid, gorilla and orang-utan. He derives Neanderthal man and the gorilla from one common ancestor, and Aurignacian man and the orang-utan from another. Although comparative anatomists are not prepared to accept this hypothesis in its entirety, recent discoveries of pleistocene man suggest the existence of more than one primordial stock. Keith's conclusion, which most nearly appears to fit the facts as known at present, is that in the "ancient world, the family of mankind was broken up into narrow groups or genera .... out of that great welter of forms one species became the dominant form and ultimately the sole surviving one, the species represented by the modern races of mankind."

From a consideration of all the various tests, attempts have been made to divide mankind into three, four, or five divisions or main classes: one such classification divides the varieties of man into the black, frizzy-haired Ethiopian or Negro; the yellow, lank-haired Mongolian; the white, smooth-haired Caucasian; the coppery, lank-haired American; and the brown, straight-haired Malay.

On the other hand, the tendency of the modern ethnologist, as evidence accumulates, is to avoid these broad generalizations, and except in comparatively limited areas, to be cautious in putting forward racial affinities as a basis of classification. In other words, until more complete and definite evidence is obtained, the science tends to concentrate on a classification that is descriptive rather than genetic. An outline of a recent classification based on one character, the hair, may be given as an instance of the lines upon which ethnology is now working. According to this classification, the African negroes and the Oceanic negroes (Papuans, Melanesians and Tasmanians) form one group, described as the Ulotrichi on account of the woolly character of their hair. The second group, Leiotrichi, the straight-haired group, comprehends the Mongols (including some of the Oceanic and Polynesian peoples) and the American aborigines. The third group, Cymotrichi, or wavy-haired peoples, include the pre-Dravidian, Vedda, Sakai, and Australians, and the so-called "Caucasic" peoples, a group which covers Mediterraneans, Semites, Hamites, Indonesians and Polynesians, the population of Northern Europe, as well as Kurds, Afghans and some Hindoos, the inhabitants of Central and Western Europe, and the Armenians of Western Asia. (*Man, Past and Present*, pp. 38-9.) The introduction of considerations other than the hair, such as the shape of the head and the nose, and skin colour, results in a complicated system of sub-divisions which it would not be appropriate to consider here, but for which reference should be made to the standard text-books. E. N. F.

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ETON COLLEGE.—This, the most famous school of modern times in England, and perhaps in the world, was founded in 1440 by Henry VI under the name of "The College of the Blessed Mary of Eton beside Windsor." In imitation of Henry Chichele's school at Higham Ferrers, in Northamptonshire, which had been established in conjunction with All Souls College, Oxford, the King associated his new school with a new college at Cambridge, called, after its founder, King's College. Chichele had modelled his school and college on William of Wykeham's foundations at Winchester and Oxford (New College), and, before completing his plans, King Henry visited Winchester on more than one occasion; thus Winchester became the type and inspiration of his scheme. The original foundation consisted of a provost, ten priests, four clerks, six choristers, a schoolmaster, twenty-five "poor and indigent" scholars, and twenty-five "poor and infirm" men; and the parish church of Eton was declared the collegiate church. The first statutes enlarged the foundation to a provost, ten priests, ten chaplains, ten clerks, sixteen choristers, seventy scholars, a schoolmaster, an usher, and thirteen poor and infirm men; the bedesmen soon disappeared altogether. To provide the college with revenues, Henry settled on it the estates in England of certain foreign priories, and bought a great deal of land for it round Eton; the cost of the buildings he also paid out of his privy purse. The statutes remained unaltered till 1872, when, under the Public Schools Act, 1868, great changes were introduced. The foundation now consists of a provost, a vice-provost, ten fellows, a bursar, a head master, a lower master, at least seventy King's Scholars,

and two conducts (chaplains)—the provost, vice-provost, and fellows forming the governing body. There are four or five scholarships at King's College, Cambridge, which are awarded yearly after competition open to all members of the school, besides a number of exhibitions; these serve to keep up the connection between the school and the college which the pious founder initiated. There are also other scholarships open to all the older boys, whether King's Scholars or not—some tenable at either university and at any college; others attached to certain colleges, such as Merton, Pembroke (Oxford), and Magdalene; the chief prize of the year is the Newcastle Scholarship, awarded for classics.

School Organization and Daily Life. Scholars of Eton are educated and lodged in college, and are called *collegers*. The majority of the boys, however, are not scholars, but live in the houses of certain of the assistant masters: they are called *oppidans* (town-boys). The teaching is the same for both classes of pupils. Till 1851, it was entirely classical, but then attention began to be given to mathematics; science was included in 1869; and now there is no subject neglected: modern languages are cultivated, and English literature receives due honour. Teaching is not carried on merely in the classrooms of the college; perhaps the most valuable part of the intellectual training is given in the "pupil-room" in the boy's house by his house-tutor. There is now a large and important Army class, the work of which is separated from that of the rest of the school, so that special subjects may receive more continuous instruction. There are more than one thousand boys in the school. The routine may seem unnecessarily complicated to the observer who does not possess inner knowledge of its working; it is a product of the traditions of nearly five centuries, transformed and sublimated in the alembic of modern experience. While endowing the boys with great liberty, which promotes independence of thought and action and a sturdy self-reliance, the discipline and supervision are firm, kindly, and serve amply to restrain the wilful and retrieve the errant. It is often said that Eton produces a single type—the "Eton man." It is not so. More than any other public school, Eton fosters individuality. The superficial resemblances which strike the negligent observer as identities are merely the family likeness which all sons of Eton possess: tricks of manner, breeding, attitude, speech. But character underlies this uniform demeanour, and its cultivation is like that of a rare flower in a well-tended garden, guarded from enemies and noxious associates, stimulated gently at need, but blooming naturally in the fresh air and sunshine.

Outdoor Life and Athletic Games. The famous playing-fields contribute to the process of evolution, and games are organized very remarkably and perfectly. Boys are "wet-bobs" or "dry-bobs": the former row, the latter play cricket and football. Eton rowing, type and exemplar of all amateur rowing, began in 1826, when a race was rowed against Westminster: the races ended in 1848 with the introduction of steamboats on the Lower Thames. Since then, Henley Regatta has been the crown of the rowing year for the Etonian oarsman, and the Eight always enters for the Ladies' Plate and, if exceptionally good, for the Grand also. On the 4th of June a procession of the boats takes place at the School, the crews wearing their colours and hats trimmed with flowers, the coxswains arrayed in admiral's uniform. In the actual playing-fields, cricket is cultivated almost as an end in itself. The chief annual matches are against Harrow at Lord's, dating from 1882, and against Winchester, played at Eton and Winchester turn and turn about, dating from 1826. There are Rugby and Association football teams, besides the two special Eton games: the Field Game, out of which the Association code was developed; and the Wall Game, the peculiar pride and glory of the school. Racquets is much played, and Eton usually shows up well in the Public Schools' Championships. One of the two games of Fives originated at Eton; the buttresses and "pepper-box," which gave the court its orthodox shape, are close to the north door of Chapel in School Yard. Athletic sports are held in the Lent "half."

Great Names. Eton has always been the school of the aristocracy. Its school lists contain the names of ten Prime Ministers, twenty-two Governor-Generals of India, and countless Cabinet Ministers. Grey, Melbourne, Derby, Gladstone, Salisbury, Rosebery, Northcote, Hicks-Beach, Balfour, Roberts, Swinburne, Hallam, Kinglake, Milman—are names that shed lustre alike on Eton and on Victorian England. And, in the remoter past: Bolingbroke, Boyle, Canning, Chatham, Fielding, Fox, Gray, Lyttelton, Porson, Praed, Shelley, and Walpole were bright particular stars in a firmament studded with points of brilliance and traversed by a veritable galaxy of talent.

EUCLID, or EUCLIDES (of Alexandria).—The most famous teacher of geometry in ancient times. Little is known of his life, but from fragmentary records it is gathered that he flourished towards the end of the fourth century B.C., perhaps about 340–300. Works attributed to him are the well-known "Elements" of geometry, treatises on the elements of music, a treatise on Fallacies, and four books on Conic Sections.

Dr. Simson, Professor of Mathematics at Glasgow University from 1711 to 1758, translated and restored the text of Euclid's Elements, and his translation has been the basis of almost all English editions.

Euclid's aim appears to be the comparison of the areas of plane figures and the contents of solids. The first two books deal with rectilineal figures, the third with the circle, and the fourth with the construction of polygons in and about circles; the fifth with the theory of proportion, and the sixth with its application to plane figures. The next three books treated of arithmetic, and the tenth with incommensurable quantities; the elements of solid geometry form the subject of the eleventh book, and the twelfth deals with the contents of certain solids. Euclid's method formed the basis of the theoretical teaching of geometry in all schools until a new system introduced by the Mathematical Association displaced it.

EUCLID, THE TEACHING OF.—(See GEOMETRY, THE TEACHING OF.)

EUDEMUS AT MILETUS, SCHOOL OF.—(See ENDOWMENT OF A FREE SCHOOL AT MILETUS BY EUDEMUS.)

EUGENICS AT SCHOOL.—It has only been since the middle of the nineteenth century that the principle of evolution has been widely accepted,

nearly all students of natural science now holding that every living organism has descended by a process of natural inheritance from a long series of ancestors of types which are seen to be more and more primitive as we dive into the remote past. The view previously entertained was that all men were, as it were, cast in the same mould, and that the differences between any two individuals might be compared to the dents made by external circumstances in an originally perfectly-moulded form. The disappearance of the belief in the inherent equality of human beings has constituted a silent revolution in thought; and all such revolutions are inevitably accompanied by great changes both in social customs and educational systems. Sir Francis Galton, who coined the word "Eugenics" in the year 1883, and is rightly regarded as the founder of that science, made it his life's main work to consider how the human race could be benefited by the study of natural science. Nature has been for ages slowly dragging mankind up the ladder of progress, and civilized man can ensure the continuance of this progress by utilizing his knowledge of the laws of natural inheritance; whilst to neglect to do so may lead to national degeneration. With these thoughts in his mind, Galton coined his well-known definition of eugenics, namely, that it is "the study of agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally." The faith of the Eugenist is founded on his belief in three broad principles: (1) That our duties towards posterity impose on us moral obligations just as binding as do our duties towards our neighbours; (2) that the mental and bodily characters of man are subject to the laws of natural inheritance; and (3) that every man or woman is, in a measure, morally responsible for the innate defects which his or her descendants will have received as a natural heritage from either party to the marriage contract. The teaching of eugenics consists mainly in the inculcation of these basic principles.

Of Young Children. As regards young children under 10 or 12, all that is possible is to lay useful foundations in the course of other lessons in a manner which must be indirect and which cannot be too elementary. The first step should be to show, by simple examples, that we must not act rightly merely with the hope of winning some reward: just as an outgoing tenant should look for no thanks from his successor for handing over the empty building in good order. Then it can be shown that our bad words and deeds may go on doing harm long after our deaths, and that we ought to be sorry for the harm thus done to others whom we shall never see. As to the way in which human beings pass on their good and bad qualities to their descendants, that is a subject which must be touched on even more lightly. The mind of the child is, in any case, certain to be familiarized, by reading story books, with the idea of marriage and parenthood at a very early age, and this is all to the good. Then such obvious facts as that a dog always has puppies and a cat kittens may, perhaps, be made to suggest the wider law that, in Nature, like always tends to produce like; whilst, later on, any instances of family likenesses which may be noticed in reality, history, or fiction should be emphasized. The idea of responsibility for the coming generation, being instinctive, is not difficult to foster; and little girls, who should never be laughed at for playing with dolls, should rather be praised with an open make-believe interest in these, the children of their fancy. Opportunities will thus arise for suggesting that the care and education of children forms the noblest part of a woman's duties, an idea also to be impressed on the minds of boys when possible. A pride in children should lead to a pride in grand-children, and thus on to a pride of family—not of the past, but of the future. Beyond such simple indirect beginnings it is probably impossible to go at this early age. Later on, the inculcation of the above-mentioned principles can, no doubt, be both widened and made more detailed. The idea of our responsibility, not only in regard to individuals, but also to the nation as a whole, must be emphasized; and by pointing out both the great deeds of our countrymen in the past and the enduring continuity of our nation, a pride in the thought of its future progress may be aroused. As to natural inheritance, nature studies may be utilized to show how the seed slowly develops into the tall tree; how an egg, by passing through many stages, may give rise to a butterfly; how all living things must obey the laws of Nature; and how a knowledge of these laws, therefore, enables us to foretell future events. From here it is possible to pass on by easy steps to a knowledge of our responsibility in parenthood. We know that life is like a great ceaseless stream, of which one little branch has been committed to each one of us as a charge for life. It may, and it often must, die out with us. But if we do pass it on through our children as a part of the great main river flowing on for ever, we must sometimes consider whether this rivulet, for the course of which we are responsible, is muddy or bright. Is it likely to brighten or to darken the great stream by rejoining it? In the final lessons before leaving school, these general similes may be abandoned; and it may be clearly indicated that the laws of natural inheritance tell us that exceptional qualities in the parents, though not certain to reappear in the children, are more likely to do so than if they had not existed in the parents. As we are likely to pass on to posterity both our own merits and defects, and the merits and defects of the partner chosen by us it follows that selection in marriage imposes a very grave responsibility on us. This is probably as far as it is possible to go at school in implanting the eugenic ideal; but on this foundation the view that for some few it is wrong to become parents, whilst for many others it is equally wrong to avoid this duty to the State, will naturally arise in the minds of children as they grow up into men and women.

Of Older Children. Where, in higher secondary educational establishments, time is allotted to either sex hygiene or natural history, evolution and heredity can be dealt with systematically, and in a manner calculated to suggest the necessity of practically utilizing this knowledge in our daily social life. This instruction will, moreover, lay the necessary foundation for those further advances in learning beyond that which can be acquired at school, which are desirable, if not essential, for all teachers. Amongst the questions likely to be asked by pupils, there are certain to be some concerning marriage, and for this reason alone instructors of youth should not be allowed to remain in ignorance concerning the facts of sexual life, or their advice will be like that of the blind leading the blind into unknown dangers. As regards the advisability of refraining from marriage on the grounds of health, the best advice which the teacher can give would

be that a trusted medical man should be consulted. All who are dealing with the young are, however, in a position to produce lasting racial results by inculcating nobler ideals concerning human character, which will inevitably lead to wiser selections in marriage. The eugenic movement is essentially a moral movement, and the public opinion on which it must be based is formed by the well-educated few influencing the partly prepared many. School teachers have unrivalled opportunities, and it is in their power to play a great part in spreading abroad a knowledge of the danger to posterity resulting from the inheritance of the defects of this generation, and in the probably even greater peril to our nation of the future consequent on the small families of the best types of humanity to-day.

L. DARWIN.

EUGENICS EDUCATION SOCIETY, THE.—The word "eugenics" is defined in the dictionary as "the science which treats of the improvement and development of the inborn qualities of the human race." In the words of Major Leonard Darwin, "the aim of eugenics, according to its founder, is to increase the probability of the men of the future being hereditarily endowed with noble qualities." Sir Francis Galton (*q.v.*), a cousin of Charles Darwin, was general secretary of the British Association from 1863 to 1868, and president of the Anthropological Institute in 1885 and 1886. He devoted himself to the study of heredity, and in his work on *Human Faculty* (1883) coined the word "eugenics." He established a research fellowship for the study of eugenics (1904) and by will endowed the Galton chair of eugenics, both in the University of London. Sir Francis was Honorary President of the Society when he died. The society was founded in 1907 to carry out the following objects—

1. Persistently to set forth the national importance of eugenics in order to modify public opinion, and to create a sense of responsibility in respect of bringing all matters pertaining to human parenthood under the domination of eugenic ideals.

2. To spread a knowledge of the laws of heredity so far as they are surely known, and so far as that knowledge might effect improvement of race.

3. To further eugenic teaching at home, in the schools, and elsewhere.

Any person who desires to further the aims of the society may be proposed as a member, and on payment of one guinea is eligible for election to membership. The annual subscription for Members is one guinea, including the *Eugenics Review*. For Associates (who do not possess the power to vote) the subscription is 5s. The affairs of the society are conducted by a council of elected members, with elected president and vice-presidents, and an annual general meeting is held when president, officers, and members of the council are elected.

The first International Congress of Eugenics was held in London in 1912, many foreign countries being represented. All the preliminary arrangements were made by the Eugenics Education Society. The Congress appointed an International Committee which met in Paris in 1913. During the war no further meetings were held. The second International Congress of Eugenics is to be held from September 22–28, 1921, in New York. The Permanent International Eugenics Congress has appointed the Society to inaugurate the British Consultative Committee for Great Britain.

Work of the Society.—The Society took an active part in promoting the Mental Deficiency Act of 1913, which is described in the 1913–14 report as the only piece of English social legislation extant in which the influence of heredity has been treated as a practical factor in determining its provisions. In carrying out such acts as the one just mentioned and others of the same kind, such as the Inebriates Act, great powers are given to local authorities and the Eugenics Society helps to secure the effective working of the Acts by urging local authorities to make full use of their provisions. The Society also for a long time urged the advisability of giving far more substantial allowance for children in the assessment for Income Tax, in order to encourage worthy parenthood. In consequence of this agitation steps were taken in this direction in the Budget of 1920.

The Eugenics Society has taken great interest in the campaign against venereal diseases, and advocates the dissemination of knowledge concerning the physiology of sex.

A library has been formed at the offices of the society, containing books, periodicals, pamphlets, and reprints from periodicals. Members are invited to come to the office and make use of these works, and are provided with every facility for finding any information contained therein which they may require.

The official organ of the Eugenics Education Society is *The Eugenics Review*, published quarterly. It contains articles on eugenics, reviews of books, and a quarterly chronicle of the society's work.

The Presidents of the Society have been Sir James Crichton-Browne, Mr. Montague Crackanthorpe, and Major Leonard Darwin. The offices are at 11 Lincoln's Inn Fields, London, W.C.2.

EUGENIUS II, POPE.—(See CANON LAW AND EDUCATION.)

EUGENIUS IV.—Pope from 1431 to 1439. He made an attempt, in 1438, by the Council at Florence, to unite the Eastern and Western Churches. An agreement was reached, and the "Filioque" clause of the Western form of the Nicene Creed was accepted by the Eastern members of the Council. The Eastern Church, however, repudiated the action of the Council, and the Western Church deposed Eugenius as a heretic.

EULER.—By far the most prolific mathematician of the eighteenth century was the Swiss, Leonhard Euler (1707–1783), who was a pupil of Johann Bernoulli (*q.v.*). Most of the very great formal development of analysis during the eighteenth century was due to Euler, and his many works and text-books exercised a profound influence on mathematics and mathematical teaching. His text-books contain a great part of his own previously published original work. In 1748 was published his *Introductio in Analysin Infinitorum*, the first volume of which is a systematic treatise on algebraic analysis and analytical trigonometry, and, for the first time in a text-book, the notion of "function" appeared as fundamental in analysis. The second volume of this work deals with analytical geometry in an equally systematic way. In 1755 appeared Euler's *Institutiones Calculi Differentialis*; and in 1768, 1769, 1770, and 1794 appeared the four volumes of his *Institutiones Calculi Integralis*, which, considering the date, treat with great fullness

and system both the integral calculus and with what we now call "differential equations." The original works and text-books of Euler on the calculus were enormously influential in shaping the work of subsequent mathematicians such as Lagrange (*q.v.*), Laplace (*q.v.*), Legendre (*q.v.*), Abel, and Jacobi; and share with Euler's works the qualities of clearness (except in the principles) and prolixity. Another very valuable text-book was Euler's *Anleitung zur Algebra* (1770), for the French translation of which (1774) Lagrange wrote important additions on indeterminate analysis. Euler also wrote a notable text-book on mechanics; and the famous *Lettres à une Princesse d' Allemagne sur quelques sujets de physique* . . . of 1768–1772 contain the well-known circle diagrams to illustrate the relations of classes in logic. (See LOGIC, THE TEACHING OF.) P. B. E. J.

EURHYTHMICS, THE JAQUES-DALCROZE METHOD OF.—Emile Jaques-Dalcroze was born on 6th July, 1865, of Swiss parentage, and obtained his musical education in Geneva at the Conservatoire of Music, in Paris, under Léo Delibes and, in Vienna, under Bruckner and Fuchs.

In 1892 he began his teaching career as Professor of Harmony at the Geneva Conservatoire, and soon became convinced that all education in music should be based on tone and rhythm. As the sense for tone can only be developed through the ear, he first gave special attention to ear-training. Next he devised a system of movements to give the body a training so refined and so detailed as to make it sensitive to every rhythmic impulse. This co-ordination of movement and music is the essence of the Jaques-Dalcroze Method, and differentiates it from all other methods of similar aim.

In 1906 was held the first training course for teachers. A fortnight was then considered a sufficient period of study; now the courses for the teaching certificates of the Dalcroze Institute at Geneva, and of the London Dalcroze School, require two or three years.

The Method falls naturally into three divisions: Solfège (ear-training), improvisation (practical harmony), and rhythmic movement. An important aim in both solfège and improvisation is the acquirement of absolute pitch (*i.e.* that state of development in which every note becomes a reality, having a corresponding mental image instantly obedient to the sound). By improvisation is meant facility to extemporize on the piano in any desired rhythms; this is essential in the teacher of rhythmic movement.

The part of the method which is essentially new is the systematic grouping of rhythmic movements, which, although formerly called "Rhythmic Gymnastics," is much more an intellectual than a physical drill. It is based upon two ideas: (1) *time* is shown by movements of the arms; (2) *note-duration* by movements of the feet and body. In the early stages, this principle is clearly observed; later, it may be varied. The system of beating time provides for all tempi from $\frac{2}{4}$ to $\frac{1}{4}^2$, and includes $\frac{2}{2}$, $\frac{4}{4}$, and $\frac{8}{4}$. In the movements to represent note-values, the crotchet is taken as the unit, and is represented by a step; higher values, from the minim to the whole note of twelve beats, are represented by a step with one foot, and a movement or movements with the other foot or with the body, but without progression (*e.g.* a minim by a step and a knee-bend, a dotted minim by a step and two movements, a whole-note of twelve beats by a step and eleven movements). Thus for each note in the music there is one step; while at the same time the note, if of greater length than a crotchet, is analysed into crotchets. Quavers, triplets, etc., are also expressed by simple steps.

The whole training aims at developing the power of rapid physical reaction to mental impressions. These are more commonly obtained from the music played; when, however, the teacher needs to give commands during an exercise, the word *hopp*, chosen for its clear incisiveness, is used. Before each exercise, it is clearly stated what the word is to represent in that particular case (*e.g.* omit one beat, beat time twice as fast with the arms, etc.); often the word will be used in series in an exercise, each *hopp* meaning some additional change. As the command generally falls on the second half of the beat preceding the one in which the change is to be made, very rapid response is necessary.

Exercises. We will now consider the exercises in some detail. In teaching, strict grouping is neither possible nor necessary; the actual form which the lessons take will depend upon the genius of teacher and pupils, the possibilities of variety being infinite.

MOVEMENTS TO INDICATE TEMPI AND NOTE-VALUES. Simple music is played to which the pupils march, marking the beat by an accented step; corresponding arm movements are added, and the strong beat, at this stage always the first, is marked by full contraction of the arm muscles. Practice is given until at *hopp* the pupil can stop suddenly, discontinue accenting with one or both arms or with one or both feet, substitute an arm movement for a foot movement, insert an extra accent either with arm or foot, or do any similar thing previously agreed on. At this stage the movements to indicate tempi and note-duration are learnt; they may be likened to the alphabet of the method.

TRAINING IN RHYTHM. The pupils learn a series of movements together forming a rhythm, first practising them singly, then in groups until the complete rhythm can be expressed. Again, the pupil learns to realize (*i.e.* to express by movements of the body) a complete rhythm played on the piano or indicated by the movements of another person. This is something quite apart from mere imitation; the pupil first forms clear mental images of the movements corresponding to the rhythm in question, and then gives physical expression to those images. In other words, he does not reproduce until he has understood.

ATTENTION AND RESPONSE. A rhythm in music consists of a regularly recurring series of accented sounds, unaccented sounds, and rests, expressed in eurhythmics by movement and inhibition of movement. Individuals who are rhythmically uncertain respond irregularly to mental stimuli; the response may be too rapid or too slow; in either case, impulse or inhibition falls at the wrong moment, and the physical expression of the rhythm is blurred. The method has many exercises which are helpful in this connection.

SILENT COUNTING. Physical movements repeatedly performed create corresponding thought images; the stronger the feeling for the movement, the clearer will be the corresponding mental image, and the more fully will the sense for metre and rhythm be developed. The pupil who knows how to march in time to a given rhythm has only to close his eyes and recall a clear image of the corresponding movements to experience the rhythm as

clearly as if he were expressing it by marching. He simply continues to perform the movements mentally.

DIVISION OF TIME VALUES. At *hopp* the crotchet must be divided into quavers, triplets, semiquavers, etc., as may have been previously arranged; or, instead of *hopp*, the teacher may call *three, four*, etc., to indicate the following sub-division. In syncopation, the note represented by the usual step comes off the beat, which is indicated by a knee-bend, and, in quick time, becomes a mere suggestion of movement.

REALIZATION OF RHYTHM. The object is to express, without hesitation, rhythms perceived by the ear. The exactness of such expression will be in proportion to the number of movements over which the pupil has acquired automatic control. When the realization of a rhythm heard has become relatively easy, the pupil is taught to form a mental image of a fresh rhythm while still performing the old one.

INDEPENDENCE OF MOVEMENT. Characteristic exercises are: Beating the same time with both arms, but in canon; beating two different tempi with the arms while the feet march to one or other, or perhaps march to yet a third time (*e.g.* the arms $\frac{3}{4}$ and $\frac{4}{4}$, the feet $\frac{5}{4}$.) There are, also, exercises in the analysis of a given time-unit into various fractions simultaneously (*e.g.* in a $\frac{3}{4}$ bar, one arm may beat three to the bar, the other arm two, while the feet march six.)

DOUBLE OR TRIPLE DEVELOPMENT OF RHYTHMS. Preparation for what is known in music as the development of a theme.

PLASTIC COUNTERPOINT AND COMPOUND RHYTHMS. In plastic counterpoint, the arms realize the theme; whilst the feet mark the counterpoint in crotchets, quavers, triplets, or semiquavers.

A compound rhythm may be realized by the arms taking one rhythm, the feet another; or the rhythms of a three-part canon may be expressed by simultaneous singing, beating with the arms and marching.

GRADATION OF MUSCULAR EFFORT. *Pathetic Accent, Musical Construction, Musical and Plastic Expression.* This section will comprise exercises in making crescendos and decrescendos of innervation, in passing from one shade of expression to another, and in co-ordinating movements not only to the rhythm of the music played, but also to its feeling; they allow play to individual temperament, and give opportunity for that free self-expression for which the preceding exercises have provided facility.

A natural outgrowth of this part of the method is the expression of classical music (*e.g.* a Bach fugue or invention), in which the various voices can be taken by individual students or groups of students, and the entire rhythmic structure realized. The pupils first study the music until they know it in detail; then they attempt to express in free movement what it really means to them. In such a study the piano is merely the harmonizing link.

In conclusion, it should be stated that the Dalcroze Method is still developing; indeed, so long as its discoverer is still engaged in active teaching, it cannot be said to have reached its final form.

P. B. I.

EVELYN, JOHN (1620–1706).—Educated at Oxford, and for some time a law student in London, an enthusiastic lover of Nature and horticulture, and a diarist. He practised horticulture on his father's estate at Wotton, Surrey, and on his own at Sayes' Court, Deptford. For a time he was Secretary of the Royal Society. He wrote an interesting and valuable diary of private and public events from 1640 to 1706, still in the possession of his descendants, and parts of it are as valuable as that of his contemporary Pepys.

EVENING SCHOOLS, TEACHERS IN.—(See CONTINUATION SCHOOLS, TEACHERS IN.)

EVOLUTION AND EDUCATION.—The general recognition of Evolution as the mode by which the human race came into existence has reacted in various ways on conceptions of education. In recent years, the study of the nature of variation and heredity (known as Genetics), the phenomena by which we must suppose Evolution to proceed, has made rapid progress. The knowledge thus acquired limits in several ways our expectations as to the results which education can attain. That education can modify the composition and development of such a people as our own is not in doubt; but even the preliminary acquaintance with what may be called racial physiology (recently acquired) has greatly promoted an understanding both of the possibilities of modification and of the way in which these changes are actually effected by the institution of public education. The conclusions to which genetic science points run counter to many notions long popularly entertained. It was, for example, assumed both by physiologists and by laymen, that the effects of cultivation or training in the case of both animals and plants were, in greater or less degree, transmitted to the offspring, and that in the course of generations these effects would accumulate. This theory was prominently developed by Lamarck, and was adopted, with few exceptions (*e.g.* Sir W. Lawrence), by all writers on these subjects, notably by Charles Darwin. Weismann was the first to induce the world seriously to examine the foundations of this doctrine. He showed not only that the little evidence favourable to such a belief was, in reality, worthless; but also that the physiological mechanism of heredity, in so far as it can be observed, was such that the occurrence of any transmission is in a high degree improbable. The results of the modern accurate study of heredity are entirely in harmony with this negative conclusion. There is now scarcely any doubt that the germ-cells of which the offspring are composed possess from the beginning ingredients determining their powers and attributes; and that, with rare and doubtful exceptions, it is not in the power of the parent, by use, disuse, or otherwise, to increase or diminish this total. It is not impossible that injury to the germ-cells may be effected by starvation of the parent, by excessive doses of drugs (such as alcohol), and similar violent treatment, though there is little definite evidence that even in this limited degree the destiny of the offspring can be changed; but that the development of a faculty in the parent by education or practice causes an increase in that faculty in the offspring is recognized by most students of the subject to be altogether unproven and probably impossible.

Imitation and Memory. It is true that in the last decade some have again revived the view brilliantly expounded by Samuel Butler (*Life and Habit*, 1878), and also by Hering, that living things may, through their generations, have a continuous accumulation of "unconscious memory." Just as learning to read or to play a musical instrument

requires close attention and extreme effort in the early stages—though afterwards these acts may be performed almost without conscious attention at all—so, it is argued, may even the ordinary reflex actions, such as respiration or digestion, have been acquired as a summation of effort originally conscious. Such a fascinating proposition, if well supported, would have enormous consequences, and man's outlook on the world would be profoundly modified. It is, however, maintained chiefly as providing a complete account of the origin of adaptations with which no other current theory of evolution has successfully dealt, rather than by appeal to direct evidential proofs. Living things do continually display purposeful faculties which seem as if they *must* result from the inheritance of parental experience. A bird builds the nest peculiar and appropriate to its species. Conceivably, however, the bird remembers the nest in which it was reared, and copies that when its own time comes. But insects do similar things, though the parents died when the offspring were eggs. Parasitic ichneumons, for instance, find the larvae on which their young are to feed, though hidden deep in a tree-trunk. Somehow they perceive the hidden larva, and lay their eggs in such a way that the young will reach it. Nature abounds with such examples. We can say that the "instinct" of the ichneumon is fired or let off by the perception—probably scent—of its food-larva, just as the first drop of drink may excite the craving for alcohol in the youth who inherits that vice; but that is a mere description of the phenomenon and no account of its causation. Nevertheless it must be recognized as a fact that the purposeful acts of animals are, in many cases, first made in response to external stimuli. Sometimes they are, no doubt, rightly interpreted as directly imitative of the similar acts made by the parent in the presence of the young, but unimpeachable examples of actual teaching given by the parent are rare. It has, for instance, been often reported, on fairly good authority, that diving birds teach their young to dive. The significance of the evidence must, in these cases, obviously be largely a matter of interpretation. The fundamental instincts are evidently called into play by trifling circumstances. Chickens are sometimes said to peck up food as soon as they are hatched. That is not true; but, as every one who has used incubators knows, at about twenty-four hours after hatching, chicks make vigorous but, at first, ill-directed strokes at any small coloured or shining objects. They peck in this way, especially at each other's claws. Some hours later they acquire precision, and can seize bits of food with certainty. The instinct appears to be excited largely, if not entirely, through the sense of sight. Imitation greatly aids. A single chick may not learn to feed itself for some days, but there is no difficulty when several are together. On the other hand, the disposition to run to the hen's "cluck," which is manifested very early in chicks hatched under a hen, is not developed in incubated chicks of similar age, who evidently attach no meaning to the sound. An apparatus is present ready to act if the appropriate stimulus is given at the right time; but for want of that stimulus, it remains inoperative. It is tempting to suppose that the apparatus, the readiness to make the right response to various stimuli, is a manifestation of "unconscious memory"; but since, as we have said, there is no good reason to suppose that even the simplest experiences of the parent are at all transmitted to a succeeding generation, the suggestion of continuous memory as applicable to education can only be defended on grounds which to the biologist are mystical and unconvincing.

Racial Modification and Education. The racial changes which may admittedly follow on the institution of popular education are seen by biologists to be produced in a very different way. One of the chief facts demonstrated by modern research is the heterogeneity of the individuals of which most species of animals and plants are composed. Conspicuously is this true of man, and of the mixed races in a very high degree. Applied for even a few generations to composite populations, universal education can effect remarkable changes by re-arrangement of the constituent members. Opportunity is given for the more intellectual individuals in the various classes of the community to improve their position. A natural selection of the intelligent from the several social layers is thus given an increased scope. By changes in public opinion, which in an educated community tends to discredit the less intelligent, the process is accelerated. As a result of this sorting process, a considerable reconstitution of the layers or classes may be effected. The intelligence of the community then seems to have been raised, and undoubtedly it may show a higher average of mental efficiency; but the alteration accrues by change in the distribution of opportunity and the selective process, not by any physiological transmission of the cumulative effects of education. Discussion often arises whether various non-European races submitted to our education will be found capable of assimilating themselves to our mental standards. The question is raised both in reference to peoples like the Chinese, immemorially civilized, and to races of low intellectual type, such as the negro or the American Indians. Reformers and philanthropists are disposed to treat these two classes of cases as similar, and to argue that in the course of generations any race exposed to education can develop along the lines which we have followed. To the biologist, it is clear that no answer of general application can be given. The problem is special to each race, and is simply a question whether the race does or does not contain individuals capable of responding to the treatment. For, while it must be supposed that a vast country like China, among the divers races of its inhabitants, many of whom have for ages shown intellectual capacity of a very high order, may almost certainly contain human material possessing all kinds of attributes, nothing in the history of the negro races indicates even the sporadic existence of such material among them. Unless, however, the aptitude is already present, there is no likelihood that it can be introduced except by cross-breeding, and the possibility of a change in intellectual type is not essentially distinct from that of a change in colour. It must be understood that we are here considering the *capacity* of races to respond to our education—not the question whether, given the capacity, a particular race is likely to do so. Reference was made to the possibility of a change of type being effected by crossing; and, in considering any practical example, a large and very uncertain allowance must be made for the consequences of such events. As we have learnt from Mendelian studies in heredity, the results of crossing are by no means so simple as was formerly supposed. A feature or attribute

may, indeed, be introduced from a foreign source and eventually become widely disseminated among a population, though the general appearance and characteristics may remain sensibly unchanged in other respects.

Intellectual Evolution. Judgments in regard to the intellectual evolution of races are further obscured by the vast changes produced solely by the exercise of the faculty of *imitation*. The part that fashion and imitation have played in the history of civilization is still imperfectly understood and by no means fully appreciated, and it is not inconceivable that these phenomena have been significant in determining the course of Evolution. (The reader may be referred to the remarkable essays of G. Tarde: *Les Lois de l' Imitation* [ed. 6], 1911.) The large physiological departures from the normal—variations in the biological sense—are rare. The bulk of the population remains of an older type: yet by the irresistible instinct towards imitation, the race, as a whole, may, to use Tarde's happy expression, be "polarized" under the influence of a few dominant minds, so as to present a semblance of uniformity which masks their real composition. Even among European nations which pass for educated, only a small part of the population really assimilates education in any considerable degree. With the majority, the process is carried but a small way, little permanent effect being produced, and signs are not wanting that the failure is due to congenital want of aptitude. Remembering this fact, that among contemporary peoples the type which can in any sense be termed intellectual is always rare, it is evident that a large ostensible change may be induced in a population by the presence among it of a comparative minority who can respond fully and readily to education. A spurious transmutation of the people as a whole is completed by imitation in its manifold forms. With the prosecution of some far more rigorous analysis than can yet be applied to human populations, it may be possible to trace with some accuracy the principles here indicated, but at present we can only recognize their operation.

W. BATESON.

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EWART, WILLIAM (1798–1869).—An English politician. He was instrumental in doing away with hanging in chains, and with capital punishment for cattle-stealing and various minor offences (1837). In 1843 he secured annual statements on education by a Minister of the Crown, in 1850 he carried a Bill for the establishment of free libraries, and in 1864 he secured the legislation which authorized the use of metric weights and measures.

EXAMINATION AND INSPECTION.—Examinations may be (*a*) competitive, (*b*) qualifying. A competitive examination will usually sort out examinees into groups conforming to the Gaussian "curve of frequency"—a few exceptionally good and exceptionally bad units flanking, on opposite sides, a large group of mediocrities. A three-group (or, still better, a five-group) basis of classification is thus inevitable in a competitive examination; a binary basis (Pass or Fail) is suitable only for a qualifying examination.

Examinations may also be (*a*) tests of ability, (*b*) tests of acquired knowledge and skill. The remarks made above will largely apply here.

Again, examinations may be held for the purpose of (*a*) determining the ability of the examinees, (*b*) determining the ability of their instructors.

Mention cannot be omitted of the gross neglect of (*a*) *vivâ-voce* tests, (*b*) habit tests, in British education.

The chief examinational reforms of the future will be the establishment of—

1. Searching tests of natural ability (the work of Thorndike, McDougall, Spearman, and others is here important).
2. More efficient tests of teaching ability.
3. The abolition of examinations in subjects concerned with appreciative and emotional factors—music, poetry, and the Bible. Inspection, far subtler than we have at present, is alone competent to deal with teaching on these levels.

Inspection. Whether a school inspector's duty be, by himself teaching a class in a stimulating way, to benefit the pupils directly and the teacher indirectly, or, by acting as an observer of the latter's methods, to determine his efficiency, is an unsolved problem. Tradition inclines to the second alternative and puts a premium upon inspectorial inscrutability, which may conceal profound wisdom or vacuous inefficiency. A second question, still as unsolved as it was fifty years ago, is whether a teacher should be inspected rarely or frequently, and by one or by many officials. There is here a division of opinion between teachers of a competent and ambitious type—who complain that their work is "not seen" often enough—and the mediocre teacher, whose voice, powerful in professional journals, protests against "over-inspection." The writer, from inside experience, would assert the advantage of several inspectors seeing the same teacher, and at different times, if a verdict on his work is to be free from chance errors. Inspector's recommendations should be recorded and, after some years, published. Special classes for inspectors should be organized, and searching tests in statistical and psychological knowledge periodically imposed upon them. Every inspector should read at least one educational book a year and write at least one educational thesis every five years. To demand better work of teachers while a good many inspectors are pedagogically insignificant is obviously unfair.

F. H. H.

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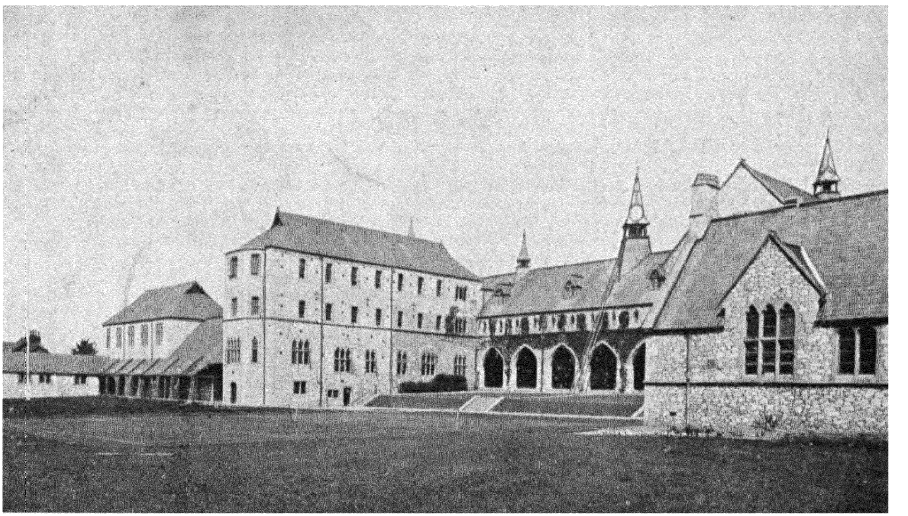
EXAMINATIONS.—(See MARKING AT EXAMINATIONS, THEORY OF EXAMINATIONS, THE.)

EXAMINATIONS IN COMMERCIAL SUBJECTS, PURPOSE OF.—(See BANKING, THE TEACHING OF.)

EXCAVATION AND EDUCATION.—The impulse to dig for treasure is deeply rooted. Possibly it is a survival from days when our ancestors preserved their own property by burying it in the earth, and dreamed nightly of the spot where they had buried it. Whatever its origin, there can be no question of its persistence. Interest in the unearthing of ancient remains may become a powerful stimulus to historical teaching in any district where excavations are being or have been conducted, provided that the finds are kept in the locality and are generally accessible. Such districts are numerous in most countries of Europe. In England, we have Roman sites like London, York, Silchester, Bath and the



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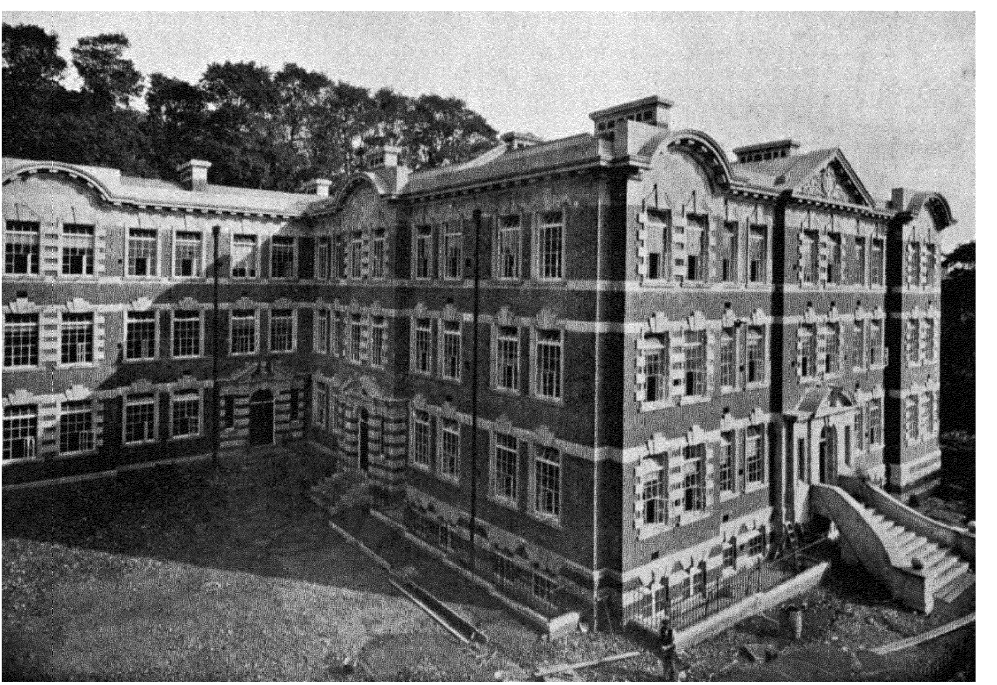
Exeter Training College—The South Front



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University College, Exeter

Additional Building—Front

PLATE XXXVII

great Roman Wall with all the forts along it: prehistoric roads and barrows are scattered over the down country; along some river valleys there are the cemeteries that are the earliest record of the Anglo-Saxon occupation.

Use of Antiquities in Teaching. It is obvious that actual excavation cannot be made part of any regular curriculum, whether in schools or universities. For teaching purposes, we must begin with the finds. These are, however, of little use unless they can be attributed with certainty to a specific site. Often it is vital to know the precise spot and depth at which they were found. In other words, their value depends on the records of the excavator. Given such records, a local collection of antiquities becomes a teaching instrument of the highest value. It provokes questions, and, in the attempt to answer them, some sort of picture will be formed of the place that the objects came from. Sometimes the objects will illustrate the writings of ancient historians; sometimes they will supplement them. This latter will be particularly the case with the social and economic sides of history, about which the written records are often so lamentably silent. There is only one Domesday Book, and that, unfortunately, is not illustrated. Digging has, to some extent, made good the lack of similar documents for other periods. It has, for instance, helped us to discover in many districts what was the state of the population through successive ages, and we have only to think of our own villages or market towns, or industrial centres, to realize how illuminating such knowledge may be. It is not difficult to give simple illustrations as to how these results are arrived at by studying minutely the various types of object that have been unearthed at various sites. Sometimes we know, from written documents, when a place was founded or destroyed: in such cases, we have a *terminus post quem* or *ante quem* for the finds, and the knowledge so gained can be applied to sites about which written documents are silent. Sometimes it is found that a vase, for instance, of particular fabric, shape, or decoration, is only found associated with coins of a particular period: so that, in sites where coins cannot be used as evidence, the potsherds may serve equally well to determine the dates. Often, indeed, the pottery will be found a surer guide, since pots, from the nature of their material, are in use for much less long a period, while in the state of fragments on a rubbish heap they are practically imperishable, so that there is generally plenty of material to judge by. In short, excavation provides one of the easiest means of introducing original documents into historical teaching and of showing how such documents may be used. It is difficult to exaggerate its value from this point of view. There is, fortunately, a strong feeling about the immorality of reading handbooks on literature without reading the literature itself. But reputable presses are still capable of publishing historical handbooks in which there is no suggestion that the reader should consult contemporary documents of any kind. If the sense of the difference between original and second-hand authorities could be developed even among the classes that read university-press handbooks, the daily papers might begin to reform themselves, and we might become an educated nation.

The Training of Teachers. For purposes of historical teaching based on excavation, it is natural, in England, in the present state of our knowledge to think mainly of Roman sites, such as Colchester, Lincoln, or Bath. In places like these, it should surely not be left to chance to determine whether or no the schools have an archaeologist among their teachers. The same principle might be extended to less important or less famous sites. The writer would like to see local history taught on this basis of the archaeological finds in all the secondary schools, of whatever description, that are situated within reach of local collections such as the subject requires. If teachers properly trained for this work are to be forthcoming for our schools, they must be prepared for it at the universities. Oxford has already done much, and could do more if the schools that normally draw their masters from the ancient universities made more demand for this particular qualification. Of the newer foundations, it is obvious that some are better suited than others for this particular purpose. Newcastle on the Roman Wall, London as possessing the British Museum and being itself a first-class Roman site, and Leeds and Reading as the nearest centres to Eboracum (York) and Calleva (Silchester), are among those that are clearly marked out for the work. The subject might be given a prominent position in an Honours B.A. Course in Classics or History; or, better still, it might find its place in the course for the M.A. degree, if a period of residence at the university were required for it. The subject would attract students if there was any prospect of its being any use to them, and it is one in which personal instruction would have a real value—probably for both parties. Little need be said about the qualifications of the lecturers entrusted with this work. They should have had a thorough general training in classics or history before specializing in archaeology, and they should have had also, if possible, some practical experience in excavation. The requisite training may be had by taking the classical schools at Oxford or the Classical Tripos [Part I (General) and Part II, Section D (Archaeology)] at Cambridge, and by following this up by a studentship at the British Archaeological School at Athens or Rome. Recently there has been a movement on the part of our universities, including the new foundations, to appoint young archaeologists with this sort of training on to their teaching bodies. What has not yet been done to any great extent is to provide these lecturers with classes where they can give teaching in their own particular subject. We have already indicated how valuable such teaching might be from the point of view of our general educational system.

It remains to point out how much organized school and university teaching in the subject might do for excavation.

The Influence of School and University Teaching on Excavation. To begin with the schools. Objects are always being unearthed quite accidentally. Their importance is not always realized by their unintentional excavators. The more people there are about who know the elements of archaeology, the less the danger of destruction, alike of objects and of the evidence that gives the objects their value. What is wanted is a good supply of general practitioners who can refer the local people to the experts. Among the most obvious people to fill this position are local schoolmasters and mistresses. They can be given the re uisite training; they reach the whole country; and they are in touch with the expert or can easily be brought to be. Is it too much to hope for the day when school authorities whose districts are rich in antiquities should bear the fact in mind

when making their appointments? It would often repay the appointing bodies to do so. There must be men and women who, if they had received the requisite training, would find no small compensation for taking a teaching post in some otherwise dull little place, simply from the fact that it was near a Roman villa or an Anglo-Saxon cemetery, or any collection of unearthed treasure that they could use in their teaching, and help to preserve and possibly help to interpret.

The actual work of excavation in England has, in the past, often been done in rather a haphazard way. Some of it has been well done, but more of it has been done badly. Until recently, the only organized bodies taking a share in it were the antiquarian societies, and their activities are necessarily limited in many ways. They cannot, for instance, train up the men to do the work, nor can they create openings for trained men. As a result, they have no means of maintaining a regular supply of experts. The obvious centres for so doing are the universities, and latterly they have begun to do so. At Leeds, the Roman site at Slack is being excavated by the classical lecturers in the university. Yorkshire is fortunate in possessing a particularly strong Archaeological Society, with which the university co-operates through the Roman Antiquities Committee of the Society. The committee generally meets at the university, and the university is largely represented on it. Liverpool University has excavated in Wales. At Reading, a Research Fellow in Roman Archaeology has excavated a Roman site and Saxon barrow at Lowbury, in Berkshire, and other work is in progress. Newcastle also set its hand to the work, but has, unfortunately, turned back. London University has hitherto left such matters to the British Museum and the Society of Antiquaries.

The number of sites that still require excavation in this country is so great, and the work to be done is so important, that it may fairly be asked whether more might not be done by the universities in this matter of training people to do the work. The question is urgent, partly because sites are in danger of destruction, partly because the work will otherwise be done by imperfectly trained men.

One difficulty hitherto has been the fact that work of this kind did not offer very promising prospects for a career. The men best qualified to do the work can be found posts as assistants in the departments of classics or of history, but they are not necessarily equipped to take charge of either of these departments. This difficulty would be diminished if the results of excavation were made more general use of in school teaching on some such lines as have just been advocated.

Excavations Abroad. So far in this article, excavation has been understood mainly as meaning excavation in England. It is obvious that, for teaching purposes, excavation must be approached from the local or national point of view. Most countries in Europe now keep the excavation of their national antiquities in their own hands. But there are two fields abroad where English excavators have worked in the past, and where we may hope that they will long continue to do so.

The first is Greece. With characteristic liberality, Greece has welcomed excavators of all nations. England, America, France, Italy, Germany, and Austria all have archaeological schools, with their headquarters in Athens, where they each have accommodation for director and students, and a good archaeological library. Each receives from the Greek Government permission to excavate particular sites. The students at the British School come mainly from Oxford and Cambridge, each of which universities offers annually one or two studentships tenable at the school. The British and American Schools, and perhaps others, have had a fair number of women students, some of whom have already done valuable work. The influence of the British School has already made itself felt in the teaching and research work of our universities.

The other great field for English excavation is Egypt. Egypt, like Greece, has admitted all nationalities to share in the excavation of her antiquities. It is to be hoped that this liberal policy will always be continued and that like facilities will be granted by the new governments in Asia Minor, Syria, Palestine and Mesopotamia. The material is so vast, and the period so enormous, that a whole mass of trained archaeologists is needed to cope with it. It is much to be desired that a system of studentships to all these countries should be organized on a much larger scale than anything at present existing.

This brings us to the general question of ways and means. Excavation is expensive work: so, too, is the adequate publication of the finds, without which excavation is vandalism. Our universities cannot extend the part taken by them in this work without, to some extent, increasing their liabilities. The work generally involves travelling. It ought to be recognized that junior lecturers in archaeology are bound to be put to much expense in this way, and special allowances should be made them for this purpose. Otherwise they are somewhat in the position of a junior demonstrator in a natural science subject, who should be required to provide his own apparatus. Similar grants might sometimes be made to students: it would not be a wise economy to penalize impecunious students who, without help, would not be able to visit the chief sites and collections in their own part of England. The writer would like to see such grants extended further. Assistant masters and mistresses are not always lavishly paid. If the schools that employ teachers with an archaeological training, or the universities that have trained them, were to encourage them to continue work at the subject by occasional small grants for visiting collections or excavations, it would be money well spent.

As regards the ways of meeting these expenses: the cost of grants could probably, for the most part, be met by some re-adjustment of the outlay on scholarships and bursaries. At present, in many of our institutions, scholarships to take their holders as far as a degree are more numerous than recipients who deserve them, while funds to help students of real ability to do post-graduate or specialist work are often not forthcoming. The cost of publication might still be borne mainly by learned societies: some of the most important of them have already shown their willingness to co-operate with the universities in this matter. The funds for excavation can often be raised, wholly or partly, by special appeal. There remain only books and apparatus. On the whole, therefore, the expenses involved in the more thorough co-ordination of education and excavation would not be great. They are, in fact, trivial as compared with the sums that are demanded and obtained for work in the natural and applied sciences; but, even if greater, they would have to be met. Our knowledge of past history and, consequently, our understanding of present conditions

must suffer if this work is neglected. It is an indispensable part of our national expenditure on education. P. N. U.

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EXCLUSION FROM SCHOOL.—The Education Acts give to all parents the right to send their children to any State-aided school in their parish, so long as there are vacant places. Exclusion is permitted only in cases of children suffering from infectious diseases, or from physical or mental disabilities, rendering them incapable of profiting by the instruction. Expulsion can be resorted to in the case of a child whose moral character is likely to be injurious to the others.

EXECUTIVE OF THE N.U.T.—(See NATIONAL UNION OF TEACHERS, WORK OF THE EXECUTIVE OF THE.)

EXETER TRAINING COLLEGE.—In 1838 an educational movement in Devon and Cornwall, under Bishop Phillpotts of Exeter, led to the formation of an Educational Board for the diocese —one of the earliest in the country—for the promotion of education among the poor and the middle classes. Supported by Sir T. D. Acland, Mr. H. S. Northcote, and others, the Board established a training college in the Cathedral Close, and it opened in January, 1840, with nineteen students, under the Rev. G. Martin, the practical training being carried on in Heavitree School.

In 1851 the Rev. W. David became Principal, the College was recognized by the Education Department, and received Queen's scholars and prepared them for the certificate examinations.

A new College was opened in 1854, and a practising school in 1873. Accommodation was provided for sixty students, but subsequent enlargements have increased this to 120. Further additions, including a laboratory have recently been made. The Volunteer Company (1st Rifles), formed in 1879, has won several challenge cups. Many principals of training colleges and sub-inspectors of schools have been trained here.

EXETER UNIVERSITY COLLEGE.—This college owes its origin to the desire for the provision of instruction in Science and Art Subjects that passed over the country as a result of the Great Exhibition of 1851. A School of Art was established in Exeter in 1855, and in 1865 a commencement of a larger institution for the study of Art, Science and Literature was made with the erection of the existing Royal Albert Memorial building in Queen Street. Extensions took place in 1884, 1891, 1895, 1899 and 1909.

In 1901 the educational work was placed upon the complete footing of a University College, and the main curriculum was organized to enable students to take the full courses of study for degrees in Arts and Science of London University. Day and evening classes are open to both sexes. In its extra-mural work the college co-operates with the W.E.A. and other voluntary organizations.

The college is now fully affiliated to the Universities of Oxford and Cambridge, and is recognized by the Special Board for Medicine of the University of Cambridge as a Provincial Medical School. Associated with the college, and also under the control of the Governing Body of the Albert Memorial Institution, are a Day Training College for secondary and elementary school teachers, a Museum, a Library and a Fine Art Gallery.

The College is maintained by students' fees, endowments, Government grants and grants from local education authorities. Three entrance scholarships of £40 each per annum and exhibitions of smaller amounts are awarded annually.

EXHIBITION.—The early meaning of this word was simply an allowance for subsistence—a stipend or a pension. In this sense, it is used by Ben Jonson in *The Poetaster* "Thou art a younger brother and hast nothing but thy bare *exhibition.*" Hence it came to indicate a benefaction settled for the maintenance of scholars in English universities not depending on the foundation. In Scotland, such a benefaction is called a bursary, and English bursaries recently established to assist young teachers are of the same nature. The practice of assisting scholars by exhibitions was common in the Roman imperial schools. In England, exhibitions came into use after the Norman Conquest; and, as schools were established by kings and archbishops, provision was made for poor scholars by granting them exhibitions, generally in the form of food and lodgings, provided by the almoner. Eton, Winchester, and Merton Colleges included this arrangement as part of their original foundation, and the word itself appears to have been first employed in this sense in the statutes of Merton College. The records of many of the old schools show expenditure on clothes for the poor exhibitioners. The revival of education in the nineteenth century, and the growth of public support to schools since 1870, have greatly increased the number and scope of exhibitions. The Education Act of 1902 placed funds at the disposal of public bodies, which enabled them to make secondary education free to a number of exhibitioners and scholarship holders taken from elementary schools. It is now customary to set apart in every secondary school under a public body a number of places for elementary school children. Admission is obtained rather by selection than by serious competition, and the exhibition is frequently a stepping-stone to a university career for a child of poor parents.

EXHIBITION, THE GREAT, 1851.—(See ART EDUCATION AND INDUSTRY.)

EXHIBITIONS, INTERNATIONAL.—As early as 1756 the Society of Arts held an exhibition of machinery and agricultural implements in London, but the first exhibitions of national importance were held in Paris in 1798 and 1802. For nearly fifty years triennial exhibitions of French arts and manufactures were held at Paris, and during the same period most of the great cities of the world copied the Paris displays. In 1849 the Society of Arts, encouraged and influenced by the Prince Consort, prepared the plan of a great international exhibition of arts and industries of all nations. The Government appointed a Royal Commission to organize and manage the whole exhibition, which was opened in Hyde Park on 1st May, 1851. The

area covered by buildings was 19 acres, over six million people visited the exhibition, and a profit of £200,000 resulted. The buildings were afterwards removed to Sydenham, to be known in future as the Crystal Palace. A second Great International Exhibition was held at South Kensington in 1862 on the same lines, and this also was visited by over six million people. One grand result of these exhibitions was to promote a friendly feeling between nations, but they also fostered the material interests of this country and developed an era of taste, as well as a juster appreciation of art and of all the elegancies of life which have added so much to the well-being of the community.

In the Paris Exhibition of 1867 special attention was given to the illustration of all branches of science and art, and Britain figured very unfavourably in comparison with France, Germany, and Belgium, owing to her neglect of technical education. Attempts were made in 1871 to 1874, and again from 1883 to 1886 to hold annual international and general exhibitions in London, but lack of interest in both cases led to their abandonment. Of the latter series, the Colonial Exhibition of 1886 did much to impart knowledge to English people of the vast resources of the Empire, and to rouse interest in the people overseas. The same remark applies to the Exhibition of 1908 at Shepherd's Bush, known as the White City, in which educational exhibits from schools all over the world held a place. Among the most notable exhibitions of the last forty years are those of Philadelphia (1876) to commemorate the hundredth centenary of American independence (10,000,000 visitors); Paris (1878), a great advance on previous displays (16,000,000 visitors); Paris, (Universal, 1889) of which the Eiffel Tower was one of the chief attractions; Chicago (1893), the World's Columbian Exhibition (25,000,000 visitors); and Paris (1900).

EXHIBITIONS, SCHOOL.—(See CONCERTS AND ENTERTAINMENTS, SCHOOL.)

EXILES (ENGLISH) AND EDUCATION.—The two great periods of English exiles abroad are: (1) the exodus of Protestants to Switzerland during the Marian Persecution (1553–1558); and (2) the Pilgrim Fathers (1620), and their successors to New England. In between these dates was the great exile abroad of English Catholics under Queen Elizabeth. Though this resulted in the establishment of colleges abroad, such as Douai in France and Salamanca in Spain, and many smaller schools, the educational efforts were not manifested directly in the English national educational life. The Catholic educational activity was largely abroad in the hands of the Jesuits. (See JESUIT EDUCATION.)

In the disputes of Henry VIII's reign the procession of English refugees began, including such men as Robert Barnes (1528–31), and John Bale, who associated with Lutherans in his exile (1540–1547); Miles Coverdale preached and taught school in Germany (1543–7); John Hooper fled to Strasburg, where he married a foreign wife; thence he went to Zurich. Returning to England, in 1550, he became Bishop of Gloucester. He definitely introduced Zurich usages, and typified the introduction of the Swiss Zwinglian religious and educational influence into England, and has been called the "father of English Nonconformity." This *rapprochement* of the English and Swiss churches was, of course, more fully developed in the exile from England (1553–1558) of about 1,000 of the most enterprizing and vigorous of the Protestants. Of these refugees, Fuller says Emden was richest, Strassburg the most quiet in temper, Zurich had the greatest scholars, and Frankfort the largest privileges. Zurich attracted learned clergymen on account of libraries, learned conversations of professors, as well as the employment in correcting for the press and printing. There were bishops, deans, and fifty English doctors of divinity, besides aldermen, merchants, and artificers. In Switzerland the English intellectual leaders (as they were to become under Queen Elizabeth) mixed with Calvin, Gaulter, Peter Martyr, and Henry Bullinger, the successor of Zwingli.

The (indirectly) educational bearing of the literary work of the exiles will be recognized, since it included the Geneva Version of the Bible; and at Geneva, also, Wm. Whittington turned into metre those of the Geneva Psalms inscribed with "W.W." in the *Whole Book of the Psalms collected into English metre* (1562) by T. Sternhold and J. Hopkins (schoolmaster). These were the English parallel to the French of Clement Marot, himself an exile at Geneva in 1543, and the later ones were derived from Marot, as adopted for use at Geneva by Guillaume Franc.

One of the exiles, Robert Beale, travelled in Germany, France, and Italy, learned many languages, and formed eventually one of the best historical libraries in Europe.

The Influence of Swiss Educationists.—At Geneva, the great educational influence of Maturin Corderius the schoolmaster and the lieutenant-educationist of John Calvin, was at its height, first at Lausanne (1545) and then at Geneva (1558), and nothing better illustrates the Swiss educational influence than the introduction into English schools of the *Colloquia* of Corderius (*q.v.*), which appear as a prescribed book in later statutes of the English grammar schools, and continued until the middle of the last century in England. Similarly, the Swiss educational influence was direct in the production of the catechisms used in English schools. The standard school catechism was written by Alexander Nowell, who was himself an exile, principally at Frankfort. The influence of John Knox (*q.v.*), (derived from Calvin at Geneva), on school-organization in Scotland was era-making. Probably the influence of Zwingli, and Bullinger of Zurich, on England has been under-rated, both in church doctrine, and in educational ideas. In 1523 Zwingli wrote, in Latin, upon the "Education of Noble Youths." It was translated into English as "Certain Precepts gathered by H. Zwingli" by Richard Argentine, head master of the Ipswich Grammar School in 1548. William Kemp's *Education of Children* (1588), seems to follow the lines of Zwingli, in the section on the dignity of learning. Between 1548–1660, at least 100 different catechisms were issued, or on sale, in England, and it is only by examination of these text-books that the close connection of England with Switzerland, through the residence of English exiles abroad, and their correspondence after their return, is fully realized. It is the basis of the puritanic education in England in the later half of the sixteenth and the whole of the seventeenth centuries. F. W.

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"EXMOUTH," THE. — (See POOR LAW CHILDREN, EDUCATION OF.)

EXPERIENCE AND EDUCATION.—Education which has for its object the fullest and best life may be said to be the control of experience. With this end in view, the environment of the pupil, his activities and interests, his games and his studies—in fact, everything connected with him—may be subjected to whatever modification the educational purpose seems to demand. Certainly, no one can avoid learning by experience; but, just as certainly, without the guidance of the educator, he is as likely to learn the wrong thing, and to learn it the wrong way, as to learn the right thing the right way. But, beyond this acknowledged and elemental fact, there are considerable difficulties as to the nature and extent of educational interference. The whole history and theory of education visibly turns round the question: What and how much is the teacher to do? Modern opinion tends strongly to the view that the teacher's function is to direct and develop the pupil's activities as against the view which reduces the teacher to an intellectual conduit at which the pupils perforce must drink.

When we are said to learn by experience, the meaning is that we learn by immediate acquaintance, and not by a communicated description. We ourselves manipulate, dissect or test, observe, and experiment with the actual object, and do not merely read about it in a book, or look at a picture of it, or listen to a verbal explanation of it. This direct experience is said to give knowledge of things and not of mere ideas or words. Educational theory has long insisted on the importance of such a first-hand acquaintance with things, and there is no lack of current maxims to that effect. We are told that things, not words, are the true mental pabulum; we are urged to present to sense, and to as many senses as possible. To give such advice its true value, we must remember that, whenever the effort to reform abuses condenses its principle into a maxim, such a maxim is invariably open to misinterpretation if taken without the context, which furnishes at once its limitation and explanation.

Sense Experience. The maxim, "Present to the senses," means that the proper way to begin a knowledge of sensible objects is to make them actual objects of your pupils' senses. But it could never mean that sense-presentation is all that is necessary for knowledge to emerge, and this for many reasons.

Plainly, it is perfectly possible for the mind to be face to face with sensible objects, and to be to a certain extent aware of them, without being thereby educated a whit. The mind must be active; questions must be asked; problems raised; interest stimulated. In short, the function of sense-presentation is to arouse thought. Without thinking, it is impossible to learn anything from a wilderness of sensible objects. There is no water-tight division between immediate acquaintance and "knowledge about." This is just as well, for otherwise, of course, any knowledge gained from particular objects would have no possibility of connection with others like them. Education of the sort under discussion begins at the level of perception rather than at that of sensation strictly so called. For sensations are elements distinguished in objects perceived; and the child, at any rate, is aware of objects rather than of sensations. It would be a mystery to him if he were told that he has a sensation of sight; but he is on familiar ground if he sees a dog.

This process of learning, then, in addition to actual presentation to sense, involves observation, discrimination, and classification, and possibly also experiment.

Given, then, an actual object, the teacher arouses interest and suggests questions to his pupils—in short, gets them to think about it as well as to touch or see it. From this there may arise an analysis of its characteristics—it is hard or soft, round or square, red or blue, etc. So the child learns to discriminate and to classify, for the roundness distinguished in the particular instance leads to the object being so far classified with other round objects. Discrimination is noting differences in objects. It should be cultivated by presenting at first differences which cannot be missed, and afterwards finer and finer degrees of difference. On one side, this faculty depends on the development of a mental factor (viz., judgment), and, on the other, on a physical factor (viz., sensory acuity). How far the latter can be cultivated is an interesting question. Laura Bridgman (*q.v.*), who was limited almost entirely to the sense of touch, "developed a local discrimination of the points of a pair of compasses from twice to three times as great as that of an ordinary person." (Sully, *Teacher's Handbook of Psychology*, p. 189.) Experiment has made it extremely improbable that such improvements in discrimination are really improvements in sensory acuity. The improvement seems to be in the mental factor. So it is found, contrary to the popular notion, that the senses of savages are not keener than those of civilized people. The cultivation of discrimination finds its limit in practical needs; but perhaps too little, rather than too much, is done in this direction in general education at present. In special branches, of course, such as microscopy, discriminative ability may be of the essence of the whole business, and be developed to an extraordinarily high degree. In cases where the object is experimented with, still higher processes of thinking appear, for it becomes necessary to consider what the experiment proves. Thus, beginning from a simple perception, we find the whole mind involved.

Direct Experience in Moral Education. It is of the highest importance to remember the part which must be played by direct experience in moral education. Maxims and exhortations that apply to situations which the pupil has never experienced are of little use. Hence the notorious difficulties of moral instruction. The situation and problems must be alive and actual. It is well-nigh impossible to convey the understanding of what duty is if there is no previous and immediate knowledge of the sort of situation in which duty arises, for it is to such knowledge that the appeal must be directed, and on it comprehension must be based, and so must the reaction which is the teacher's aim. The right action is best learned by seeing it done; the right ideal is best picked up by the beneficent contagion of example. The school-boy becomes a member of the school society—a society larger, more complex, richer in fresh situations, and, in

general, more exacting than the family circle. In this simple change, then, are involved enormous possibilities of moral improvement or deterioration. That the result is nearly always improvement is a priceless achievement and justification of educational control. Naturally, just as in intellectual training the mind must not remain face to face with mere things, the moral self must not remain face to face with unexplained situations. At this point moral instruction finds its place, but never apart from direct contact with persons and actual moral situations. The beginning is in direct experience, and the end also. For morality is essentially doing. Hence the importance and value of positions of trust and responsibility which can be held by pupils, and of games which develop courage, readiness, and endurance and the habit of self-subordination on the part of the individual to a common aim. It is only by doing and doing again that the good action can be crystallized into a habit, and form part of the permanent character, ready for the sudden demand which seldom fails to come and so rarely gives time and opportunity for the unprepared. A. ROBINSON.

EXPERIMENT, TEACHING BY.—This is really an advanced form ot *object teaching*, and is based, in scheme and method, upon the same principles. It is a higher development of sense teaching, and the child or class should get all the value of first-hand observation, with the particular charm of inquiry and the satisfaction of intelligent curiosity. It is rational in a way that simple object teaching is not, and affords invaluable exercise for the more intellectual mental processes.

Its special opportunity in school is instruction in physical science, and its special home the laboratory. The teaching method is mainly *heuristic* (*q.v.*); appeal to memory is not so common or regular as appeal to observation and thought; what is usually known as judgment and reason come uniformly and constantly into active operation.

In practice the teacher (1) should be exceedingly careful in detail; his own experimentation should be exact and successful. He must therefore (2) prepare his lessons and his apparatus and (3) have knowledge of his subject beyond the immediate requirements of the class. He will (4) invite attention to the details of his apparatus, and the results of his experimentation stage by stage, as indicative of final result; (5) questioning must be thorough throughout the lesson, and properly recapitulatory at the end. Pupils (1) should take notes freely and (2) themselves be regularly practised in actual performance; (3) any precise inference or exact explanation must be treated with *scientific* accuracy. We may add that (4) the material should be treated with some reverence. Careless or negligent destruction should be considered seriously faulty; (5) "discipline must be maintained." A. E. L.

EXPERIMENTAL EDUCATION.—The term "experiment" has been employed in relation to education, just as in other social sciences, to indicate any plan, whether in teaching or organization, which departs from the accepted lines with the design of producing results of better quality. Thus, under this rubric we must group a great variety of endeavour; no advantage can accrue from attempting to confine the epithet "experimental" to one type of educational reform. Experiments so-called are always proceeding. Those that are valuable can be distinguished from the worthless ones only by the competence of the experimenter: the care with which he prepares his materials and forecasts the difficulties which his operations may encounter.

Experimental Psychologists. As distinguished from the natural sciences, experiment in social research cannot produce a definite and measurable result, for the final purpose is concerned with human behaviour and character—matters which cannot be weighed and tested in the laboratory. A school of experimentalists have, however, adopted plans in recent years, basing educational reform upon results of exact measurement; and these would claim to confine the term "Experimental Education" to such investigations. They follow the methods of Experimental Psychology, and look forward to the time when education can be "recognized as an exact science." This school of reformers looks to Meumann as its leader; and the most important contributions so far made in Great Britain are based upon the researches of Meumann, Lay, and other German teachers. In the United States, Thorndike is the leader of a group of investigators who carry quantitative methods of research even further afield. The more cautious opinion regards these labours as helpful rather to psychology than to education itself. Much has been done to explain phenomena of memory, association, imagery, and habit; and the old doctrine of "faculty psychology" has been subjected to a great variety of laboratory investigation, allied to a search for some formula of general intelligence which may reconcile the disputants in this ancient controversy. Equal activity, however, has been shown in the treatment of school instruction: all branches of the arts of language, including modern languages and of elementary mathematics, have been examined by laboratory tests. The results seem to be of most value in detailed points concerned with muscular movements and with sensation; for the rest, the experiments do much to confirm teachers in the more enlightened practices based upon empirical observation.

If we permit the term Experimental Education to embrace the wider field rejected by the above group of laboratory workers, we may distinguish between (*a*) experiments involving the continuous education of school children; and (*b*) those confined to some smaller field of activity, usually some specific branch of instruction.

(*a*) **Experimental Schools.** It is only very rarely that a school permits itself openly to be described as an experimental school, since parents are cautious in entrusting the entire education of their children to a novel procedure. The school conducted for several years (from 1899) by Professor Dewey in Chicago is the best known example; the children were taught here with the avowed purpose of testing the truth of certain views of child development. The parents and others associated with this enterprise are said to have been satisfied with the results as witnessed in the children; but, however that may be, pedagogical ideas illustrated in this school exercised a very deep influence on American teachers; and, more recently, Dewey's writings have received considerable attention in Europe. Usually, however, an educational reformer in establishing a school does not, even in his own mind, propose to experiment so much as to give a practical exposition of views which he already entertains; such restless, progressive types of teachers have always

been endeavouring to found schools, since it is only by actually doing work among children that the theories in which the reformer so earnestly believes can be disseminated. Among such experimenters, Pestalozzi will always be accounted the chief apostle, although he was by no means the earliest. The kindergarten movement of Fröebel is, perhaps, the best example of a reform worked out in school practice by its originator and his disciples, at the same time that the underlying philosophy was being expounded and revised. Many ventures in such new or experimental schools are, naturally enough, only short-lived; and when they take the shape of a private school, supported solely by parents' fees, their career is inevitably hazardous. Among the best known institutions of this type in England are the NEW SCHOOL, founded in 1889 at Abbotsholme, in Derbyshire; and the KING ALFRED SCHOOL in Hampstead, London: the first due to the energy and original power of its founder, Dr. Cecil Reddie; the second established by an association of parents and neighbours who were dissatisfied with the public provision for education. The scope of the experiments embraced in such institutions is co-extensive with the trend of reforming thought in all matters concerned with the upbringing of children; and, since conduct and character are the matters of deepest concern, it is commonly found that the reformer, in founding a school, has in view some quite radical conception of ethical purposes and means.

Co-education. During the last twenty years the question of co-education has been greatly exercising the minds both of teachers and parents; it is not surprising, therefore, that several schools of a pioneering type should be distinguished by adherence to this principle. Bedales School, in Sussex, is the best known example.

Pestalozzi and His Followers. The influence of such experimental schools upon the development of educational theory can scarcely be exaggerated; not only do they enable the student of education to observe in detail the merits of a new conception, but they expose—sometimes with painful accuracy—the errors and extravagances to which reforming zeal is liable. The record of Pestalozzi's endeavours is a sufficient illustration of this process; the distinguished teachers who came from so many quarters to investigate his methods were enabled not only to catch something of his enthusiasm and to grasp the fundamental ideas of his pedagogy, but, by following for a prolonged period the daily routine of his work with children, they were in a position to sift out error from truth. One of his most gifted disciples, J. F. Herbart, took a further step when he established at Königsberg a little school as part of his work as a professor of education (pädagogik). By this means, he was enabled to subject his experiments to continuous and organized criticism; students preparing for the teaching profession could witness and share in endeavours to illustrate reforming theory by reforming practice. Herbart's followers crystallized his ideas into a system (Herbartische Pädagogik); and two of them—Ziller at Leipzig and Rein (succeeding Stoy) at Jena—established schools which exercised a wide influence both in Germany and other countries at the close of the nineteenth century. This relation between theory and practice should not, however, be regarded as limited to the sphere of university professors: all institutions which undertake to prepare young men and women to become teachers have displayed anxiety to unite theory with practice. In the early days of English training colleges, a Model School was usually set on foot, in which the neophyte could copy a set pattern, and in later times such schools were called Practising Schools. As educational theory developed it was realized that students could scarcely be satisfied merely by following a model, or by practising on traditional lines; hence a new title—the Demonstration School—was devised some years ago, on the analogy of the demonstration methods followed by teachers of natural science: the lecturer on education is expected to show by continuous work among children how the theories of the lecture-room can be translated into practice. Thus, while the public training college cannot be regarded in the first instance as a place for experiment, its machinery serves as a suitable testing-ground for reforming ideas, since both students and lecturers need to make acquaintance at first hand with these ideas.

Experiments in Schools. When we pass from schools which serve as experimental stations to work of an experimental nature conducted in ordinary schools—public or private—we find it more difficult to trace a definite line of development. It is noticeable, however, that the English Board of Education has given countenance to a few experiments conducted in secondary schools: it has given special grants in a few cases, and has published reports upon the work. The reformed methods for teaching Latin and Greek at the Perse Grammar School in Cambridge, and the curriculum for a rural secondary school tried at the Knaresborough Grammar School, are well-known examples. The chief difficulty encountered in such experimental work is to secure over an extended period the services of a staff of teachers who accept the theories which underlie the experiment, and are thus ready to work in co-operation. Since the ordinary elementary and secondary schools are established to serve the general public, they cannot be expected to deviate greatly from current traditional practices; hence it is likely that the most fruitful work in this field will continue to be achieved either in new schools founded by the zeal of pioneers, or in demonstration schools associated with the work of professors and lecturers in education, whose special province it is both to conduct research and to exhibit to their students the relation between the philosophy of the study and the daily experience of the school-child.

Development. It is only recently that the importance of provision for experiment in education has been so widely recognized. In the earlier part of the nineteenth century statesmen were fully absorbed in the task of providing a minimum of schooling for the entire population; little attention could be spared for plans to improve the quality of this provision. And when once a machinery of codes and regulations was created, the forces opposed to revision and change gathered strength; in States such as those of Germany, where the uniform pressure of governmental authority seemed necessary to national salvation, the spirit of freedom and elasticity on which experiment relies encountered opposition: hence the work of Fröebel was neither studied nor encouraged in Germany itself, and had to find a new home in the British Empire and the United States, only because, in these latter countries, schooling had not become so highly centralized by a Department of State. When, therefore, a modern State undertakes to

control more and more completely the machinery of education, it must itself provide checks against the abuses of its own monopoly; it must not only permit a large measure of freedom, but it should organize and support devices, such as that of the Demonstration School, where competent persons can teach children apart from the necessary restrictions of the public system. It is fortunately characteristic of the genius of English government that it recognizes, more readily than any on the European continent, this paramount need. As regards education, freedom and variety are at present afforded not so much to the individual teacher as to the local authority over against the central authority. Hence, experiments in education have taken shape not so much in matters of teaching, which we have discussed above, but in matters of organization, and in the variety of problems connected with children's health to which public opinion has been so largely centred during the last twenty years. The procedure followed has been avowedly experimental. Public opinion points towards a line of reform (*e.g.* in the feeding of school children or their medical oversight, or again, in an extension of the age of compulsion); the Legislature experiments by permitting a local authority to try the new measure: if the trial works out successfully and receives the approval of progressive public opinion, the new procedure is ultimately imposed by a later Act of Parliament on the entire country. J. J. F.

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EXPERIMENTAL EDUCATION IN GERMANY.—(See MEUMANN, ERNST.)

EXPERIMENTAL PEDAGOGY.—(See PSYCHOLOGY, TEACHING.)

EXPERIMENTAL PSYCHOLOGY.—(See PSYCHOLOGY (EXPERIMENTAL).)

EXPERIMENTS IN RURAL DISTRICTS ON THE CONTINENT, EDUCATIONAL.—It is not intended here to describe in detail the great educational experiments referred to, but rather to lay stress upon the fundamental principles which their authors and promoters endeavoured to translate into action.

Germany, in one portion and another of the Confederation founded since 1870, had a system of compulsory education a hundred years before most other nations had even come to believe that the instruction of the young was the business of the community. The State, the municipality, the employed, and the employer have all come to believe in education of all types, including compulsory continuation education.

In Berlin, Munich, Leipzig, the organized efforts of the State and of the municipality are reaching every boy (and, in some cases, every girl) in a way that would hardly be credited in England but for the fact that experienced officers have seen it in operation. Continued education in England still follows the plan of *laissez faire* (*q.v.*). Germany possesses a national organization for definite national objects.

In four-fifths of the German States, either for the whole State or in every town of over 10,000 inhabitants, attendance at continuation classes of some kind is compulsory from 14 to 17 years of age. Where there is no technical or continuation school within easy distance, itinerant teachers go from village to village, even in the remotest mountain-districts, so that no young person shall fail to have the opportunity of technical training. The great defect of German education, however, in this and in other departments—a defect which the best German teachers, especially for the dozen years preceding the war, recognized and endeavoured to rectify—is that, while fostering industry and efficiency, it fails signally to develop character and initiative.

France. The trade and continuation schools, and the splendidly staffed and admirably equipped institutions for rural education in France, while excellent from the artistic or technical point of view, rather confine themselves to the training of those who will afterwards become teachers, foremen, or employers. The whole population has not yet been required to take advantage of the continuation instruction which is available. The serious student of education, however, can observe, even in an interesting experiment like the *écoles maternelles*, or "baby schools," established in 1887, how the distinctive French qualities of order, clarity, initiative, imagination, and artistic feeling are fostered from the earliest years. These institutions receive children 2 years old and upwards, who are allowed to remain until 6. The training given is meant to be a stepping-stone from the home to the school; to combine the affection of the family with the order, neatness, and regularity of the school; and to give the child its first steps in moral, intellectual, and physical progress. No homework is imposed; instruction is given in the first notions of morality, and in the elements of drawing, reading, writing, and calculating. The exertions of the day also include games, graduated movements accompanied by singing, and simple manual exercises. There is a canteen attached to each school, from which free meals may be given to children whose parents are unable to pay the cost. However poor the children may be, they are invariably clean and neat, and the artistic bent of the race is plainly observable even in the simple manual work which the little ones are able to do.

Belgium for centuries has had a tradition of agricultural skill which made, out of a land by Nature among the least fertile in Europe, some of

the most productive soil on the Continent. Not only did she provide almost entirely her own food, though the most densely populated of European nations, but she also, before Germany laid her waste, exported agricultural produce to the amount of 48s. per head of the population. The State made great efforts to foster and develop the hereditary agricultural lore of the Belgian farmer. In the country districts all the primary schools gave agricultural instruction, and in some cases there were evening continuation classes for young people engaged on the land during the day. In addition, there were travelling schools, which usually stayed three months in a district and gave instruction in agriculture, dairying, and domestic economy. The Minister of Agriculture in Brussels had attached to his staff several "agronomists" or agricultural experts, and a large number of others were distributed over the country, whose business it was to keep the Minister supplied with local information and also to organize locally instruction in general farming, the feeding and management of cattle, farriery, fruit-growing, market gardening, and floriculture; and special courses for farmers' wives in domestic economy, poultry-keeping, and fruit-preserving. These experts were willing to give advice, either written or oral, free of charge to any one who cared to ask for it.

Holland, like Belgium, has overcome great natural disadvantages by industry, intelligence, adaptability, and willingness to apply new methods. Her prosperity is largely due to a system of agricultural and horticultural education, skilfully devised to meet the needs of different classes and districts. The Department of Agriculture provides or subsidizes this local instruction. The schools and courses are for prospective farmers with enthusiasm for their profession, but instruction is also provided for labourers. Moreover, it is considered indispensable that teachers, and indeed every qualified agriculturist, should be familiar with the best that is known and done in agricultural matters in other countries, such as France, Germany, and England.

Denmark. Denmark's remarkable agricultural prosperity is largely to be traced to her People's High Schools (*q.v.*), one of the most significant experiments in the history of nineteenth century education. There are in Denmark about fifty high schools, which are purely humanistic, and about thirty other schools which have a vocational side. The vocational schools are meant to supplement, not to supersede, the high schools, which are preferred by able and experienced teachers. There are no examinations, no prizes, no certificates, and no compulsory attendance, yet the average attendance is extraordinarily high; the cost of a six months' or three months' course is exceedingly small, and is paid by the students themselves; the tone and atmosphere are seldom equalled in any kind of educational institution in any other country; and the standard of work done is reflected in the fact that the Danes are the best educated peasantry in Europe. A large proportion of the population have passed through the schools, including members of both Houses of Parliament, many who have become prominent in public life in other ways, and the majority of the leaders, managers, and experts (male and female) in the numerous and successful co-operative societies for which Denmark is famous. To these schools may be traced the well-developed intelligence of the people and the great productiveness of their agriculture. R. P. F.

EXPLANATION.—Nothing in the universe is isolated; all is linked-up and correlated. Incident and event, fact and fancy, birth and life and death and decay, truth and the processes and product of the reason—everything is in flux, gravitating towards something deeper and of greater unity—and with which it is rationally involved. In different realms of knowledge the same position holds; and the process of fitting the individual within its group, the apparently solitary with its companions in an intelligent system, is a process of explanation.

It is taken as axiomatic that nothing is without a reason why it should be so and not otherwise. The reference to cause, or precedent and controlling condition, is explanation in the making: partial and uncertain in effort or result; and, with better effort or result, more or less complete and sure. There is constant appeal to reason and answer to question. "Whatever sceptic could inquire for: For every why he had a wherefore"—here is explanation in the province of theology or philosophy.

In the root of it, explanation assumes mentality; a world consistently regulated—and intelligible; and our explanation varies with our purpose and in relation to different bodies of thought and knowledge. Thus we explain an event by other events which gave it birth historically or chronologically; but we explain the same event differently if we probe and formulate the social or economical or ethnological conditions which in their several spheres made it possible or necessary.

The explanation of terms—mostly verbal—is broadly equivalent to definition, and consists in giving their meaning or application in language which is simpler or better understood. A. E. L.

EXPRESSION AND EMOTION.—(See EMOTIONS, THE EXPRESSION OF THE.)

EXPRESSION AND IMPRESSION.—(See IMPRESSION AND EXPRESSION.)

EXPULSION is included among the punishments which may be inflicted by the authorities of the universities upon offending undergraduates. Heads of schools have also the right, but it was laid down by the Lord Chief Justice in *Fitzgerald* v. *Northcote* (1865) that a pupil holds his position at school during good behaviour, and not during the pleasure of the master. In all cases of expulsion brought before a court of justice it would be necessary for the school authority to prove whether its right had been reasonably exercised. The schools Inquiry Commission of 1868 recommended that the master of a public school should not expel finally without the sanction of the governors.

EXTENSION MOVEMENT, THE UNIVERSITY.—(See UNIVERSITY EXTENSION MOVEMENT, THE.)

EXTENSIVE METHOD, THE, as contrasted with intensive method, aims at a general and comprehensive treatment of a subject with reference to general principles and the most important matters connected therewith. Such a method is applied to geography, history, literature and similar subjects, and is often accompanied by intensive study, in close detail, of selected sections of those subjects.

EYESIGHT OF SCHOOL CHILDREN, THE.—The care of the eyes is primarily a matter for parents, and much can often be accomplished in

the prevention of eye diseases and sight defects by attention to general health before, as well as during, school age. A lowered condition of the health or nutrition is often the underlying cause of serious eye disease, which may be directly the result of the access of some germ reaching the eyes from without, or more rarely from the blood or tissues of the child.

School Hygiene. It is very important that schoolrooms should be well lighted, preferably from one side; and the desks so arranged that the light is from the left, thus preventing the pen from interposing a shadow when writing. When the aspect of the windows allows of direct sunlight, suitable blinds must be made, as scholars should never face a bright light. The source of light is better behind or above the scholar than in front, especially when reading.

Desks should be sloped at an angle of 15° to 20° from the horizontal for writing, and it should be possible to alter the angle to about 60° for reading, otherwise the book should be suitably raised to this angle. Seats should be provided with backs, a suitable position when writing or reading—so necessary for short-sighted children—being thereby facilitated. Books for scholars should be as light as possible, and printed in good type, upon unglazed paper.

Points to be particularly observed by those having the care of children. 1. Does the child appear to have good distant sight (*e.g.* during blackboard lessons)? Defects are often indicated by partial closure of the eyelids, or by the head being pushed forward or held on one side.

2. Are books held nearer than ordinary reading distance (*i.e.* 12 to 15 in.)? This is a frequent sign of defect.

3. Is a bad position assumed during writing? A stooping, round-shouldered attitude is very often adopted by those with bad sight.

4. Is the child specially slow or backward in reading and in general observation? This obviously may be due to other causes than eye defects.

Complaint of frequent headaches, inattention or lack of power of concentration on the part of scholars, are also often indications of some faulty condition of the eyes. The periodical sight-testing of school-children is most desirable, not only for discovering defects, but, when these are present, for ascertaining any increase or the reverse. In schools not medically inspected, it may be carried out by teachers, and in suspected cases of bad sight the tests should be applied by the methods referred to later.

Eye Defects in Children. 1. ERRORS OF REFRACTION. (i) *Hypermetropia, or long-sight*, is due to the eyeball being too short, so that parallel rays

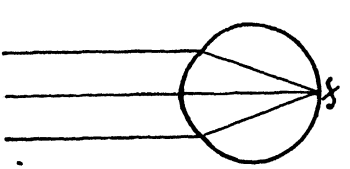


Fig. 1.—Normal Eye.

of light falling on the front of the eye come to a focus at a point (*f*) behind the retina (*see* Fig. 2). It is the commonest variety of defect, and, if in sufficient degree, causes lowering of the normal standard of both near and distant vision. This condition, like astigmatism, with which it is often combined, is a very common cause of eye-strain, which, in its turn, causes headache and other nervous troubles. It may be overcome to some extent, even when present in a high degree,

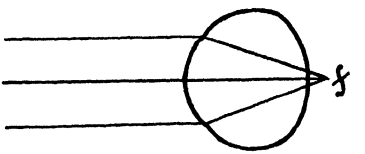


Fig. 2.—Hypermetropic Eye.

by an effort of *accommodation, i.e.* the internal muscular mechanism of the eye which enables it to focus objects at varying distances; hence the presence of normal acuteness of vision is no proof of the absence of this defect. Hypermetropia does not increase with the general growth of the child as myopia often does, but tends to diminish slightly with age, while occasionally a child with a small amount of this error may actually become myopic. Correction is effected by convex lenses and, if the defect is considerable, glasses should be worn constantly, but in any case during school hours and when reading.

(ii) *Myopia, or short-sight*, is due to the eyeball being longer than normal, so that parallel rays come to a focus in front of the retina (*see* Fig. 3). It is more serious than the previous defect, as it tends to increase with age, especially during school life; and, in high degrees, the eye shows a tendency

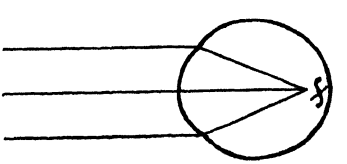


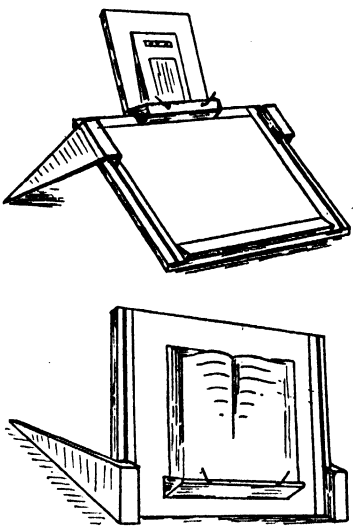
Fig. 3.—Myopic Eye.

to other morbid conditions, which may seriously affect the functions of the eye and effectually handicap the child for life. It cannot, except when present in the slightest degrees, be overcome by any effort of the child; and the only power possessed in this direction is effected by partially closing the lids (and thus flattening the eye slightly)—a sign often leading to the discovery of a short-sighted pupil. Myopia usually, though not always, supervenes during school life, and hence is rarely found before the age of seven, and the higher degrees usually later than this. Children are rarely born short-sighted, though the defect is often hereditary. The principal sign of uncorrected myopia is defective distant vision. The sight for reading is usually good, though in all but the slighter cases the book is held closer to the eyes than normal—a sign which should always be regarded with suspicion. It is often combined with astigmatism, and is corrected by concave lenses, which should be worn constantly.

(iii) *Astigmatism* is due, as a rule, to unequal curvature of the front of the eye in all directions, *e.g.* the horizontal curve may be flatter than the vertical, or *vice versâ*. This leads to a blurred image on the retina. It is a frequent cause of

headaches and, except in the lower degrees, always causes defective vision at all distances. It does not, as a rule, alter appreciably during life, and is corrected by the use of "cylindrical" lenses, which, unlike ordinary spherical lenses, being curved in one direction only, alter the course of light in only one direction.

The Detection of Errors of Refraction is accomplished by testing the vision of each eye separately by means of test-types consisting of letters (or, in the case of illiterate or very young children, of



The Englefield Reading Board.

pictures) of standard sizes, which can be read at the prescribed distances by those with normal vision. A distance of 18 or 20 ft. is to be preferred; but, where this is impossible, 15 ft. is sufficient. Smaller graduated types can similarly be used for reading at short distances, but it must be remembered that the distant and not the near vision is the criterion of good or bad sight.

The treatment of errors of refraction resolves itself into the prescription of suitable glasses, and can only be carried out satisfactorily by medical men, as in most children of school age it is impossible to estimate accurately the exact degree of error without the application of a drug (atropine) to the eyes. This eliminates the action of accommodation, a very variable factor in children and young persons. Glasses having been prescribed, the help of the teacher is often required to see that they are worn regularly during school hours. It is generally advisable for them to be worn constantly; otherwise, they are usually ordered for school and when reading. Special reference may be made to the *treatment of Myopia*, owing to its tendency to become progressive. Preventive measures have already been referred to; but where the condition is already established, or has shown a tendency to increase, in addition to the wearing of suitable glasses, it is very desirable that the use of the eyes for near work should be reduced to a minimum, and that the general health should have special attention. In bad cases, it may be necessary to forbid reading altogether, and to restrict the teaching to that of an oral nature with blackboard and diagrams, and occasionally it is advisable to interrupt school attendance entirely for a time.

Special Classes for short-sighted children have been instituted by the London County Council for carrying out the above desiderata, and work admirably. Would that other Education Authorities might follow suit in this respect! It need hardly be said that testing of the vision every six or twelve months at least is very necessary in cases of short-sight. An excellent form of desk—the "Englefield" Reading Board—is adjustable both for reading and writing. It is useful both in the prevention and treatment of short sight, helping to avoid the bad positions so often assumed by children. It is obtainable from Messrs. Curry & Paxton, 195 Great Portland Street, London, W., and two methods of use are found in the illustrations.

2. SQUINT is due to a defective power of combining the vision of the two eyes so as to form one mental image (binocular vision). It is usually associated with hypermetropia, and its treatment consists mainly in the prescription of suitable glasses.

3. INFLAMMATIONS of the eyes vary much in severity, and in their results as regards sight. In most cases, exclusion from school is necessary, as complete rest of the eyes is advisable. Moreover, most of the acute forms must be regarded as contagious.

4. CONGENITAL DISEASES AND DEFECTS are relatively rare, and two only will be mentioned as being of special interest—

(1) *Cataract* is one of the commonest, and causes defective sight in proportion to its density. It is often only discoverable by expert examination and, if it interferes sufficiently with vision, requires operative treatment.

(2) *Albinism* is the condition in which there is deficiency, complete or partial, of pigment in the eye, as well as in the hair. It causes defective sight and intolerance of light. E. J. S.

F

FABER, TANAQUIL (1615-1672), whose proper name was Tanneguy Lefevre, was an eminent scholar born at Caen. He was educated by the Jesuits for the Church, but was appointed by Richelieu to superintend the printing establishment at the Louvre. On the accession of Mazarin to power, Faber became a Protestant, and was appointed a professor at Saumur, where his extraordinary learning greatly increased the reputation of the college. He held this post for many years, and was famous for his knowledge and teaching of Greek classics. His numerous writings on classical subjects mark him as one of the foremost scholars of his time.

FABLES.—A fable is a narrative resembling the allegory or parable, which is not necessarily probable in its events, but which has for its essential motive the enforcing of a moral or didactic truth. The fable, allegory, and parable were characteristic of Eastern literature and methods of thought. In mediaeval times, many fables were collected and their authorship attributed to Aesop, who was known as a writer of fables. Most of these so-called Aesop's Fables came into Greek literature from the East, some from Buddhist sources. Greek fables of the same kind were written or copied by Babrius, and Latin fables by Phaedrus in the first century. Many fables were added to these collections in the eleventh century from Indian, and even from Christian, sources.

In the thirteenth century, a collection was made in French by Nicole Bozon, a Franciscan friar; and about the same time arose the stories of Reynard the Fox and his contests with Isegrim the Wolf. In the Reynard stories occurs, for the first time, the practice of individualizing the characters by giving them proper names. A similar series of stories has been collected in recent times by Joel C. Harris from among the negroes of the American Cotton States. In these the characters are the rabbit (Brer Rabbit), fox, wolf, bear, and other common American animals. The stories do not depend on any moral, but contain a good deal of shrewd reflection, and typify the contests of brains between man and man. The greatest master of modern fables was La Fontaine, whose collection appeared in 1668. Fables belong to uncivilized or half-civilized races, and the art of making them appears to be lost beyond recovery.

FABLES AND PARABLES AS EDUCATIONAL AIDS.—(See DEVICES FOR TEACHING.)

FACIAL ANGLE OF CAMPER. — (See CRANIOMETRY.)

FACT.—Primarily a fact is something done (Latin, *factum*, from *facio*, I make; *facere*, to make —or do). Often in earlier English it was a bad thing done or a thing badly done. Shakespeare, for instance, uses *fact* in this sense. Its common employment nowadays is to define something as real or actual, and distinct from the figment of the imagination or from fiction. It is true that in popular speech the word may be used more loosely. It is said, for example, that many of the facts recorded in history did not take place—that they are false facts. But false record does not make false fact, and there is clearly a confusion between fact and statement.

Fact, then, is that which is real and true. It will take on a different form with a different universe of knowledge or existence. It is a physical fact that the application of heat will expand a bar of iron, a mathematical fact that 2 and 2 make 4, a geometrical fact that any two sides of a triangle are greater than the third side. The correct statement of the particularities of the Mongolian or of the Circassian race will formulate a series of ethnological facts. The chronological fact must be actual in time, the historical in time and place. A true declaration of an instance of cause and effect will state a fact, as will a true statement of a rational relation. The fact need not be material or mentally external; what is essential is truth and reality in its own universe. A. E. L.

FACTORY AND WORKSHOP ACT, THE.—(See CHILDREN'S EMPLOYMENT ACTS.)

FACTORY SCHOOLS.—The provision of some form of schooling for labouring children has occupied the attention of the philanthropic on religious, social, or economic grounds since the beginning of the seventeenth century. The excessive demand for child labour that accompanied the spread of machine industries, the reckless exploitation of children, the wretched conditions under which they were housed on the factory premises, raised among other things the question of education, and led to legislation on the subject. At the time of the passing of the first Factory Act (1802), nothing in the nature of a standardized system of primary instruction existed in the country. Monitorial methods had not yet transformed the practice of the private adventure school or the procedure of the charity school. It is hardly surprising, therefore, that the Act, while requiring during the working day the compulsory instruction of apprentices in cotton and woollen mills in the "three R's," failed to face the problem of ways and means. A humane and enlightened factory owner, like David Dale, at New Lanark, had already organized a school under specially chosen teachers. The school of his successor, Robert Owen, embraced, in 1816, infant, junior, and upper departments; a recreative evening school; and provided for the education of adults. Such provision, however, must not be taken as typical. Generally speaking, the instruction of factory children under the Act was too casual and unsystematic to be of much value, and at the best it ignored all but apprentices. Where the interest of employers was aroused, schools like that of the Tobacco Boys in Edinburgh (1820) came into being, providing instruction from 6 to 8 p.m., and supported by trade subscriptions.

An attempt to remedy the more glaring defects

of the factory schools and to bring all children working in textile factories within the reach of instruction, was made by the Factory Act of 1833. School attendance became a condition of employment. Inspectors were appointed and provision for the financial support of schools was made by deducting from the children's wages. No steps were taken, however, to see that a competent teacher or suitable accommodation was provided. In view of the chaotic state of primary education at the time, this is perhaps hardly to be wondered at, though the value of the Act was largely negatived thereby. Too often only the merest pretence of schooling existed. Presence within four walls designated a school and constituted school attendance. Thus we find the coal-hole being used as a schoolroom, the fireman acting as teacher, and lessons being heard from books the colour of the fuel. The Factory Reports show the worthless character of much of the teaching.

The Half-time System. In 1844 a half-time system was introduced. A maximum of twopence a week might be deducted from the children's wages for school fees, and somewhat indefinite powers were given to inspectors for insuring more effective instruction. Mock schools continued to thrive, though good schools were found, well housed, under efficient teachers, and often worked on a shift system. In Manchester, for example, such a school existed in 1839. Attached to it was an evening school for adults. In Bradford a special National School was set up in 1841, under an efficient master and mistress, and arrangements were made for children from neighbouring factories to attend in three sets. In many cases, however, factories, especially the smaller ones, had to depend upon the inadequate provision afforded by local private adventure schools.

The Education Act of 1870, by remedying the deficiency of primary school provision, coupled with the advent of compulsory attendance and the gradual adoption of measures to secure a minimum of educational attainment for all wage-earning children, led to the disappearance of the old factory school. Its *raison d'être* no longer existed. In its place came the half-time system in public schools. Some factories chose to continue their own schools. These were now factory schools only in the sense that they were conducted as ordinary day schools by the owners of the mills. The tendency of sympathetic employers of recent years has been to encourage attendance at a continuation school with either a vocational or recreative bias, and the task of the immediate future is to provide such schooling during adolescence for all. This has been made possible by the Education Act of 1918 (*q.v.*). With it a new chapter in the history of factory (works) schools begins.

C. BIRCHENOUGH.

FACULTY (University).—One of the departments of a university, originally the masters and professors of one of the several branches of teaching. In most universities there are at least four faculties: Arts (including Philosophy), Theology, Medicine, Law. The faculties usually confer degrees of Bachelor, Master, and Doctor. Engineering is becoming increasingly important as a subject of study in the universities of Great Britain and America, and in what are frequently known as the " newer " universities there is usually a separate faculty of Engineering. Another most interesting development is the establishment of faculties of Commerce, in which departure the University of Manchester (*q.v.*) led the way.

FACULTY OF AN AMERICAN COLLEGE.—(See UNITED STATES, COLLEGES AND UNIVERSITIES OF THE.)

FACULTY PSYCHOLOGY.—(See FORMAL DISCIPLINE.)

FAGGING.—This is the practice of making small boys perform menial work for big boys. This system has been common in English public schools for many years, and occupies a prominent place in all stories of boarding school and public school life. It arose probably from the monitorial or prefect system of school discipline laid down in the statutes of Winchester College (*q.v.*), which were copied and imitated by the founders of many later schools. The inclusion of poor scholars in the same school as the sons of the wealthy naturally led to their becoming servants, and at Eton the choristers waited on the scholars. In recent times, fagging included the preparation of meals by young boys for the bigger ones, the giving up of playtime to wait on the others in their games, and the suffering of brutal treatment for even trivial offences. Violence is now prohibited in all the best schools, and fagging is reduced to a minimum. *Tom Brown's School Days* is an authority on fagging, and Oscar Browning's *Reminiscences* contains many details.

FALLACY.—Fallacy occurs whenever an invalid inference masquerades as a valid one, and to no other form of mistake is the term rightly applied.

As inference means the use of evidence to establish conclusions, there are two main sources of fallacy. In the one, evidence is wrongly apprehended; in the other, an illegitimate use is made of evidence rightly apprehended. Fallacies of the former class show defects in the actual knowledge brought to bear on the case in question; those of the latter, lack of skill in using it. Of course, the two kinds of fallacy often occur together, but it is well to distinguish them, as remedial treatment of the one has no necessary influence on the other. Mediaeval thinkers were far more carefully trained to use premises legitimately than to secure that they were both true and adequate; as a consequence, their knowledge of facts remained defective. In modern times, both the opposite tendency and the opposite result are conspicuous.

A clear recognition of this is very desirable in education. Children are naturally liable to fall into both kinds of fallacy, for neither knowledge nor skill in using knowledge is innate. The need for increasing the former is much more fully recognized in school practice than is that for developing the latter. Yet skill in thinking is no more a gift of nature than is any other form of skill, and without it knowledge is mere erudition—of little or no value.

Its development depends on the method used in teaching, just as growth of knowledge is determined by the matter taught. Its acquirement comes through criticized practice, as does that of every other form of skill. Mental activity is innate, and it must assume its own competence or it could not exist. Throughout life it works largely without receiving explicit attention; it is known by its results. When these disappoint expectations, there is need to bring into the light of day, for critical examination, the processes which led to them. The detection

of any flaw is the discovery of fallacy. From the point of view of training in skill in thinking, therefore, errors are of the first importance. They bring home to the pupil the need for revision, and give the teacher the opportunity of making clear the kind of mistake made. The school custom of simply correcting error does nothing to train skill in thinking, and shows a mistaken estimate of the absolute value of pieces of information.

Though fallacies are legion, they are of comparatively few general kinds; and teachers would do well to study them in any good text-book of modern logic, and to exercise themselves in detecting them.

Many fallacies are induced by ambiguities of language. The scope of a term is not clearly apprehended, and so there is included under it what should not be so included; or what properly belongs there is excluded. This is one source of that illegitimate generalization of statements which is one of the commonest ways in which the untrained mind goes wrong. Here, again, the attaching undue importance to information may lead a teacher astray. A pupil may give as the conclusion from very inadequate evidence a general statement which is true in fact, and which the teacher wishes to receive. That is accepted for its own character, regardless that such acceptance not only does nothing to train in clear thinking, but actually helps to build up the contrary habit. In illegitimate generalization, a suggestion is taken for a well-grounded statement. Any observed connection suggests an inquiry into its extent, and the assumption without such inquiry of the validity of any particular extension beyond the evidence itself is one form of begging the question, or assuming the very thing that has to be proved. There are many other cases in which the fallacy is of essentially the same kind—the taking a probability, without any determination of its strength, for a certainty. Sometimes the invalidity is apparent on examination of the form; at others, knowledge of the matter is needed to see just what the premises are competent to establish. But in every case in which a pupil gives a statement as an inference, the teacher's main function is to test the validity of the process, whether the conclusion be true or false in fact. For the importance of habit should be remembered. A habit of accurate thinking is formed only by much undeviating practice, and it is the most valuable intellectual possession education can give. J. W.

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FAMILY EDUCATION.—This expression may be viewed in a twofold aspect—education *in* the family, and education *for* family life. It is a common error to look upon education as the work of the school only. Children spend but a small portion of their lives under the direct influence of school and teachers; and, until the advent of nursery schools, no time at all was spent before the age of 5 years. The home teaching of the careful parent will train the child in the correct use of his native tongue; in habits of obedience, respect, and self-control; and in the spirit of truth and honour before school life begins. Speaking from the point of view of the public elementary school, school life is too spasmodic, too much lacking in continuity to be relied upon as the only time for the cultivation of good social habits; and there is danger that it may become artificial so that the child acquires two languages—"the school language" and the "out-of-school language"—and similarly two corresponding sets of habits. Many writers have urged that the mother is the real educator, and that the best mother is the one who keeps her children occupied in domestic duties, and trains them to live and act as members of a social community. Modern conditions are almost entirely against family education in intellectual subjects, and even in domestic subjects much is now done in the school which formerly was done in the home. Co-operation of parent and teacher is desirable, and many attempts have been made in recent years to bring this about. Parents are invited to see what their children do at school. Parents' associations have been formed; care committees endeavour to interest neglectful parents in the educational welfare of their children; and the Parents' National Education Union (*q.v.*) affords much help to parents who desire to teach, or to assist in teaching, their children at home.

FARADAY LECTURESHIP IN CHEMISTRY.—(See CHEMICAL SOCIETY, THE.)

FARADAY, MICHAEL (1791–1867).—One of the most distinguished chemists and natural philosophers of the nineteenth century. As a young man, he devoted his leisure hours to science and experiments, and in 1812 became Sir Humphry Davy's assistant at the Royal Institution. In 1827 he succeeded Davy as Professor of Chemistry in the Royal Institution, and published his *Chemical Manipulation,* which is still a valuable book of reference. The results of his work are to be found in the *Philosophical Transactions* of the Royal Institution under the title "Experimental Researches on Electricity," and in his *Lectures.* Among the most important of his discoveries in chemistry were new compounds of chlorine and carbon, and of hydrogen and carbon, alloys of steel, and the decomposition of hydrocarbons by expansion. Arising out of experiments made by Davy and confided by him to Faraday, the latter discovered the method of condensing gases into liquids and solids. Faraday's discoveries in electricity cover a very wide field, but those of first importance include "Induced Electricity," some of the phenomena of which have already been put into practice in telegraphy; electro-plating; and the firing of mines; electrostatic induction; hydro-electricity; magnetic rotatory polarization effected by a glass for optical purposes, which Faraday himself invented; the relation of gravity to electricity; and atmospheric magnetism. For many years, Faraday delivered Christmas lectures on science to the young at the Royal Institution, lectures which were useful to young and old alike. His charming manner, his successful illustrations, and his skill in explaining the most abstruse points rendered his lectures attractive to every kind of audience. His last lecture, given in 1862, was on gas furnaces, and the use of magneto-electric light in lighthouses.

FATIGUE.—The problem of school fatigue is twofold—hygienic and educational. The first aspect of the problem is well stated by Professor Mosso: "When children are taken from their

peaceful home life and sent to school, they do not at first feel any great discomfort, nor are they fatigued by the new mental work, because the novelty of the thing diverts them; but the long fixation of attention begins to tire, and ends by exhausting them so much that their health is affected; and we can all see this for ourselves in the pallor which takes the place of the beautiful rosy complexion of childhood. The children become less merry and lively, lose their appetite, become dull or more excitable, and complain of headache." The second aspect is the influence of fatigue on mental development and educational progress. Genuine fatigue retards both. The whole problem of fatigue is the avoidance of an important obstacle to the attainment of the chief aim of education—a sound mind in a sound body.

The Nature of Fatigue. Fatigue is one of Nature's defences of the organism. Up to a certain point, it is not harmful. The limit, however, is soon reached, especially in childhood; and if Nature's hints are disregarded, the penalty has to be paid. From the physiological point of view, fatigue is primarily an auto-intoxication or self-poisoning by waste products produced within the system. The classical demonstration of this fact is Mosso's well-known experiment, showing that a little blood drawn from a dog suffering from exhaustion and injected into a fresh and lively animal, immediately causes the latter to show signs of fatigue. But fatigue is also due to the exhaustion of nervous energy, or, rather—to adhere to the physiological standpoint—to the exhaustion of certain substances whose presence in the nerve cells is essential to the production or expenditure of energy. The changes in the nerve cells caused by fatigue can be seen with the microscope. According to Dr. Crile: "In the extreme stage of exhaustion from over-exertion, we found that the total quantity of Nissel substance was enormously reduced. When the exertion was too greatly prolonged, it took weeks or months for the cells to be restored to their normal condition. We have proved that in exhaustion resulting from emotion or from physical overwork, a certain number of the brain-cells are permanently lost. This is the probable explanation of the fact that an athlete or a racehorse trained to the point of highest efficiency can reach his maximum record but once in his life." These statements are of great importance with reference to school fatigue. They should help the teacher to realize that children may suffer severely from emotion and from physical overwork, as well as from mental strain; while the cases of the athlete and the racehorse recall the many brilliant schoolboys who have never been heard of in later life. Other experiments of Dr. Crile have given an ocular demonstration of the restorative value of sleep. The study of rabbits' brains showed that "eight hours of continuous sleep restored all the cells except those that had been completely exhausted." On the other hand, long-continued insomnia permanently destroys some of the brain cells in the same manner as too great physical exertion or emotional strain.

The Methods of Studying School Fatigue. Fatigue in school children is studied by applying certain tests before and after a particular lesson or at different times of day. The tests employed always aim at measuring something believed to be influenced by the degree of fatigue—for example, muscular power, sensibility to touch, or quickness of response. As examples of tests which have been very largely used, the following may be mentioned: (*a*) Mosso's Ergograph, which measures muscular fatigue; (*b*) the dynamometer, which measures the grasping power; (*c*) the aesthesiometer, which measures sensory discrimination; (*d*) adding up columns of figures, which measures quickness and accuracy of work; (*e*) stroking out particular letters on a page, which measures quickness and accuracy of observation. The study of fatigue by such methods is much more difficult than might be supposed, and numerous fallacies lie in wait for the unwary. For example, in adding up a column of figures, fatigue certainly diminishes rapidity; but, on the other hand, practice increases it. Consequently, one cannot measure the amount of fatigue by simply observing the loss in speed and accuracy without regard to the gain from practice. Again, children are likely to be more interested in a test the first time it is applied, and variation in interest will affect the results apart altogether from fatigue. When tests are applied in the morning and afternoon, the nature of the mid-day meal is likely to be a disturbing factor. A good dinner at mid-day means more blood to the stomach and less to the brain, with effects upon the test which may be attributed too readily to the fatigue of the morning lessons.

The Results of Studies in School Fatigue. So many contradictory statements have been based upon experimental studies, that it is a safe rule for the teacher not to accept any which do not accord with common sense. To quote one example, Bellei declares that "the work done by children during the afternoon lessons is, on account of the great mental fatigue it involves, of no advantage to their instruction, but full of danger to their health"; whereas Heck and others have recently found but little evidence of fatigue in the afternoon—not enough to warrant any adaptation of school procedure to it. Such different results do not necessarily imply faulty observation, but may depend upon actual differences in some of the many conditions upon which school fatigue depends.

Symptoms of Fatigue. Temporary fatigue is indicated by such symptoms as a wearied expression, inattention, or fidgetiness in class. Chronic fatigue, when approximating to the condition popularly known as overpressure, produces similar but more marked symptoms. The face becomes dull and expressionless, the eyes are somewhat sunken, and the head has a tendency to droop. The child becomes dull and listless instead of alert and active. Twitching of the fingers may be noticed, and, on inquiry, it is found that the pupil sleeps badly, and grinds his teeth or talks in his sleep. His appetite is poor and he loses flesh. His temper becomes fretful and irritable; he dawdles over his tasks, is disinclined to play, and often becomes morbidly dreamy or introspective. Such symptoms should be regarded as a serious warning that the child requires medical attention and supervision.

The Prevention of School Fatigue. Space only permits of a brief enumeration of the conditions to which attention must be directed, in order to prevent school fatigue of a harmful degree—

(*a*) SCHOOL HYGIENE. The ideal school should combine "fresh air" conditions as the phrase is understood in sanatoria, with a comfortably warm atmosphere. The new Staffordshire type of school is an important advance in this direction.

(*b*) MEDICAL INSPECTION. This is now provided for by law; but children should be inspected, even

if not thoroughly examined, annually instead of every three years or so.

(*c*) FOOD. Sufficient nourishing food is essential to supply the energy necessary for school work.

(*d*) SLEEP. In all ages and in all classes of society, the health of children often suffers from insufficient sleep. This has been proved by Miss Ravenhill's investigations among the poor, and Dr. Acland's study of the hours of sleep provided for in the great public schools. Naturally the hygienic conditions in the children's sleeping-rooms have a marked influence on school work.

(*e*) EMPLOYMENT. Many children are employed as wage-earners out of school hours—*e.g.* in one school nearly 25 per cent. of children over 10. Such employment should be strictly limited by the local education authorities.

(*f*) ARRANGEMENT OF SCHOOL WORK. In the case of young children, very short lesson periods should alternate with exercise or play. As children grow older, the length of the lesson periods should increase gradually, the most suitable length depending partly on the age of the children and partly on the amount of concentration the subject demands. The most fatiguing subjects should be taken in the forenoon. Hard and easy subjects should alternate, or two hard subjects should be separated by a short period of recreation or exercise. A careful correlation of subjects is of practical importance in the limitation of fatigue. The amount of home work required should be moderate.

(*g*) HOURS SPENT IN SCHOOL. No law can be laid down as to the length of time which children should spend in school. This depends upon the school conditions. In some Montessori schools, children under five spend the whole day (*i.e.* from 9 till 6) not only without fatigue, but with benefit to their health.

(*h*) HOLIDAYS. These should be short and fairly frequent in the case of school children, whose requirements are quite different from those of, say, university students. On the other hand, a long, quiet country holiday is the best treatment for chronic fatigue and its concomitant nervous symptoms.

Fatigue Tables. The following tables are given for reference, but are not to be taken as of universal application, seeing that children and circumstances differ widely.

Length of Lessons requiring Concentration of Attention.

At 6 years	15 minutes
,, 7 to 10 years . .	20 ,,
,, 10 to 12 ,, . .	25 ,,
,, 12 to 14 ,, . .	30 ,,

Total Amount of School Work involving Attention.

From 5 to 6 years of age	6 hrs. per wk.
,, 6 to 7 ,,	9 ,,
,, 7 to 8 ,,	12 ,,
,, 8 to 9 ,,	15 ,,
,, 9 to 10 ,,	18 ,,
,, 10 to 11 ,,	21 ,,
,, 11 to 12 ,,	25 ,,
,, 12 to 14 ,,	30 ,,
,, 14 to 15 ,,	35 ,,
,, 15 to 16 ,,	40 ,,

Amount of Sleep required at Various Ages.

Under 6	13 hours
,, 7	12½ ,,
,, 8	12 ,,
,, 9	11½ ,,
,, 10	11 ,,
,, 13	10½ ,,
,, 15	10 ,,
,, 17	9½ ,,
,, 19	9 ,,

This is Dr. Duke's Table. The allowance is slightly higher than the minimum standard of other authorities. (See also ADOLESCENT CHILDREN, THE: PHYSIQUE AND STAMINA OF.) **W. B. D.**

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FAWCETT, HENRY (1833–1884).—He was 7th Wrangler in 1856, and Fellow of Trinity Hall, Cambridge. In 1858 he was accidentally blinded by a gunshot fired by his father. He wrote *Manual of Political Economy* (1863), which became a standard text-book; and from 1863 till his death was Professor of Political Economy at Cambridge. He entered Parliament in 1865, and advocated the abolition of religious tests for universities, the extension of the Factory Acts to agricultural children, and the promotion of universal compulsory education. He became Postmaster-General in 1880, and introduced parcel post, postal orders, and sixpenny telegrams.

FECHNER'S LAW. — (See PSYCHOLOGY (EXPERIMENTAL).)

FECHNER'S LOGARITHMIC LAW.—(See PSYCHOMETRY AND PSYCHOPHYSICS.)

FECHNER'S MENTAL UNITS.—(See PSYCHOMETRY AND PSYCHOPHYSICS.)

FEE GRANT.—By the Elementary Education Act, 1891, a "fee grant" was provided to take the place of fees paid by scholars between the ages of 3 and 15 years. It amounted to ten shillings a year for each child and, if school managers accepted it, their schools became free. This Act established "free education" in England.

FEEBLE-MINDED, THE. — (See MENTALLY DEFICIENT CHILDREN.)

FEELINGS, EDUCATION OF THE.—(See BIBLE IN LITERATURE TEACHING, THE.)

FEES, SCHOOL.—From the earliest times, fees have been charged for teaching. The school wholly or partly exempt from tuition fees has been the exception, not the rule. Free education can be ensured only by endowment. Though Plato girded at the Sophists for charging fees for their lectures, his own school remained free only through the endowments he bequeathed to it. Roman schools were all private, and charged, no doubt, substantial fees till Vespasian began to endow them out of the privy purse at Rome and, later, plant them through the provinces, partly on the imperial purse, partly on the municipalities. This, however,

Headmaster's House School House Grignon Hall

Felsted School

PLATE XXXVIII

did not prevent private adventure schools. In that wonderful Edict of the Emperor Diocletian in 301, by which he fixed the maximum price of everything on pain of death to any one charging more, while the carpenter, mason, and baker might receive 50d. a day besides their food, the elementary schoolmaster (*magistro institutori litterarum*) was allowed 50d.; the Greek or Latin grammar master and the mathematical (geometrical) master, 200d.; and the rhetoric or logic master (*oratori sive sofistae*), 250d. by the month for each boy.

Grammar schools, being introduced into England as part of a religious propaganda, were, probably, at first, free, the teachers being part of the endowed cathedral staff. But the ecclesiastical laws of about 914 imply a practice of charging fees, and they empowered the clergy to send their near relations to be taught in (? episcopal) churches, while village priests are told to receive little ones to teach, not expecting anything from their relations except what they offer of their own accord. Before the Conquest, both in England and in Normandy, school fees were known. The historian of Bury St. Edmunds tells how King Canute, whenever he visited any famous minster or walled town (*castellum*), sent there boys to be taught at his expense.

Lanfranc, an ex-schoolmaster, when money was wanted for the Abbey of Bec, in which he had become a monk, was granted special licence to set up a school outside the monastery, and apply the fees to rebuilding the monastery. Fees were charged in the school at Oxford about 1125, as appears from the attack on Theobald of Etampes, "master of Oxford," by a monk, who asks whether he had not taught sixty or one hundred clerks more or less, and been a "greedy seller of words" to them. At Derby, a hall and chambers (in fact, a boarding-school) were given by Walkelin the Minter and his wife about 1160, on condition that the master was not to make any charge for the chambers. In 1179 the Lateran Council ordered that every cathedral should provide a master with a benefice, so that he might be able to teach the clerks and the poor *gratis*; others, presumably, paid fees. Abbot Sampson of Bury, in 1180, gave a vicarage to one, Master Walter, because his father, when schoolmaster, had let Sampson attend the school without charge: this showed that fees were normally required. Sampson also gave the school a stone house, so as to free poor boys of their customary penny or halfpenny by way of rent; and some years later he endowed the master from a rectory on condition of admitting forty poor boys free of the pennies charged for tuition. In 1338, a statute of the University of Oxford forbade the grammar schoolmaster to charge more than 8d. a term, "unless he has only one or a few pupils to teach by special arrangement." Eightpence a term, or a penny a week, was the normal fee. This was paid by Mettingham College, Suffolk, for two of its boys at Beccles Grammar School in 1403–1404. In 1410, however, the masters of Gloucester Grammar School alleged that the competition of an unlicensed schoolmaster had brought down their fees from two or three shillings a quarter to one shilling or less. At Ipswich, in 1477, the tariff was fixed by the bishop at 10d. a quarter for grammarians, 8d. for Psalterians, and 6d. for Primerians; but, in 1482, the Town Council reduced the grammar fees for resident burgesses to 8d. The normal boarding fee was 8d. a week.

After the Reformation. Little is known of the tuition fees paid immediately after the Reformation, for schools were nearly all theoretically free; if not, the masters took the fees, the governing body having nothing to do with them; and so they do not appear in the school accounts. A few facts may be found in private account books, such as those which show us the bills for board of the two Cavendishes at Eton in 1561, or of young Hutton at Winchester in 1619. In both cases, the boys were commoners in college and paid—the former 3d., the latter 5d., a week—with various additional terminal charges: Candles, 4½d.; sweeping school, 2d.; birch, 4d.; and the quarterage or tuition fee was 1s. 6d. At Carlisle, in 1598, 10s. a quarter was paid for a gentleman's son's schooling and £2 for eight weeks' board. Ten shillings a quarter for tuition was also paid by a Town boy at Westminster in 1680; besides "gifts" at Christmas, of a guinea to Dr. Busby, of half a guinea to the second master, and to the usher of five shillings. In 1731, no less than £200 a year was paid at Winchester by the ten commoners in college, but they were all young noblemen; and the head master took them out hunting on holidays. The school bill of the first William Pitt, afterwards Earl of Chatham, at Eton in 1719, was £29 0s. 3d. for half a year, of which tuition accounted for seven guineas.

At Rugby, in 1777, the boarding fee was 14 guineas a year. In 1794, the leaving "present" of a guinea and the Christmas present of another guinea were abolished. In 1797 the fee was raised to 20 guineas; in 1818 it was 40 guineas, with 4 guineas extra "for a single bed" and £4 for washing, the tuition fee being 6 guineas. At the same time, Winchester charged £64 a year and Eton £66, the total cost of a boy at either being £100 a year. At Eton, extra charges were made for noblemen and gentlemen of very large fortune in Tutors'—as distinct from Dames'—houses. At the smaller schools, distinctions were made between parlour and other boarders (*e.g.* at Wotton-under-Edge, the former were charged 50, the latter 30, guineas a year); at Exeter, the boarders paid 30 guineas, inclusive of tuition.

Present-day Fees at the Public Schools. At Eton, under Regulations made in 1907, the charges for oppidans are £21 entrance fee to the School Fund and £200 annually inclusive except for music and the School for Mechanics. Scholars pay a sum not exceeding £30 a year. At Winchester, the charge for scholars is £21 a year; commoners pay £175 a year, and an entrance fee of £12; private tuition is almost unknown. In the cheaper so-called "Public Schools" the charge is from £80 to £100 a year. At the great Day Schools, Cheltenham College charges £36 to £45 a year; St. Paul's School, £24 9s.; Bedford Grammar School, £11 11s. to £24 3s.; Merchant Taylors' School, (London) and Manchester Grammar School, £15 15s. to £18 18s.; Bradford Grammar School, £9 to £16 16s., Wyggeston School, Leicester, £5 8s. to £9. These are all schools of 500 boys and upwards. The lesser grammar schools charge from £25 to £60 a year for boarders; and from £6 to £12 a year tuition fees. The new "Secondary Schools," maintained by county councils, charge from £3 to £6 a year; and, in the majority of cases, the latter sum. But in these schools, generally, more than half the scholars are freed from fees by various forms of exhibitions and scholarships; and, by the Regulations of the Board of Education, there must be not less than 25 per cent. of free places. A. F. L.

FELIX, BISHOP OF KENT.—(See ANGLO-SAXON SCHOOLS.)

FELLENBERG, PHILIPPE EMMANUEL DE (1771–1844).—Born at Berne, and trained by his mother on the principle that "the great have friends enough; be thou the friend of the poor." On reaching manhood, he lived an austere life; and travelled through Switzerland, France, and Germany, collecting information on the morals, habits, and wants of the poor. In 1799 he founded an institution on an estate he had purchased at Hofwyl, in which to carry out his theories of education, combining theory with practice. The estate became a model farm, cultivated by pupils of the agricultural school. Workshops were established for the making of agricultural implements. The chief work of the pupils, who were sons of peasants, was agriculture, and intellectual instruction was added as a means of relaxation. An intermediate school for sons of farmers was added to provide scientific and theoretical training, and, though industrial in character, the training was carried to a higher level than in the peasants' school. Fellenberg also had a training school for teachers, a summer school for the improvement of village schoolmasters, and a school for the upper classes. Much that was sound and valuable in education was included in Fellenberg's schemes, but after his death the institution at Hofwyl came to an end.

FELSTED SCHOOL.—This school, situated in the north-west of Essex, was founded in 1564 by Richard Lord Riche. It was reconstituted in 1852, and is now worked under a scheme drawn up by the Endowed Schools Commission in 1876.

Many new school-buildings have been erected of recent years. Thus, in 1899, new chemical and physical laboratories were built; two years later, a biological laboratory was added; followed by an engineering and a carpentry workshop in 1904. The year before this, a block of new classrooms was opened. In the school grounds are also the schoolhouse and a detached boarding-house; the playing-fields cover about 30 acres, and contain fives courts, a covered swimming-bath, and a gymnasium. The large and efficient cadet corps consists of two companies and possesses a bugle band. There is a Junior House, entirely separated from the Senior School; it accommodates fifty small boys, who have their own playing-fields and use the school workshops, gymnasium, etc., at different hours.

The work of the school is done on four sides—classical, modern, army, and engineering. Leaving scholarships of £60 and £50 respectively are awarded annually, tenable at some place of higher or professional education; and eight entrance scholarships, varying in value from £20 to £70, are offered for competition every year. There are upwards of 280 boys, and a staff of about 24 masters. Felsted has been the leading Essex school for very many years.

FÉNELON (1651–1715).—A brilliant French classical scholar who became a notable preacher at 18, and entered the priesthood at 24. He became the Superior of the Nouvelles Catholiques, a society for the instruction of young female converts; worked in this sphere for ten years; and published his experience in *Traité de l'éducation des filles*. He was sent to Poitou by Louis XIV to convert the Huguenots, but insisted on the cessation of violence and torture. In 1689 he became tutor to the Dauphin, and for him composed the *Recueil des fables* and *Dialogues des Morts*. His friendship for Madame Guyon, who was imprisoned as a heretic, deprived him of Court favour and led to papal condemnation. His *Télémaque*, a poetic drama, sketching primitive and simple times, formed on the antique classical models, and inculcating virtue as the glory of princes and the happiness of nations, was considered as a satire on Louis XIV; and Fénelon retired to the diocese of Cambrai, where he spent his last years in the faithful performance of his pastoral duties.

FERRAR, NICHOLAS. — (See HOUSEHOLD EDUCATION.)

FERRARA, THE UNIVERSITY OF.—Placed, as they were, between Bologna and Padua, and, moreover, flanked by Pavia, the schools of Ferrara would probably have disappeared after a time, leaving no clear traces of their existence, as happened to other cities, had not Ferrara come under the rule of the Este family. It was the Marchese Alberto V who, on 4th March, 1391, obtained from Pope Boniface IX the Bull, which is considered the real foundation of the *studium* of Ferrara. The Pope ordained that a *studium generale* should be established: "illudque perpetuis temporibus inibi vigeat, in sacra pagina, in jure canonico et civili, nec non in medicina et qualibet alia litterarum licita facultate." He accorded to the *docentes, legentes, et studentes ibidem* all the privileges conferred on the doctors and scholars of Bologna and Paris (*qq.v.*); and nominated as Chancellor the Bishop of Ferrara.

On 18th October of the same year, according to the *Chronicon Estense*, "fuit dictum studium inchoatum"; but its existence was precarious until towards the middle of the following century, notwithstanding the efforts of the Marchesi of Ferrara to bring it into fame by calling thither as teachers Bartolomeo da Saliceto, Pietro d'Ancarano, Giovanni da Imola, and others. Not till the reign of the Marchese Lionello (1441–1450) did the *studium* attain stability and begin to flourish; and he could assert with justice that "in hac nostra civ. Fer. laudatissimum et florens studium omnium scientiarum instituere evigilaverunt curae et cogitationes nostrae." His labours were magnificently continued by his successors, Borso, Ercole I, Alfonso I, Ercole II, and Alfonso II (under whom the university attained its greatest splendour).

The students were grouped in two corporations or *universitates*, one of Law, the other of Arts. The students of Ferrara, however, did not enjoy the same autonomy as those of Bologna, for the supreme management of the *studium* soon became centralized in the head of the State—the Marchese, and afterwards Duke—who exercised it either directly or through bodies nominated by, and dependent on, him. These bodies were known as the Council of the *XII Savi*, and the *Riformatori*. The Duke, the *Savi*, and the *Riformatori* nominated the lecturers. In 1472, there were twenty-three lecturers in civil and canon law; in 1474 the lecturers in medicine and arts numbered twenty-seven. In 1565–1566 the works of Hippocrates occupied four lecturers; in 1575, Tasso taught astronomy and Euclid.

The stipends, or salaries, of the lecturers were generally a charge on the Commune, and varied greatly. They were fixed by the Council of the

XII Savi, to whom the communal administration was delegated. But even in this matter the prince intervened, especially when it was a question of attracting some famous teacher.

At first the schools of laws and of arts had separate meeting-places; but, in 1567, the Commune acquired the Palace of Il Paradiso, and made it the seat of the whole university. The *studium* has remained there ever since.

Under Papal Control. At the death of Alfonso II without lawful heirs, in 1598, Ferrara was added to the Papal States, and came under the governance of a papal legate. It was administered by a *great council* composed of a hundred citizens, and by the *magistracy of the XII Savi*. The direction of the *studium* passed into the hands of this magistracy and of the *Riformatori*, subject, however, to the veto of the legate.

But when the Court of the Estes disappeared, the *studium* suffered the gravest injury. The *Savi* and *Riformatori* drew up new constitutions in 1613, which, however, not only failed to eliminate abuses, but, in certain directions, accelerated the decay. The attempt at reform made by Clement XIV, in 1771, had brief duration, since the French occupation took place in 1796.

When Ferrara became a part, first of the Cispadane and then of the Cisalpine republic, its university was suppressed, and it obtained instead a high school of hydraulics which lasted up to 1815.

After the restoration of the papal government, the university was re-opened in 1816. It received a new constitution by the Bull, from Leo XII, *Quod divina Sapientia*, in 1824. In 1826, Ferrara was made subject to the bishop, with a rector for disciplinary purposes. The corporations of students were not revived.

Thus things went on until the unification of Italy. On 14th February, 1860, the Governor of Emilia (C. L. Farini) issued a decree, directing statutes to be compiled, which received ministerial sanction on 26th September, 1861; in 1872 they were notably modified.

The faculty of Law is the only one that is complete. Medicine and mathematics each possesses only the first two years of its course. There is a school of pharmacy. F. BRANDILEONE.

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FERRER, FRANCESCO (1859–1909), was born near Barcelona; and, after a village school education, was at 12 years of age employed on a railway. In 1885 he settled in Paris and gained some reputation as a teacher of Spanish. He became closely connected with the Spanish revolutionary party, made education an essential feature of revolution, and devoted himself energetically to the cause. He enlisted the sympathies of Mlle. Meunier, a wealthy pupil, to whom he taught Spanish, expounded to her his plan of teaching, "based solely on the natural sciences, whereby the child and the youth are able to explain to themselves the origin of all things." With the aid of Mlle. Meunier's legacy, Ferrer opened the Escuela Moderna in Barcelona in September, 1901. (See MODERN SCHOOL.) In 1908 he founded the International League for the national education of the young. In 1909 he was executed as the author and chief of the "Revolution of July" in Barcelona.

FETISHISM.—(See ANIMISM.)

FETTES COLLEGE.—The handsome buildings of Fettes College, Edinburgh, were erected between 1865 and 1870 at a cost of £150,000. The foundation is due to the munificent bequest of Sir William Fettes, Bart., of Comely Bank (a northern suburb of the city), who was twice Lord Provost; and the school was opened in 1870. It is managed under a scheme devised by the Educational Endowments (Scotland) Commission in 1886. There are about 230 boys, who board in four houses—Schoolhouse, Carrington, Glencorse, and Moredun. Fifty "foundationers" are educated and maintained free of charge: they are "children of parents who are from innocent misfortune unable to give suitable education to their children, or have died without leaving sufficient funds for that purpose." There are several foundation scholarships, which give free maintenance and education and £20 a year: these are restricted to boys in public elementary schools or other schools subject to Government inspection. Besides these, there are ordinary entrance scholarships varying from £20 to £60 open to public competition, about £300 a year being expended on them. Leaving exhibitions (two of £100, two of £70, three of £60, and two of £30), each tenable for four years, are, as they fall vacant, offered for competition among boys of at least four years' standing in the school; some of them are open to foundationers only.

The school has the usual two sides, and there is a special Army class. Fettes is a famous nursery of International Rugby football players.

FICHTE, JOHANN GOTTLIEB (1762-1814).—A modern German philosopher and educational reformer, educated at Jena, Leipzig, and Wittenberg. At Zurich he contracted a friendship with Pestalozzi, and at Königsberg studied philosophy under Kant. In 1794 he became Professor of Philosophy at Jena, but French wars put an end to his work there, and in 1805 he resumed it at Erlangen. In 1806 he delivered his *Addresses to the German Nation*, and shortly afterwards was placed high in office in the new Berlin University and was responsible for the scheme of studies there. As a follower of Kant, Fichte was a man of action rather than of intellect. He preached that learning and action should go together. He was the first philosopher who gave a broad and lofty conception of nationalization of education—the education of the nation by the people and for the people. He believed that the Germans were the only race who

could realize his grand ideal of perfecting humanity by the advancement of culture. The awakening of self-activity was to Fichte more important than the imparting of knowledge, and to educate a man meant to give him opportunities of making himself master of all his faculties. Fichte was a great admirer of Pestalozzi, and contributed greatly to the introduction of his methods into Germany. In moral education, he objected to express instruction, but insisted on the inherent love of the good and the true in every child, and insisted that the best moral teaching was to surround the child with pure and good examples. Fichte was a strong advocate of the co-education of the sexes. His popular works, *Vocation of the Scholar* and *On the Nature of the Scholar* have high literary merit apart from their philosophical and moral value.

FIELDEN DEMONSTRATION SCHOOL, MANCHESTER, THE.—It is generally recognized that every training college should have one or more demonstration schools connected with it, but, owing to financial and other difficulties, it is not always possible for the college to exercise complete control over its schools. The Manchester University Training College is fortunate enough to possess in the Fielden Demonstration School an institution maintained for its special benefit, with which no outside authority has any right to interfere. The history of the school goes back to 1902, when Miss Catherine Dodd, then a lecturer in education at Manchester University, opened a small primary school and kindergarten in which students might practise and observe in operation the methods they had studied in the lecture-room. A little later, when Dr. Findlay became Professor of Education, he established a second school for somewhat older children, which, besides serving as a demonstration and practising school, provided special facilities for the investigation of educational problems. These schools were, at first, maintained by the liberality of a few subscribers; but, in 1905, they were placed upon a more satisfactory footing by a generous gift from Mrs. Fielden, who had already endowed the Chair of Education. Under the trust then created, the University Council, with Mr. A. T. Bentley, were constituted trustees; while the management of the schools was placed in the hands of a committee appointed for the purpose, the Sarah Fielden Professor being the Director of the schools. At the end of 1907, the two schools were amalgamated, though each retained its own head teacher; and in September, 1908, the school was moved to its present premises in Victoria Park, where a large house and grounds had been purchased for its use by the same munificent donor. In its new home, the school accommodated about two hundred children, and was maintained partly from the endowment given by Mrs. Fielden, partly by an annual grant from the University, and partly by fees and subscriptions. In 1919, changed conditions led to the adoption of new methods for carrying out the purpose of the school. It was resolved to convert it into a day continuation school, a type of school in which freedom for experiment seemed specially desired.

Aims and Methods of the School. The aims and methods of the Fielden School prior to 1914 have been fully described in two volumes issued under the editorship of Professor Findlay. Of the various experiments in methods of instruction, mention can here be made only of the organization of the teaching in certain classes on the same general lines as those adopted by Professor Dewey in the University Elementary School at Chicago, and of the introduction of modified Montessori methods in the work of the youngest children. The mental and physical characteristics of the individual children have been systematically studied, and several interesting investigations carried out. (See papers read before the British Association in 1913; and Pear and Wyatt in the *British Journal of Psychology*, Vol. VI, Parts 3 and 4.)

Speaking generally, the school has exerted a stimulating influence which has extended far beyond its own immediate neighbourhood.

H. BOMPAS SMITH.

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FIELDEN, SARAH (1819–1910).—She was a member of the Todmorden School Board from 1874 to 1889, and of the Education Committee from 1902. Throughout her life she devoted her time and wealth to philanthropic and educational work. At one time she taught in the factory schools of Todmorden, where afterwards she built a model school on her own estate. While a school board member, she lectured on methods of teaching; and in 1906 she endowed a Chair of Education at Manchester University. Mrs. Fielden is associated with the establishment of "Demonstration schools," of which the first description was given in 1897 by Professor Findlay, who became the first Professor of Education at Manchester University and established such a school in that city in 1910. Mrs. Fielden endeavoured to make her own school at Todmorden a place for the demonstration of the best English and Continental methods, and for the training of teachers in those methods. Professor Findlay described the school and its methods in the *Educational Times*, April, 1910.

FILM PICTURES AS EDUCATIONAL AIDS.—(See CINEMATOGRAPH AS A MEANS OF EDUCATION, THE.)

FINANCE AND ORGANIZATION OF PUBLIC EDUCATION, THE.—Public education in England and Wales is organized and administered by the Board of Education as the central authority, and by 319 local education authorities. There are, in addition, 900 minor urban local authorities, the great majority of which have transferred their powers to the county councils.

The Board was constituted in accordance with the terms of the Board of Education Act, 1899, and absorbed and superseded the Education Department and the Science and Art Department. By an Order in Council authorized under the same Act, certain of the duties of the Charity Commissioners and of the Board of Agriculture were transferred also to the Board of Education. Nominally, the Board consists of the President, the Lord President of the Council, His Majesty's Principal Secretaries of State, the First Commissioner of the Treasury, and the Chancellor of the Exchequer. In practice, its powers are exercised by the President, invariably a Cabinet Minister, and the Parliamentary Secretary, advised and assisted by a numerous staff of officials and inspectors. The reports of His Majesty's Inspectors on the various schools they

visit provide the information on which the award of the Parliamentary grants is based and, through their influence, exerted directly or indirectly, and the power to reduce the annual grants, much of the Board's authority is exercised.

The Consultative Committee, which advises the Board on matters referred to it, also owes its origin to the Board of Education Act. Members normally hold office for six years, one-third retiring every second year.

Teachers' Registration Council. (See separate article.)

Local Education Authorities. The Act of 1902 established one local authority in each area for all grades of education below the university. The councils of the 63 administrative counties and 82 county boroughs became authorities for both elementary and higher education. Those of 125 municipal boroughs with populations exceeding 10,000, and of 49 urban districts with populations exceeding 20,000, became authorities for elementary education. Every local authority must appoint a committee or committees, to which are referred all educational matters, except the power of raising a rate. A majority of the members of an education committee must be appointed by the council, and, except in the case of a county council, a majority of the committee must be members of the council. A certain number of co-opted members must also be appointed, and, as a rule, these are nominated or recommended by outside educational bodies from amongst persons who have knowledge and experience of the educational requirements of the district. Local education authorities are responsible for the secular instruction in all elementary schools, and, subject to a conscience clause, control the type of religious instruction given in provided schools. (See RELIGIOUS ASPECTS OF SCHOOL GOVERNMENT.) It is their duty to provide a sufficiency of free accommodation in elementary schools in every part of their area. A much wider view is now taken of the duties and powers of local education authorities. They act as attendance committees, and must provide for the medical inspection and treatment of all children in public elementary schools. Many authorities provide school baths, playing-fields, and open-air schools, and also exercise the power conferred upon them by the Provision of Meals Act of 1906 to feed necessitous children. They are responsible for the care of blind and deaf children up to the age of 16, and for defective and epileptic children, receiving substantial grants to meet part of the expenditure.

Until the passing of the Education Act of 1918, the compulsion to provide higher education was exercised only indirectly. "The Local Education Authority shall consider the educational needs of their area and take such steps as seem to them desirable, after consultation with the Board of Education, to supply or aid the supply of education other than elementary. . . ." The discretion here implied was variously interpreted, and caused a greater inequality in the provision of higher education than in that of elementary. To provide for secondary, technical, and other types of higher school, county boroughs were authorized to expend money from the rates without restriction. County councils were normally restricted to an expenditure of 2d. in the £; the Local Government Board (now the Ministry of Health), however, could authorize a higher rate on appeal from a local authority. The new Act abolished all statutory restrictions on local education authorities in the matter of expenditure from local rates for purposes of higher education.

The authorities responsible for elementary education only, and the minor education authorities, have some powers with regard to higher education. As a rule, however, these authorities leave the work of higher education in the hands of the county councils, whose rate for higher education may be levied over the whole of their areas irrespectively of the rate which may be levied by the minor and "Part III" authorities.

Finance. Public education is financed partly from funds voted by Parliament, and partly from local contributions derived mainly from rates levied for the purpose. The first Parliamentary grant for education was made in 1833, and amounted to £20,000. This sum was gradually increased until, in 1861, it reached the figure of £813,444, but was then distributed on a capitation basis—a plan which had been adopted in 1853 as a substitute for the first method of assisting in the provision of school buildings only. A momentous change was made in the year 1870. The first Education Act was passed, by which School Boards were established, involving the introduction of a compulsory local contribution towards the cost of education in those districts which decided to set up an *ad hoc* authority. School Boards gradually extended the area of their activities until, in 1902, they were responsible for educating two-thirds of the children in elementary schools, the remaining third being taught in voluntary schools, chiefly under the control of the Church of England. The voluntary schools depended for the local margin of their cost of maintenance on subscriptions. These were almost invariably insufficient to provide funds equal to those available for schools controlled by the School Boards. The Act of 1902 placed the local margin of cost of public elementary education upon the rates.

Grants for Elementary Education (1902–1918). To meet the additional cost of applying the Act of 1902, a new grant in aid was proposed of 11s. 6d. per scholar, minus the produce per scholar of a ½d. rate. The main source of State assistance, however, was a grant paid on the basis of average attendance, at the rate of 17s. per scholar in departments for infants, and 22s. in upper departments. There was also a fee grant of 10s. per scholar in average attendance between the ages of 3 and 15. This was paid when no fees were imposed, or when the fees were 10s. per annum less than those charged before the "Free" Education Act of 1891. Other grants were paid for special subjects, such as cookery, laundrywork, combined domestic subjects, dairy work, gardening, and handicraft. A necessitous areas grant was introduced in 1907 to meet the difficulties of those local authorities whose rates had risen to an abnormal figure in spite of the grants then in force. Three-fourths of the sum by which the net expenditure on elementary education exceeded the produce of a rate of 1s. 6d. in the £ was paid to each local authority qualified to participate in the grant. The number of authorities whose rate for elementary education exceeded 1s. 6d. in the £ gradually increased, while the total sum available for distribution amongst them remained fixed at £350,000 per annum. New regulations were issued for the financial year 1914–1915, the effect of which was that any local authority which had participated

in the grant in 1913–1914 received an equivalent amount in succeeding years plus half the net expenditure in excess of the produce of a rate of 1s. 9d. in the £. Any local authority which had not participated in the grant in 1913–1914 received an amount equal to half the expenditure in excess of the produce of a rate of 1s. 6d. in the £. The new regulations involved an additional expenditure of about £420,000 per annum.

A special "small population" grant was made in accordance with the provisions of the Education Act of 1876 to meet the cost of providing schools in sparsely populated districts. Grants were also made to meet part of the cost of providing special schools or classes for blind, deaf, defective, and epileptic children, as well as for the medical inspection and treatment of school children, to which increasing attention is being paid.

In addition to the fee grant and the aid grant, the Board paid in respect of each unit of average attendance of scholars in higher elementary schools: 30s. in the first year, 45s. in the second year, and 60s. in the third and fourth year. No other grants, however, were payable in respect of higher elementary schools.

The Grant in Aid. New powers and duties have been given to local education authorities at an increasing rate, either by legislation or by departmental regulation, and the method adopted to induce the authorities to accept additional responsibilities has been the award of grants in aid. The system has much to commend it. There is frank recognition of the national concern in a public service locally administered. The right is maintained of supervision, criticism, a limited amount of direction, and a public audit of accounts; while the advantage of local initiative and emulation, and the freedom to attempt experiments, are retained. The drawback is that each development brings its own particular grant to complicate a system of finance already sufficiently complex. It is alleged with some justice that the national contribution in the shape of an aid grant is apt to remain stereotyped in amount, and, though reasonable in the earlier stages, soon ceases to meet a just proportion of the total cost. The standard of public requirements and of the Board of Education tends to rise, and this is accentuated by local rivalries and the keenness of those members of a local authority who are interested in education. The consequence was that the local margin of cost in the case of the more progressive authorities steadily outpaced the proportion contributed by the Exchequer. In 1902 the annual grants represented approximately 57 per cent. of the total cost of elementary education. In the financial year 1913–1914, this had fallen to 45 per cent. In London, the State contribution did not meet one-third of the total cost. It is not surprising, therefore, that powerful representations were made to the Government on behalf of local education authorities, urging that an increase be made in the national contribution towards the cost of education. There was a desire also for some consolidation of the numerous grants in aid; and the Education Authority for London, whose view was shared by the authorities for the larger urban centres, urged that a greater variation of the Exchequer contribution was necessary, so that authorities which provided excellent staffs of teachers, limited classes to less than sixty children, and offered expensive courses of practical instruction, should receive assistance to a greater extent than was accorded under existing regulations, which tended to preserve an undue uniformity of financial treatment as between the progressive and the non-progressive authorities. The great variations in the local rates for elementary education suggest that there is substance in this contention.

The New Basis of Grants-in-Aid. The Education Act of 1918 makes provision for the award of grants from the Board of Education on a more equitable basis. Under the regulations prepared in accordance with that Act, a substantive grant is now payable by the Board to local education authorities in respect of elementary education for each year beginning on 1st April. The grant payable for a year will be based upon the average attendance, the produce of a rate, and the expenditure of the year, according to the following formula: 36s. for each unit of average attendance in the public elementary schools maintained by the authority (not including any schools for blind, deaf, defective, and epileptic children, which, together with medical treatment and the provision of meals, are regarded as special services), with the addition of the following amounts: (*a*) Three-fifths of the authority's expenditure on the salaries of teachers in those schools; (*b*) one-half of the net expenditure on special services; and (*c*) one-fifth of the remaining net expenditure on the elementary education, less the produce of a 7d. rate upon assessable value in the area. The grant must not, except in highly-rated areas, exceed the greater of the two following amounts: (*a*) Two-thirds of the net expenditure; (*b*) the excess of the net expenditure over a sum comprising the produce of a rate of 12d. upon assessable value in the area, together with the grant under the Agricultural Rates Act; and if the grant calculated under the formula would exceed this maximum limit, it will be reduced accordingly. The grant will not be less than one-half the net expenditure; and if the grant calculated under the formula would fall short of this minimum limit, it will be increased accordingly. The grant will be payable by instalments subject to the condition that the authority has performed its duties under the Education Acts. In addition to the foregoing grants, a special grant is payable in respect of highly-rated areas amounting to half their net expenditure in excess of a rate of 48d. in the £.

Provision is made in the Civil Service Estimates for 1920–1921 for an expenditure by the Board of Education of £45,755,567, by far the greater part of which will be devoted to elementary and secondary education. There is provision, in addition, for expenditure on university education and for scientific and industrial research. The increase in the Board of Education estimate amounts to £12,000,000. In 1913–1914, local education authorities raised from rates a sum of about £15,500,000. The present total is probably not less than £20,000,000.

Grants for Secondary and Technical Education. Grants are paid by the Board to assist higher education in all its forms. The general practice is to award a "block" grant per pupil; and, though the types of institution are many, the system of payment, except in the case of evening classes, is much simpler than that adopted for elementary education.

To secondary schools a grant of £2 per annum is paid in respect of each scholar between the ages of 10 and 11 who has been, for at least two years,

under instruction in a public elementary school immediately before entering the secondary school, and between 11 and 18 of £7. The Board may increase the grant of a small school to a maximum of £350 per annum, and the grant to any school may be augmented to meet part of the cost incurred in respect of special educational experiments.

A grant not exceeding £400 is made annually to schools which provide advanced courses approved by the Board of Education.

Grants are also made to technical schools and similar institutions, both for day and evening classes.

The Board of Education also assists the work of training teachers by grants which vary from £7 per annum in the case of pupil teachers entering upon their apprenticeship, to very substantial sums in the case of students in training colleges and hostels. In recent years, substantial grants have been made to local authorities to assist in the supply of new training colleges, and as much as 75 per cent. of the cost of the buildings is provided by the Board.

Grants for University Education. A recent development of the interest of the State in national education has been the setting up by the Treasury of an Advisory Committee charged with the duty of recommending the allocation of grants to universities. All the universities in the United Kingdom have participated in these grants, the total amount distributed during the financial year 1919–1920 being £916,000. In addition, a sum of £50,000 was granted to assist the universities in restoring pre-war conditions. The universities also receive grants for technological subjects under the Regulations for Technical Schools, etc. (*e.g.* in respect of evening classes). Nearly £400,000 was expended during the year 1919–1920 in scientific investigation and industrial research; and the estimates for 1920–1921 provide for an expenditure of £726,714 under these heads. F. W. G.

FINANCE (SCHOOL).—Since the year 1903, the responsibility for the expenses (apart from the Exchequer grants) of elementary schools as a whole has been placed on the ratepayers, through the county, county borough, borough, and urban district councils.

The cost of maintenance and administration of the elementary schools of England and Wales amounts annually to £26,000,000, and may roughly be divided into: London, £5,000,000; counties other than London, £9,000,000; county boroughs, £8,000,000; boroughs, £2,000,000; and urban districts, nearly £2,000,000. Approximately, half is derived from Government grants, and half from local rates. London is exceptional, with 73 per cent. from rates against 26 per cent. from grants; the other authorities average only 48½ per cent. from rates against 49½ per cent. from grants, without much variation between groups. The main items into which this expenditure may conveniently be analysed are: Teachers' salaries, £16,415,827 (60s. 10d. per child); maintenance (including books and stationery, fuel, light and cleaning, repairs, district rates on buildings, etc.), £4,173,311 (15s. 6d. per child); administration, £1,293,042; building loan charges, £3,049,359; and blind, deaf, and industrial school children, medical service, provision of meals, and other expenses, £1,382,559.

The average cost of educating a scholar varies from £7 5s. in London to £4 2s. 11d. in the counties. It is £4 7s. 10d. in the county boroughs, £4 3s. 3d. in other boroughs, and £4 18s. 9d. in urban districts.

Charges on Account of Capital Expenditure. There are also the charges connected with capital expenditure. They comprise briefly the cost of buildings and sites. At the time of the passing of the Education Act in 1902, a grave deficiency admittedly existed in the accommodation for elementary scholars. The "intolerable strain" placed upon the agencies of the voluntary school system had resulted, when tested by even moderate standards, in insufficient accommodation in some areas; while the lever of "an increase in the rates" had been used to prevent the advent of school boards, especially in small districts. The Act dealt with the question of capital expenditure (1) by placing on the counties or county boroughs part of the charges for interest and repayment of capital; (2) by laying all additional capital charges on the counties or county boroughs, with the important proviso in the case of counties that the authority shall charge such portion as they think fit, "not being less than one-half, or more than three-quarters, of any expenses incurred by them in respect of capital expenditure or rent, on the parish or parishes which, in the opinion of the council, are served by the school." As a working compromise, this arrangement may be said to have justified itself. By spreading a part of the cost over the larger area, it widened the parochial view of the small school board. At the same time, the charge made on the area "served" acted as a check on any town or village which might desire expensive school accommodation at the cost of the county rates. The chief criticism urged against it is that, not only did it fail to relieve the public-spirited small area which, by voluntary effort or school board rate, had made, and paid for, adequate school provision for its own scholars prior to the passing of the Act, or which has, by voluntary effort, since done so; but such an area has also to pay its share of the buildings for less public-spirited localities. No part of the charges on capital expenditure is met by Government contributions, *ad hoc*. Thirty-four county councils impose three-quarters of the annual charges for capital on the area served by the school, one imposes two-thirds, and seven varying proportions; in the remainder, the charges are halved.

The loans on elementary school buildings outstanding on 31st March, 1915, amounted to £11,500,000 in the counties of England and Wales, not including the county boroughs.

National and Local Contributions to the Cost of Education. A point inviting comment is that, while the Government grant is almost constant to the number of scholars, the local contribution varies enormously. This, apart from the extravagance (or parsimony) of local authorities, is due to the fact that Providence has not seen fit to vary populations in proportion to the rateable value of the districts in which they are produced; rather is there exhibited a perverse tendency for them to occur in greatest density in neighbourhoods where property value is not relatively large.

Notwithstanding that an attempt has been made to adjust the balance by a special grant to such districts amounting to £350,000, education rates vary from 7½d. to 3s. 2d. in the £, the average rate being 1s. 5d. in general and 1s. 2d. in the counties. (There are, however, parts of all county areas where an additional rate is levied during the life

of the loan in respect of the proportion of capital charges.)

Governments lately have shown a tendency to place an increasing proportion of the cost on localities, in opposition to a strong feeling on the part of the local authorities and the teachers that already the burden on the ratepayers (not precisely the same persons as the taxpayers) is too heavy and too unevenly distributed. The more exacting requirements of Government inspectors with regard to staff, curriculum, and buildings; the imposition of new requirements such as the care of the children's physical health; and the steady transference of detailed administration, have increased and will continue to increase the local expense of education, while the Government grants have not been proportionately augmented. The tradition, alive more or less in 1902, by which the Government contribution equalled the teachers' salaries, leaving the locality to find buildings, repairs, supplies, and furniture, has died. Taking into account the annual cost of buildings, the present contribution from national sources does not err on the side of generosity, and some further recognition that elementary education is a national concern seems inevitable.

The Cost of Higher Education. An attempt to inaugurate a national system of higher education was made as a result of the Education Act of 1902. Previous to this date, the only provision was such as had been made by the great public schools, some private schools, by grants under the Technical Instruction Act (*q.v.*), and by grammar schools created under the bequests of various casually distributed "pious founders." The Act of 1902 placed on the county and borough councils the obligation for the provision of "education other than elementary," to be paid for out of the rates up to an amount of 2d. in the £. Beyond 2d., the councils were empowered to go only by permission of the Local Government Board. Under the Act, rates varying from ½d. to 3d. in the £ are levied by the various authorities. The expenditure on this branch of education has now reached a total of £5,250,000.

Higher education may be divided into secondary, including preparatory classes and training of teachers (chiefly teachers of elementary schools); technical, art, evening, and similar schools and classes; and university education, including institutions for specialized education relating to agriculture and the various arts, professions, trades, and industries.

The cost of the first group (secondary schools) amounts to £1,500,000 yearly. The annual cost of a scholar in a council secondary school is £13 10s., of which 31 per cent. is provided from national funds, 1 per cent. from endowments, 33 per cent. from fees, and 35 per cent. from local rates.

In foundation schools, the cost amounts to £17 2s. per pupil, proportioned as 20 per cent. from national funds, 19 per cent. from endowments, 47 per cent. fees, and 14 per cent. local rates.

These constitute the bulk of secondary day schools, but about £196,000 more is expended on schools under the Girls' Public Day School Trust and in Roman Catholic schools (*qq.v.*).

It must not be assumed that schools having a higher rate of maintenance are conducted extravagantly. Some are organized with an age range extending to 18 or more, whereas others retain few pupils after 16. Elaborately specialized curricula in the upper forms increase expenditure considerably; the size of the school, also, affects the cost per head.

Buildings for secondary schools are provided from endowments, or by a special rate on the area "served" by the school.

It is not always realized to what extent *free* secondary education has been provided under the Act of 1902. The Board of Education requires free places to the extent of 25 per cent. of the number admitted during the previous year. By means of these free places, by county scholarships, and by scholarships provided out of various endowments, one-third or more of secondary school pupils receive their education free of cost to their parents, except for travelling expenses, clothing, and board. For county and other scholars, even these supplementary expenses are frequently defrayed.

The total expenditure may be summarized as £1,888,070 for secondary schools, including pupil teachers' training, but excluding loans; £1,976,460 on technical, art, and evening classes; £208,887 for the training of teachers; administration, £270,224; loan charges, £502,659; other payments (chiefly for examinations and under the Choice of Employment Act), £186,072: amounting in all to £5,032,372.

W. A. B.

FINE ARTS, THE.—The study of the principles and history of the Fine Arts is, as yet, poorly recognized as a part of general education in the British Isles, where only one university incorporates it in its curriculum as co-ordinate with the traditional studies of the higher education. In Continental and American high schools and universities it is firmly established; for example, in the University of Berlin there are a dozen teachers devoted to different aspects of the subject. Our attitude is due partly to the traditional British view of the Arts as somewhat frivolous and quite detachable ornaments of life; and partly to the impression, produced by the brilliant writings of John Ruskin, that art is a field for rhetoric rather than for the operations of sober reason. Outside Britain, however, educational practice fully justifies the opinion that Art, as a subject of serious scientific study, is entirely on the academic level and offers exceptionally favourable educational advantages. Every study in an academic curriculum should have (1), as its primary object, the training of the mental powers. Over and above this, there is an obvious value in studies that (2) supply the mind with a store of knowledge stimulating to intellectual activity, and yet useful in practical life; and (3) on the ethical side, suggest and encourage ideas of a refining and ennobling order. Some of the most important traditional studies are admirable for the primary purpose, but of comparatively little value otherwise, while (2) and (3) may be served by studies that do not supply systematic mental discipline. But the study of Art has a singularly wide educational range, training and exercising functions of the more practical as well as of the higher and more ideal kind.

The Value of Art Study. Its value is threefold. It is, in the first place, disciplinary, because the method of investigating the artistic relics of the past—such as the fragments of Greek sculpture—is in these days thoroughly scientific, necessitating acumen, close observation, memory, the habit of careful comparison, and a faculty for the critical estimation of evidence. Moreover, it draws out in

the learner a power upon which the ordinary subjects of the literary curriculum make no demand, namely, the power of remembering, not words or sequences of ideas, but objects. The capacity to do this is a practical asset for life of no little value.

Secondly, the study supplies an immense store of information about the life of the world and the condition of the human mind at all periods of the past. Few, even among aesthetic devotees, realize how large a part of human history is written in monuments of art. To understand the truth, we must enlarge our view as to what is the typical unit of Art. The characteristic work of art of to-day is the picture or piece of sculpture of the periodical exhibitions—personal expression on the part of the artist, an outcome of his so-called "individuality," and its appeal is to the few. If, however, we survey the history of the Fine Arts as a whole, there emerges—as the work of art *par excellence*, exceeding all others in scale, in beauty, and in fullness of expression—the great architectural monument, completed with decorative sculpture and painting, and supplied with fittings and furniture, each piece of which is a thing of beauty as well as of use. Monuments of this order are the expression of all the great peoples save the Hebrews, and of all the great periods of the past. The mediaeval Gothic cathedral and town hall are perfect examples, and so are the temples of the Greeks, and the vast utilitarian but, at the same time, artistic monuments of the Romans. If the characteristic structures of the older Oriental peoples seem to glorify the individual potentate rather than the body politic, they are none the less, as Hegel has claimed them to be, the outcome of the spirit of their times, for this spirit was embodied in the rulers.

Nor are these works merely instructive documents for national or local history. They are connected with the higher intellectual, emotional, and religious life of men, and possess a spiritual content which gives them a universal ethical interest. A learner who, through a study of the Hellenic temple, is made to understand the reverence for form, the *σωφροσύνη*, the care for fine accomplishment, that marked the Greek mind at its best, has increased not only his intellectual, but his moral, endowment; and this is the case, too, when the aspiring devotional spirit of mediaeval religion is seen to be incorporated in such a storied pile as Rheims or Chartres.

The Method of Aesthetics. There are other aspects of artistic study that can only be briefly indicated. The older philosophers regarded Art as one outcome of the aesthetic sentiment, the place of which in the mental economy of man it was their business to investigate. Proceeding deductively, they started with the abstract principle of the Beautiful—the object of this aesthetic sentiment—and worked down to the ultimate concrete embodiment of the Beautiful in works of art made by man. In recent days, the point of view has been changed, and the treatment has become inductive; so that, in philosophizing on aesthetics, a start is made with the concrete, with the simplest and most primitive ascertainable facts of art; and from these an endeavour is made, by induction, to evolve principles of universal application.

Now, these most primitive facts, which have only emerged into view in quite recent times, are among the most striking facts of Art that human history reveals, and afford abundant material for the modern science of anthropology. There was art, in its kind, of extraordinary excellence, among the cave-dwellers at a period, the remoteness of which is measured by tens of thousands of years; and the earliest civilized people of whom we know anything, the pre-dynastic race in Egypt, were accomplished workers in some of the artistic crafts.

The economics of such a situation offer a curiously interesting field of study. How is it possible, it may be asked, for savages in a primitive condition, when the struggle for existence is necessarily severe, to devote so much time and labour to pursuits that, to us, seem mere frivolity? The truth is that these early forms of Art, though, like all artistic activities, indulged in by the performers with a full sense of pleasurable freedom, are yet, in the hidden economy of Nature, forced on them in the interests of race education and individual advancement. The dance, or, to take another primitive form of Art, the rude stone monument, involves the disciplined efforts of a large number of agents working to order and in unison, than which nothing more educational can be conceived. Personal adornment confers distinction on the individual, and is of practical value in courtship, in council, and in war. Art can be seen to be, in a sense, of greater and greater importance the further we go back in the records of humanity; our impression of it as a serious element in human life is proportionately increased.

Thus it may fairly be claimed that the study of Art, pursued on these broad lines, is highly educational, bringing the learner into touch with some aspects of modern science as well as with the older metaphysic; introducing him to the history of ancient and mediaeval peoples under conditions of peculiar interest; training him in investigation by scientific methods into material that furnishes his mind, not only with knowledge, but with informing and ennobling ideas; and, finally, opening out avenues along which he may walk amid sights of beauty: effluent, in the Platonic phrase, of healthful influences blown from good places. G. B. B.

FINE ARTS AND THEIR INTER-RELATIONS, THE.—The title of this article at once brings us up against a fundamental doctrine—the doctrine of the Unity of Art. What is meant by the phrase is this. The forms of Art are various; but, at bottom, all of them are the expression of one and the same thing, namely, human emotion and imagination sensibly embodying and communicating themselves. This is the ultimate account of Arts so different as, for instance, are those of Literature, Music, Dancing, Architecture, Painting, Sculpture. Nor is to say this merely a transcendental, academic assertion. The truth, once really grasped, is fruitful of many practical results. For our immediate purpose, however, we are restricted to a consideration only of the Arts Formative and Pictorial, for it is to these specially that the term Fine Art is ordinarily applied. Within comparatively recent years, this doctrine of the Unity of Art has undergone, so to say, a kind of renaissance, and been much insisted on. Thinking of individual influence, and of our own country, undoubtedly this has been largely the result of the teaching of two men, Ruskin and William Morris. Based upon and embodying their teaching, some five-and-thirty years ago sprang the movement known as the Arts and Crafts Movement. It is notorious now the world over, and its practical influence has grown to be as wide as unquestionably is its repute. One immediate result of this

movement showed itself in a growing width of significance coming to be attached to the terms Fine Art and Artist. Until well within the memory of the elder of us, their significance was restricted indeed. The term Fine Art stood practically for no more than Picture-painting and Sculpture. Even Architecture was regarded rather as a profession than as an art; while as for the artistic crafts, these were looked upon merely as so many forms of trade-work. The one annual exhibition of art was that of the Royal Academy; and the Academy was virtually an exhibition of pictures: even sculpture and architectural designs made but an insignificant annexe to these. Perhaps nothing can show more significantly how times have changed and men's conception of Art enlarged than an Exhibition, in 1916, of the Artistic Crafts at Burlington House under the immediate sanction of the Royal Academy itself.

Alfred Stevens. We may pertinently here recall the name of Alfred Stevens. Alfred Stevens is allowed on all hands to be one of the greatest artists that England has produced. His masterpiece, the Wellington Monument in St. Paul's, is known to everybody. But Alfred Stevens was not only a sculptor; he was an architect, a painter, a decorative designer, as well. It was a saying of his that he knew of only one Art, which included Architecture, Sculpture, Painting. In that dictum, and in his own practice, he proved himself to be of the lineage of the great Italians, of his prototype Michael Angelo. There was no form of design which, as an artist, he thought of as beneath him. And the result of this wide knowledge and sympathetic study showed itself in all his efforts. His larger work is characterized by a delicate refinement born of care over his small craftsman's designs; and these latter are characterized by a dignity of effect that unmistakably reveals the architect's and sculptor's sense of style and structure. It is, indeed, only once in many a long day that a genius such as Stevens arises, combining in himself at their highest so many varied gifts. But, when he does arise, he shows us the value to each gift of such a combination with others; he shows what their inter-relation one with another effects. He sets an ideal before us, which, however we may fall short of it in realized practice, yet does tell upon our practice. For, in truth, as the old proverb has it, " He shoots higher that aims at the moon, than he who means a tree."

The Scope of the Fine Arts. Through the wider and sounder apprehension of Art, of its meaning and importance, now gradually being re-awakened in us, we are coming to see that the epithet Fine must no longer be exclusively appropriated by but one or two of its branches, however exalted, as, for instance, are unquestionably Painting and Sculpture. To use a common distinction, to the Minor Arts as well as to these Major ones, the epithet may properly be applied whenever they display artistic imagination and technical ability. That man must as truly be called an artist, a worker in Fine Art, who makes a beautiful jewel or cabinet, as he who paints a beautiful picture. It is here precisely as in literature with the word poet. Herrick, for instance, is not less genuinely a poet than Milton is, though Herrick gives us only his *Lyrics to Julia*, while Milton gives us *Paradise Lost*. Still, the ring of true poetry is in both men; and it is merely a confused idea as to what poetry really is that would deny the name to work upon the lower plane, restricting it wholly to that upon the higher. In the same way, the terms Art, Fine Art, Artist, are properly applicable to any and every work and workman in this province of creative energy, where there is shown imaginative invention and technical skill. Certainly it was so, to take but one instance from history, in the great age of Italian Art. Certainly it must be so in any age in which Art is in the healthy condition of flourishing, not as a luxury for the privileged few, but as a vital interest of the community at large.

Educational Aspects. To turn to Education: there remains, indeed, yet much to be done; but nobody of experience, and without prejudice, would deny that, in recent years, striking advances have been made in the matter of artistic training here in England. One reason of this is that in our Technical and Art Schools opportunity is now given the students of far wider practice and education than formerly obtained. In the best of these schools, a varied selection of examples of fine work is to be found always ready to hand for purposes of study; while, apart from instruction in drawing and design, there are classes in painting, modelling, and in practical work at many of the artistic and industrial crafts. Further, in some of the schools a course in elementary Architecture is part of the ordinary curriculum for most of the pupils; and a number of lectures are provided, these delivered not unfrequently by outside authorities of eminence, on the history and technique of various special arts, or upon the History of Art generally. These latter lectures, in particular, all the students are not only encouraged, but are expected, to attend with the end that they may thus obtain a broader, more intelligent outlook upon the significance and course of Art in different countries, times, and directions than is possible if their entire energy is absorbed in learning but some one single specialized craft. The result of this more liberal condition of things prevailing in our schools is certainly not that the students are turned out " Jacks-of-all-trades and masters of none." The result rather is that even those students whose business it is to learn some one of the more restricted arts, for instance, that of Printing, produce work of a fresher and more intelligent character, showing often some quite real initiative. Clearly, their introduction, sound however slight, to a more extended comprehension of Art, to some insight into the development of other branches of it than their own, to an understanding of all these as being various expressions and applications—intimately related one with another—of certain underlying common ideas and principles, has awakened a new interest in them and sharpened their wits.

Architecture, Special Position of. It is a commonplace to speak of Architecture as the Mother of the Arts: and, so far as historic times go, there is much truth in the phrase. The earliest important buildings in a nation have been those devoted to divine worship; and it is for the adornment of these, or for the purpose of the services conducted in them, that the most choice art of all kinds has been evoked. Naturally, it is this fact that confers upon much early art a certain restraint and dignity; and it is by no means fanciful to say that, throughout history, so far as Architecture has flourished and the various Arts have kept in touch with it, it has been greatly to the advantage of these latter in directness of purpose, largeness of treatment, and sobriety of motive. We have already noted the case of Alfred Stevens. Even though his was an entirely unique genius, it suggests some practical

counsel. For serious students in almost all the Arts (if not, indeed, absolutely in all) some historical study of Architecture, and an elementary course to initiate them at least into some of its first principles and practices, could not be other than of first-rate service. It would be foolish, indeed, of them on the strength of this to suppose themselves capable of architectural designing; but a little serious study of this austere, structural, comprehensive Art would mean a discipline of thought and hand, that would assuredly leave its mark upon the execution of their own special work, whatever this might be.

S. I.

FINGER MANIPULATION.—The invention of signs to represent numbers is probably older than that of any form of writing. But the origin of counting by the use of signs may not be so ancient as is generally supposed. Uncivilized tribes are slow in acquiring the power of apprehending even small numbers, and rarely go beyond the number of their fingers. The earliest signs for numbers were undoubtedly the ten fingers, to which our decimal notation is due. The rude method of counting and calculating by finger-signs has developed into a very complicated system, especially among pedlars in Eastern Europe, where various positions of the fingers are employed to denote numbers up to 10,000. Many Greek and Roman writers make references to the use of fingers in expressing numbers; and systems employed in England, and described by Bede and other writers, continued to be in use until the middle of the sixteenth century, when modern arithmetic was introduced into the universities. The following description illustrates the use of fingers in multiplying: *e.g.* 8×9; since $5 + 3 = 8$ and $5 + 4 = 9$, raise 3 fingers on one hand and 4 on the other. Add 3 and 4 to make 7 tens. Multiply 1 and 2 (the fingers *not* raised) to make 2 units. Hence the product 72.

FINGER METHOD OF DEAF TEACHING.—(See DEAF-MUTISM AND EDUCATION.)

FINLAND, EDUCATION IN.—When Pestalozzi's plans for national education reached Finland at the beginning of last century, there were already in existence there, at Abo and Helsingfors, several schools on the Bell-Lancaster system. The ordinance for establishing the system of Folk Schools in Finland was issued 11th May, 1866, in substantial agreement with the proposals drawn up by Pastor Uno Cygnaeus, "The Father of the Finnish Folk School," who thereupon as Chief Inspector gave it its organization. (See CYGNAEUS.) According to Cygnaeus's proposal, the folk school had for its object to train men in their duties as citizens, and not merely to impress upon them religious truths or Church dogmas. It should be governed, therefore, by a Council for folk schools, and not by the cathedral chapter. The Finnish Folk School has, in its working, right down to the present time, taken a more independent position than the corresponding schools in the other northern countries and in Germany. The so-called "real" subjects received from the first a prominent place in the time-table. The instruction in handwork aims at developing dexterity and enterprise, whilst at the same time adapting itself to the needs of daily life. Corporal punishment, which at a former period was employed exceptionally, with the consent of parents and head master, is now entirely done away with. Each school is under the government of a Board chosen by the commune, but the inspectors are chosen by the Government Department. The course in the country schools lasts four years, and consists of two classes with two divisions in each. No teacher is allowed to have more than fifty pupils in one class. Schools in the country are co-educational, but in towns there are boys' schools and girls' schools. Schools work thirty-six weeks a year. The pupils before entrance should have completed their ninth year, and for six weeks a year should have attended the Infant School attached to the folk school. The preliminary instruction in country districts is not yet fixed in all its details. In towns the folk schools have six classes, the two lowest of which correspond to the rural infant schools. The first instruction in country places is given either in the home or in ambulatory schools, for which the Church is responsible.

Seminaries. There are in country places eight seminaries: six Finnish and two Swedish. Of the former, two are co-educational, two for men and two for women. Of the entire population of the country, about five-sixths speak Finnish in their homes; but in the capital, two-thirds are Finns and one-third Swedes. One of the Swedish seminaries is for men and one for women. The course extends over *five* years. To give teachers opportunities for further training, supplementary courses have been arranged at the University since 1907. The Commune provides the teacher with a free dwelling, firing, and certain payments in kind. Since 1908 the State contribution to teachers, both men and women, amounts to 900 Finnish marks (= francs), which is raised to 1,100 if the teacher be married and has the care of a family. After 5, 10, 15, and 20 years' service, there is an addition amounting each time to 20 per cent. of the initial salary. But by what is called the "dear-time supplement" salaries have had to be many times increased according to the circumstances in each locality. There is, as yet, no compulsory school attendance in Finland; but since 1898 the Communes have had to divide their areas into districts, in each of which a school must be established as soon as thirty pupils of school age offer themselves. Since 1889, 42 people's high schools have been established—28 Finnish with 1,516 pupils, and 14 Swedish with 299 pupils.

Secondary Education. The State secondary school in Finland, when it has eight yearly classes, bringing the pupils to their eighteenth or nineteenth year is called a *lyceum*. In 23 of the 32 lyceums, Finnish is the language of instruction; Swedish in 9. Of these 25 are for boys, 4 for girls and 3 are co-educational (*samlyceums*). *Four* of the 32 lyceums are classical lyceums and 26 real lyceums; but in the real lyceums, pupils may take Latin in the higher classes and have a shorter course in mathematics and physics. There are also two *normal* lyceums in the Capital—one Finnish and one Swedish—which serve as training colleges for such secondary teachers as are university graduates. These are double schools, having each a full real line with 8 classes and a full classical line. The goal to which the education in these schools is directed is the State leaving examination (*student examen*) which here, as in the sister countries, serves as the sole passport to the university. This examination is now entirely held in the schools (no longer in the university) by means of written tests; and is conducted by a commission appointed in part by the Education Department and in part by the University of Helsingfors.

The State has also 12 schools in the provinces, which have only five classes of the eight. Those who have passed through these so-called middle schools or the five classes corresponding to them in the lyceums receive a certificate, which gives admission to the lower branches of the civil service or to technical schools. There are also 16 State schools for girls (*Flickskolor*): two in the Capital with seven classes each, and the rest with five. The two in the Capital—one Finnish and one Swedish—have advanced classes, which serve both for the training of teachers and for the higher education of women.

Private Secondary Schools and Higher Education. Alongside these State schools with 12,000 pupils, are about 100 State-recognized "private schools" (*i.e.* schools established by the Commune, by a company, or by an individual), with an aggregate of about 15,000 pupils. No such school may be established without permission from the State; and the most important of them—about two-thirds of the whole—receive substantial grants (about £300 a year for each class that corresponds to one or other of the eight classes of a lyceum). Applications for grant must, in addition to the particulars given prior to the opening of the school, show that the school has been in existence two years, must give a statement of income and expenditure, a time-table and list of pupils, and must state the courses of instruction. Such schools tend to economy. The 15,000 cost the State considerably less than the 12,000 pupils in the State schools; and, moreover, it is in them that many new features and useful developments make their first appearance. The most striking of these is co-education, which seems specially suitable to Finland, and since 1883 has had a wide extension, almost entirely in these private schools.

The school Council (*Skolstyrelsen*) in Helsingfors is the supreme authority both for primary and for other schools; and meets sometimes in full session sometimes in three sections. It consists of a chief director, three heads of departments and twenty councillors.

The University, which was formerly at Abo, the old Capital, was in 1827 removed to Helsingfors. It has 164 professors and nearly 3,000 students. A new university at Abo (*q.v.*) with four faculties for Swedish students only, dates from 1919. (See also CYGNAEUS, UNO.) J. S. T.

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FINSBURY TECHNICAL COLLEGE.—The Technical College, Finsbury, London, E.C.2, of the City and Guilds of London Institute, was founded in consequence of the success which attended the establishment by the City and Guilds Institute in 1879 of the evening classes at Cowper Street, in the subjects of Electrical Engineering and Chemistry. The foundation stone of the present building was laid on 10th May, 1881, by H.R.H. the Duke of Albany. The accommodation very quickly became inadequate, and the work overflowed into neighbouring premises, with the result that a new wing, devoted chiefly to Civil and Mechanical Engineering and Applied Art, was added to the old building in 1906.

The original schemes of instruction for the day classes embraced Technical Chemistry, Applied Physics, and Electrical Engineering; but Mechanical Engineering was added when the building was opened. The evening class instruction included these subjects, together with Applied Art and Building Trades Classes. Special courses of evening lectures on different branches of engineering science and practice were given from time to time by outside specialists. The day courses were framed to give as practical a college training as possible, the students spending nearly all their time in the laboratories, drawing office, and workshops. The technical instruction given was of such a nature as to give persons such a practical preparatory training in science as should fit them later to fill posts of responsibility in industrial works. The records of the college show that over 95 per cent. of the students have entered some electrical, mechanical, or chemical works; that is to say, they left Finsbury to enter the practical side of their profession. This percentage is as high now as in the early days and, as a consequence, the courses of instruction are schemed on broad lines, specialization only being permitted in the third year; no student can obtain a certificate without having worked for a certain time in other departments as well as in the one from which he obtains his certificate.

Personnel and Work. The direction of the work in the Department of Technical and Applied Chemistry has been successively under Professor H. E. Armstrong, Ph.D., LL.D., F.R.S.; Professor R. Meldola, D.Sc., LL.D., F.R.S.; and Professor G. T. Morgan, D.Sc., F.I.C., F.R.S., the present occupant of the Chair of Chemistry.

The direction of the work in the Department of Electrical Engineering and Applied Physics has been successively under Professor W. E. Ayrton, M.I.E.E., F.R.S.; Professor Silvanus P. Thompson, D.Sc., LL.D., B.A., F.R.S.; and Professor W. Eccles, D.Sc., A.R.C.S., M.I.E.E., who is at present the head of this department.

From 1883 to 1896, Professor John Perry, D.Sc., F.R.S., was Professor of Mechanics and Applied Mathematics; and since 1896 the direction of the work in Civil and Mechanical Engineering has been under Professor W. E. Dalby, M.A., B.Sc., M.I.C.E., F.R.S.; Professor E. G. Coker, M.A., D.Sc., F.R.S., and at the present time, Professor A. J. Margetson, M.Sc., B.Sc., M.I.M.E. From 1885 to 1916, Professor Silvanus P. Thompson acted as Principal.

A special feature of the work at Finsbury College has been the continuous output of technical books and papers by members of the staff. The Finsbury Technical Manuals are known throughout the technical world, and special mention might be made of the large volumes on the *Design of Dynamo Electric Machinery* by Professor S. P. Thompson.

From the first, the teaching of Mathematics at Finsbury under Professor Perry was unique, and his original methods of instruction have been justified to the full by the results. It is not too much to say that Professor Perry's influence has been felt in every technical institute and college in the kingdom.

Since so many Polytechnics, etc., have sprung up all over London, each more or less capably fulfilling its function of giving evening technological training to trade apprentices, the need for this branch of the Finsbury work has disappeared. The main function of the college, as it exists to-day, is the training of its day students to fit them to become persons of responsibility in industrial works. The outlook is distinctly full of promise, especially

in the Department of Technical Chemistry, in which every teacher has been for a period in some chemical works of repute.

The Mechanical Engineering Department now attracts a large number of students annually. Since the opening of the College, this department has shown a steady increase in the number of its students; and inasmuch as the general prosperity of this country is bound up with its engineering industries, it is anticipated that the increase will continue. The large drawing office and engineering laboratory added in 1906 were greatly needed and are well used.

There are special third-year courses in Civil Engineering, Electrical Engineering, and Chemistry. These consist chiefly of practical work, and are so arranged that they can be adapted to the particular requirements of the students and to the industrial needs of the time. A. J. M.

FIRE PROTECTION AND DRILL.—In most modern public day schools the risk from fire has been reduced to a minimum by the progress made in building construction and the supervision exercised by the authorities. It is very important, however, that, in the event of an outbreak of fire, means of protection should be available, and the teachers and children able to leave the building quickly and easily.

If possible, schools for young children should be built on the ground floor level only, to avoid the panic in an emergency which might occur if they had to descend the stairs. In schools with more than one floor, the youngest should be on the ground floor and the seniors on the top floor. Two exits from each floor should be provided. Where it is impossible to provide two inner exits, an outside iron staircase should be fixed, fitted with a hand-rail, and with the sides protected by railings or strong wire netting. Doors, suitably indicated, and fitted with panic bolts, should be placed at the head of these exits. Instead of using panic bolts, it may be necessary to keep the doors locked. If so, duplicate keys should be placed in glass cases near them. The doors should be capable of being automatically fastened back. All doors should open outwards, and mats be sunk to the level of the ground. Long corridors ought to be divided by doors to check the spread of heat and smoke. Furniture or other heavy articles must not obstruct the passages.

General Precautions. The local fire brigade officer should be consulted about the provision of a fire main and valves. The following precautions should be noted: (1) An air space should be retained around steam or hot-water pipes; (2) gas fittings should be protected by wire globes, and guards provided for open fire grates and gas radiators; (3) care should be taken in the disposal of ashes, and a separate brick structure provided for their reception; (4) stoke holes should be free of lumber and under careful supervision; (5) cleaning material (oily rags, etc.) should be stored in metal boxes, to lessen the danger from spontaneous ignition; (6) electric fittings should be inspected from time to time by a competent electrician; (7) candles, tapers, and matches should be used with care; (8) portable appliances (small hand pumps, buckets of water, and blankets) should be on every floor, and first-aid ambulance materials will be found useful; (9) where chemical laboratories and workshops exist, extincteurs and buckets of sand should be provided. Flexible metallic gas tubes should be used.

Tuition and Drill. Teachers and senior pupils should be taught the use of the fire appliances by a member of the fire brigade. Fires can be easily extinguished if the appliances are quickly and efficiently brought into action; but, on discovery of a fire, however slight, notice should immediately be given to the fire brigade or police. Doors and windows then should not be opened more than absolutely necessary. A notice giving the position of the nearest fire alarm or telephone should occupy a prominent place. Schools used also for bazaars, concerts, cinematograph entertainments, etc., should be in direct telephonic communication with the fire brigade. All draperies in such cases should be treated with a fire-resisting preparation. A duplicate lighting system should also be installed.

In Birmingham, an exact model of a street fire alarm is lent to the various Council schools, its construction and use being explained to the scholars.

The drill given to the children should be simple, and periodical practices for the whole school held. The alarm should be given by some pre-arranged signal—a whistle or a loud-sounding bell could be used. Where several classrooms branch off from the main room and exit, electric bells should be installed in each. On receiving an alarm, the children should be taught to fall in on parade at once without confusion; the teachers should then march them to the nearest available exit, counting them on arrival outside the school. Monitors, to carry fire buckets, etc., should be appointed and should fasten back the exit doors, if automatic fasteners are not provided. It is essential that no excitement should be shown by the teachers.

The caretaker should be held responsible for the fire buckets being full of water, and the other appliances in a clean and good working order.

Though it is, of course, impossible to draft rules to apply to all schools, the notes given in this short article may be some guide. A. R. T.

FIRST AID.—First Aid to the Injured is "a special branch of practical medicine and surgery, by a knowledge of which trained persons are enabled to afford skilled assistance in cases of accident and sudden illness. The instruction begins and ends with First Aid, and the subject is taught simply, but thoroughly and exhaustively. The duty of the ambulance pupil ends where the doctor's commences, and there ought to be no overlapping, or clashing of duty or interests."

In the complex life of the twentieth century, the possibilities of accidents are so vast, that the need for skilled assistance in cases of emergency is self-evident. Hence it is of great importance that efficient First Aid should readily be forthcoming, and that the victim of accident or sudden illness should not be left to the ignorant handling of well-meaning but unskilled persons. The St. John Ambulance Association, during the many years of its existence, has issued certificates after examination to considerably over one million men and women in all parts of the British Empire, but there is still enormous scope for the further extension of this important branch of knowledge.

The Training of First Aiders. Whenever possible, the First Aid student should obtain his instruction from a member of the medical profession, though the training of persons to render First Aid to the injured differs essentially from that of the medical

student. While the latter is provided with apparatus scientifically adapted to his requirements, the First Aid student is trained to make the best use of whatever is at hand, his aim being to lessen, as far as possible, the injury already done and to prevent further mischief while awaiting the arrival of skilled professional assistance.

In treating a case, the First Aider must be able readily to decide: (1) What is wrong; (2) what is required to put it right; (3) the best means of doing what is necessary.

He must, therefore, first acquire an elementary knowledge of the structure of the human body, and of the normal functions of the more important organs and systems, so that he may be able to recognize those deviations from the healthy state that occur in cases of accident or sudden illness. He must make himself familiar with the course of the main arteries, and be able to locate with absolute accuracy and without hesitation the points at which pressure is to be applied to stop bleeding. He must be acquainted with the danger likely to result from a broken bone and know how to minimize it; the general rules for the treatment of cases of poisoning; the methods of promoting artificial respiration; and the best means of transporting the patient to his home or elsewhere with a maximum of speed and a minimum of discomfort.

Next, the First Aid student must be taught to note the causes and signs of injury, and how to draw conclusions as to the nature and extent of the First Aid treatment to be given, always bearing in mind that death is not to be presumed because signs of life are absent.

He must endeavour to secure the confidence of the patient and bystanders, with the object of readily learning the symptoms and history of the case, and be able properly to instruct them how to help him, remembering that unless this instruction is given in a clear and definite manner the assistance rendered is likely to be ineffectual and perhaps worse than useless.

By degrees, the student learns to draw correct deductions from the information gained, and to decide what is the matter. He must then consider the needs of the case; *e.g.* it may be necessary to remove or render harmless the cause of the accident, which may still be active and capable of causing further mischief; if there is more than one injury he must decide which presses most for treatment by himself, and what can best be left for the patient or bystanders to do or ignored until professional assistance can be obtained; bleeding or a fracture may demand attention; the patient's position may require adjusting or it may be undesirable to alter it; one case may require complete rest, in another the application of stimulation would be appropriate; the possibility of obtaining professional or other assistance must be considered, and the extent of treatment determined accordingly.

The needs of the case having been ascertained, the First Aider must then consider how they may be met. He may be unable to obtain assistance and may have to improvise material; on the other hand, the necessary appliances and abundant help may be forthcoming. The patient may be unconscious or may at first refuse to accept his offers of help, or they may be gratefully received and the patient able to give assistance, skilled or otherwise.

Qualities desirable in a First Aider. In addition to the knowledge of technical details, a First-Aid student who desires to excel in his ability to render help to suffering humanity must cultivate the qualities of observation, resourcefulness, discrimination, tact, and explicitness. Four of the five senses must be utilized to the fullest possible extent (occasionally, perhaps, even taste can be of service), and if the First Aider is the fortunate possessor of a well-developed sixth sense (*i.e.* intuition), he will be still better equipped for his task. The powers of observation and reasoning can be increased by practice, and should be so developed as to enable him adequately to deal with any emergency with which he may be confronted.

It may be thought from the foregoing that the qualifications required of an efficient First Aider are of such an extremely high order that they are unattainable by the average individual, but, provided the student is thoroughly well-grounded in a few important principles, is endowed with common sense, does not lose his presence of mind in an emergency, and has been trained to form deliberate conclusions, he should not hesitate to use his best endeavours for the alleviation of suffering when opportunity presents itself.

D. G. M.

Reference—

First Aid to the Injured—the official text-book of the St. John Ambulance Association.

FISHER'S ACT.—(See EDUCATION ACT OF 1918.)

FISHPONDS TRAINING COLLEGE, BRISTOL.—This College for women was opened in 1853 to supply the need of trained teachers in the dioceses of Gloucester, Bristol, and Oxford. Accommodation was provided for seventy-five students; and a school for girls and infants, already in existence, was used as a practising school. In 1859 the College was already full, and additions have since been made to bring the accommodation to about a hundred. In the early days of the College, the students were drawn chiefly from schools of the local dioceses, many of them having been carefully prepared under the direction of the College authorities during their apprenticeship. Only a few were Queen's scholars, and many came from poor country schools. A special feature of the training at Fishponds was the attention bestowed on domestic duties, including cooking, washing, and ironing.

The Code of 1861–1862 caused much anxiety owing to the reduction of grants, and the consequent increase in fees charged to students; but the council of the College were able to assist intending students during their years of pupil teachership, and for a time the period of training was reduced to one year. The Act of 1871 greatly increased the demand for places, and from that time the College has always been full.

The first principal was the Rev. William Smith, M.A. (1853–1871), who was assisted by his wife, his brother-in-law (a Fellow of Magdalen College), and the daughter of the Bishop of Gloucester. A cook taught practical domestic economy, and the matron taught the theory, as well as needlework. Since 1871, the principals have been the Rev. R. E. Richards (1871–1890), Rev. H. Proctor (1891–1895), Canon Compton Gill (1895–1907), and Rev. J. R. W. Thomas from 1907.

FITCH, SIR JOSHUA GIRLING (1824–1903).—He was born in Southwark; and in 1838 became a teacher at the Borough Road School, Southwark,

where also he was assistant master for two years. In 1850 he graduated B.A. at London University and, in 1852, M.A. in classics. In 1852 he joined the staff of Borough Road Training College, and became its principal in 1856. His teaching, his lectures on method, and his enthusiasm for literature had a very stimulating influence on his students, and through them on education in England. In 1863, through the intervention of Matthew Arnold Joshua Fitch was appointed Inspector of Schools by Lord Granville, and took charge of the county of Yorkshire. His three reports on education in Yorkshire admirably describe the condition of education in a county of great diversity of population in the early years of the 1861–1862 Code. His reports give boldly his views on education and the means by which it could be procured for the nation. From 1865 to 1867 he was Assistant Commissioner of the Schools Inquiry, and wrote reports on the endowed and private schools he had inspected. From 1870 to 1877 he was also Commissioner of Endowed Schools. From 1877 to 1883 he was Inspector in East Lambeth, and then became Chief Inspector for the Eastern Counties. From 1885 to 1889 he was Inspector of Training Colleges, and was retained at this post till 1894, five years beyond the normal age for retirement. Much of Fitch's work on Commissions of Inquiry in the years 1865 to 1869 strengthened Mr. Forster's hands in preparing for the Education Act of 1870. In 1888 he paid an official visit to America, and published the results as *Notes on American Schools and Training Colleges*. He also prepared a report on the Free School System in America, France, and Belgium. Outside his official work, Fitch's activities included membership of the Senate of the University of London (1875–1900), for which institution he had also been examiner in History (1860–1865, and 1869–1874). He lectured on Teaching at the College of Preceptors and at Cambridge, and his *Lectures on Teaching* (1881) established his position in England as an expert on school organization and method.

FIVE FORMAL LESSON-STEPS, THE.—The "five steps" of the Herbartians constitute, probably, the most admirable piece of pedagogical doctrine ever elaborated.

Like modern education, however, it utterly neglects the two factors: *Revelation* and *Time*.

Conviction of truth (like conviction of sin, sense of personal call, discovery of beauty, etc.) usually comes *with a flash*; it is not the immediate result of syllogistic reasoning on the pupil's part or of demonstration on the teacher's. There is something "uncanny," "miraculous," and very exciting about revelation when it comes; but a revelation of truth must be preceded by a search for, or, at least, a receptive attitude towards, truth. Thus there are in the intellectual process both a swiftness and a slowness quite unrecognized by the average educationist.

Turning now to the "five steps"—

The first is *Preparation*. The pupil's mind has to be prepared for the specific material about to be "presented." The chief dangers are over-elaboration and useless mystification: usually very few words are necessary.

The second step is *Presentation*.

The third step—*Comparison*—consists in the discovery of underlying resemblances and differences in the material presented.

The fourth step—*Association* (better, perhaps, Formulation)—is the clear expression of these results. The expression may take the form of a law or rule, though this, in most cases, will be empirical and provisional; in some cases, a mere summary or synopsis may be all that is possible.

The fifth step is that of *Application*. "The essence of the generalization is application."

There are considerable variations in the terminology of the five steps. Perhaps, too, they should be reduced, for greater effectiveness, to four (the "Example, Discussion, Rule, and Exercise" of Comenius is an admirable four-step formula); or to three: Observing (Stages I and II), Thinking (Stages III and IV), and Applying (Stage V). The study of detective stories, with their stress on the factor of *time* and *revelation* discussed above, will be found profitable by the reader; the investigatory or detective process is the five-step process in unconventional guise.

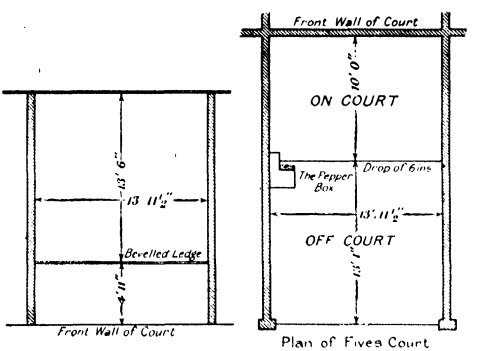
It is to be noted that the five steps are *knowledge* steps. Another scheme may be necessary when lessons in skill (or habit-formation) and lessons in aesthetic appreciation are (some day) to be given.

F. H. H.

FIVES.—Fives is essentially a game for boys, because it is a fast game, not in the way of running, but in rapidity of movement, with hard hitting and great quickness of turning of the body and movement of feet. Elderly people can play it, but they have to adopt quite different methods; and within so small a space as a fives court, they will be beaten by youths simply by the harder hitting and the bustling they will get, to meet which they are in all points just a trifle too slow. Most important of all is quickness of eye, for this is absolutely necessary in a game played by youths, with such rattling hard hitting and incessant never-ending turns and twists. But if the proper attributes of a game are considered—unselfishness, a maximum of exercise in a minimum of time (an hour and a half is quite long enough for a level match) and many thrilling moments, and, after all, these are things no true game should be without—not many better games exist.

For present purposes, only one form of fives may be considered, and that is the game that was purely an Eton product and originated by a happy device of the Gothic architects of some centuries ago. Enthusiasts can easily see for themselves how the Eton game started by examining the north side of the chapel, and particularly one part where the combination of a floor slightly sloping down from the front wall, and between two buttresses and another floor not bounded by any side wall, which, roughly speaking, more than doubles the length of floor space and has the famous pepper-box on the left side of the court. The total length of a modern Eton fives court is 23 ft. 1 in., the breadth 13 ft. 11½ in.; the line on the front wall above which the ball must be hit is 4½ ft. from the floor. The floor is divided into two sections: the on-court (nearest the front wall) is 10 ft. long, and 6 in. higher than the off-court, which is 12 ft. 7½ in. in length. The top line above which the ball must be hit is bevelled, and a ball hit on the slope will frequently go out of court and counts against the striker. The pepper-box is on the left side of the court, and it is the object of all good players to aim at this, for its angles and eccentricities are numerous.

The ball weighs a little more than an ounce and a quarter; the players wear gloves more or less padded and indiarubber-soled shoes. The game is 15 up, and is played by four players, two on each side. It is the object of the in-players to score, and that of the out-players to prevent scoring. The game starts by the in-player standing alone on the on-court and throwing the ball high on the front wall near the right-hand corner, from whence it travels to the side wall and drops just on the off-court not far from the side wall. One of the out-players is at hand to return the ball with all the vigour he can, either round by the right side wall and on to the front, back to the in-player, or hard and straight down the right side wall to the in-player's partner; and so the "bully" begins and goes on until one of the players fails to return over the front line. It is part of the principle of the game that the out-players should have the attack,



for the ball has to be thrown in such a way as to suit the taste of the first out-player who may decline the throw until he gets one to his liking. This first hit is with young players of tremendous power and strength, and is as a rule too fast for the older man, who is alone on the on-wall; youth, however, can do anything, but all the same the first stroke is of great importance, for it is always difficult to return. If the in-players win the "bully," they score one; but if they lose, the in-player's partner takes the place on the on-court, and when he is knocked out the out-players have their turn, and so the game proceeds.

While the "bully" is going on, the object of all the players is to kill the ball; and the most efficacious stroke is a cut down or volley sent to the pepper-box, which is always difficult and often impossible to return. The in-player and the striker being in the best position to volley, do most of the killing; and the duties of the two players off-court are to defend by continually returning the ball, being always careful not to send the ball too high, so that the on-wall players can volley and kill it. Sometimes the "bully" lasts for thirty or forty strokes, and as a form of exercise for all the muscles of the body, it is hard to find any game its superior; and, as it is essential to keep your temper, and for the two partners to work well together and play unselfishly, it is an excellent training for character.

R. H. L.

FLORENCE AS A CENTRE FOR FOREIGN TRAVEL.—(See TRAVEL CENTRES ABROAD.)

FLORENCE, ROYAL HIGHER INSTITUTE OF PRACTICAL AND POST-GRADUATE STUDIES.—This Institute, which is a comparatively recent creation, is connected with the old Florentine College solely by a few traditions preserved through the centuries.

The College, established by decree in 1321, was opened in 1348 (G. Villani). In 1359, Clement VI granted several privileges, among them that of conferring degrees in theology. In 1362, under Charles IV, it became the Imperial University. Towards the end of the fourteenth century, the College offered a complete course of studies; and in 1373 the "Dante"-Chair was instituted, Boccaccio being the first lecturer. After some interruption (1383–85, 1404–12), the College began to develop rapidly, this being due in the first place to citizens like Niccolō of Uzzano and Palla Strozzi, and later to Lorenzo the Magnificent. During the fifteenth century, the College staff included many of the greatest humanists, such as Crisolora, Francesco Filelfo, and Angelo Poliziano. These made Florence the greatest centre of Italian culture. The restoration of the university at Pisa diminished the importance of the College at Florence, which lost its chair of science. After a brief interval, during which a complete course of studies had once more been constituted at Florence owing to the transference to that city of the Pisa University (1497), the College began to suffer from a lack of literary and philosophical chairs. Leo X, in 1515, restored to the College the status of a university, and confirmed the archiepiscopal privileges. These rights, except that of conferring decrees in theology, were afterwards suppressed by the Duke Cosimo. The College remained incomplete, nor did it ever again acquire the real character of a university, though the interest taken by Ferdinand II and Cosimo III procured for Florence the assistance of men of learning, such as Torricelli, Viviani, and Redi; and created chairs of medicine, which were permanently fixed at Florence. In the eighteenth century, separate scientific institutes flourished occasionally, at the autonomous initiative of men of learning. The Grand Duke Peter Leopold introduced courses for professional purposes (for barristers, solicitors, etc.); a "lycée" for physical and natural science was instituted at the beginning of the eighteenth century, but the university as such had practically ceased to exist.

Chairs and Schools of the Institute. The present Higher Institute was founded in 1859 by the Tuscan Government of Bettino Ricasoli, with the object of encouraging scientific research and applied science, in contradistinction to the universities, which usually only prepared students for the professional diploma. The School of Medicine and Surgery of S. Maria Nuova, in accordance with the law of 1844, already provided a two-year post-graduate course. The Institute, with its four departments of letters and philosophy, law, medicine and surgery, and physical and natural science, was intended to fulfil an analogous function. But difficulties beset it at the beginning, and there was no escape from the competition of the Tuscan universities. The Department of Law was suppressed in 1868. The Department of Letters had not the students it required, but simply listeners. Owing to the persistent efforts of Pasquale Villari, the Departments of Letters and of Science at last (1867) obtained permission to start normal courses for the preparation of secondary teachers as well as those for

Boy Scouts receiving instruction at the Chief Fire Brigade Station, Birmingham

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Fishponds Training College, Bristol

PLATE XXXIX

post-graduates. That of medicine, which was already permitted to prepare for the last two years of the university course, ended by adopting the complete course. The Institute thus became a real university, qualified to confer, in addition to degrees, post-graduate diplomas requiring a year's attendance for scientific research after the granting of the degree. The Convention of 1872 increased the number of chairs on the modern side. The law of 1889, modified by the decree of 1900, established the financial administration of the Institute, which was considerably improved by the law of 22nd June, 1913. As regards administration, it is autonomous; while the Government, the municipality, the province and the savings bank of Florence combine for its maintenance. At the head there is, instead of a rector, a superintendent, who is outside the teaching staff. In all other respects, it is subject to the Higher Education Acts of the State.

The Institute has at its disposal many scholarships for the teaching and post-graduate courses. With the perpetual growth of its scientific endowments, it has become a real nursery of able scholars and excellent teachers for the whole of Italy. The traditions of their method in history and philology, and their experimental research, are held very high. The Faculty of Letters includes a school of paleography, thus serving both for philological studies and for the preparation of archivists. There is a chair and a laboratory of experimental psychology, and several chairs of Oriental languages and literature. The scientific institutions are numerous, among them being a very important Botanical Garden, a large new Institute of Physics, a Pasteur Institute, and an X-Ray Institute.

The Institute boasts many distinguished professors, among whom the distinguished historian and pedagogue, Pasquale Villari, whose life (1827–1917) is bound up with that of the Institute, takes the first place among all. G. CALO.

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FLORIOS, THE.—(See REFUGEES [RELIGIOUS] IN ENGLAND.)

FOLDING (PAPER).—(See PAPER TEARING, CUTTING, FOLDING, AND MODELLING, HOW TO TEACH.)

FOLK-DANCING, THE TEACHING OF.—For the purposes of this article, the term "Folk-Dancing" will be restricted to those traditional dances which have been preserved in the memories of the actual dancers themselves from generation to generation. The principal dances of this character are the Morris and Sword Dances, the Cornish Furry Dance, and the Staffordshire Horn Dance.

Until the revival of folk dancing in 1905, these dances, with one exception, had never been committed to paper, nor were they included in any text-books. The one exception is found in a book on dancing compiled by a French monk, who wrote under the anagram "Thoinot Arbeau." This book is in the British Museum.

In discussing the best way in which these dances can be taught to the present generation, it is very important to keep constantly in mind their origin; the kind of people who danced them, and have preserved them and passed them on, and, most of all, the entire absence, until the recent revival, of any set rules or regulations, of any technique or technical terms whatever. There is abundant evidence to prove that these dances are religious in origin, that they were part of the ceremonial of a religion older than Christianity, and that when the Christian religion was introduced into England much of this pagan ceremonial was incorporated into that of the Christian Church. From the early days of their religious significance, through the long years when they had become merely part of the fun of village wakes, fairs, lamb-ales, and other pastimes, down to our own day, when, before 1905, they were danced in only a few villages and small towns at Whitsuntide, on "Plough" Monday, and other isolated occasions, they seem to have been danced and passed on solely by the peasants, who were entirely unlettered, musically speaking, and certainly knew nothing of dance technique or anything at all approaching the ideals of a modern teacher of the art of dancing as we know it to-day on the stage or in the drawing-room.

Development of Folk-Dancing since 1905. I have had a good deal of experience in arranging for the teaching of these dances, for the whole revival was begun in my Working Girls' Club by two bricklayers, who came to London on my invitation. Since then I have had almost thirty country dancers up from different parts of the country, including two Flamborough fishermen, who taught a sword dance. Also, the working girls taught by these traditional dancers have, in their turn, taught the dances from one end of England to the other—in schools, training colleges, clubs for working girls and boys, factories, and villages. The folk-dances are now part of the recognized curriculum of the schools; but, until after this official sanction, the members of the Espérance Guild were the only teachers of the dances other than the traditional dancers themselves. It is the extraordinary success that has followed this way of passing on the folk-dance that has convinced me that the only persons by whom they can be effectually taught are the traditional dancers themselves and those who, also unspoiled by conventional ideas of dancing, have been directly taught by the country folk. The text-books brought out since 1905 should be used only as reminders after the dances have been "shown" (as the traditional dancers call teaching). Still more important, I think, the dances should not get into the hands of professional dance-teachers, who would make them into stage dances, or, worse still, into drawing-room dances. I am afraid when I see young ladies in elegant dancing-shoes dancing a morris dance, or young men from the universities dancing and attempting to teach the folk dances of the peasants. These dances belong essentially to the people; at one time solely to the villagers and the workers on the land; to-day they belong also to their descendants in the towns—to the factory lad and lass, the motor driver, the artisan. They are the natural expression of the most primitive emotions of simple folk, and that expression must have behind it the actual life which it is meant to express. The only

other type of person who can come near them is the artist who has the power, through his personality, to express through his artistic perceptions the life and emotions of another. Such artists are rare. The ordinary educated person who tries to dance a folk-dance generally presents only a travesty of the real thing, and is quite unable to reproduce the atmosphere in which the dance is a real and living thing. But the fact that so many children in the schools have been taught in the right and traditional way should do much to preserve the simplicity of the folk-dances, and to obviate the dangers of other more sophisticated attempts at passing them on. M. N.

FOLKEHÖJSKOLER.—(See PEOPLES HIGH SCHOOL.)

FOLKESKOLE.—(See DENMARK, EDUCATION IN.)

FOLK-LORE, THE EDUCATIONAL IMPORTANCE OF.—One is safe in stating that the primary object of education is not so much to impart a certain amount of knowledge as to stimulate the imagination. However profound and vast the knowledge may be that is acquired by study, it is of necessity imperfect, and falls short of the results achieved by imagination. Behind every progress lies the driving force of imagination. The lore of the people is the home of such imagination. It is the primitive philosophy of the unlearned; it is the result of the experience of past ages, some written down, some handed on by word of mouth. It represents the final shape in which that experience—spiritual and material—became crystallized in the mind of the people. It finds expression in quaint customs and ceremonies, and in practices and beliefs dubbed "superstitions." It lurks mysteriously in the nursery, the last refuge of fairies and sprites. We find it in the old leechcraft and in children's games. It lies at the root of Shakespeare's dramas and Chaucer's tales, not to speak of a host of other writers who owe their inspiration to the playful fancies of popular imagination. Nay, folk-lore has become, as its name denotes, the most characteristic expression of the national spirit. It stirs the imagination, and teaches young and old where to find the poetry of life—animate and even inanimate, for in folk-lore everything lives and is animated. Remove the spell, and a stone or a flower will assume its prior human form. There is no line of demarcation between animate and inanimate nature. The constant change postulated by modern science has been anticipated by poetic imagination, which bridges time and space with breathless haste.

What Folk-lore Teaches. Folk-lore teaches that everything has a meaning. The doctrine of the value of *small things* has first been preached by folk-lore, to which everything, even the smallest mite, or flower or beetle, is of supreme value; not so much, it is true, for what it is, as for what it may be.

Imagination takes the place of exact knowledge, which often lags behind haltingly. The world is neither drab nor dull, if only we could get rid of our colour-blindness. There are colours even beyond those of the rainbow. Folk-lore has seen them by intuition; now it sees them as with the eyes of ants. True, the helpful ants and bees of the fairy tales have migrated now to the studies of Lubbock and Maeterlinck, and the lore of the beetle has been partly told by that great French scholar, Fabre. The plant lore opens the eyes to the beauties and possibilities of forest and field, of dale and hill. Does not every flower tell a tale, and is not many a herb a helpful friend in pain and suffering? Folk medicine, some of which is decried as quackery, has no doubt much in it that modern medicine—itself far from infallible—could not deny. But many amends have already been made in the attempt to popularize the older leechcraft and its drugs. Therein some of the tried experiments of the past have been preserved, though sometimes they have been misunderstood. Still, it has placed easy remedies at the disposal of the folk, and made them see virtues in flowers and herbs which otherwise would have been long ago forgotten.

Popular weatherlore is perhaps as reliable as modern meteorology. It has the superior merit of drawing attention to peculiar phenomena in the habits of animals and plants, and points to a close connection between the obscurer manifestations of the life of Nature. To read in this book of Nature is a greater achievement than to spell the riddles of the alphabet. It is an ever-living fount of inspiration and imagination.

Folk-lore and History. At the same time, the study of folk-lore has a serious historical value. Nowhere is the principle of evolution, of birth, growth, and decay, of disappearance and survival, so clearly taught as by folk-lore. Take charms and amulets. Each one of them has a life-story to tell. They are not of to-day, nor of yesterday, and yet they are sure to be of to-morrow. What appears to be new is, in reality, very old. We learn to recognize that the modern is the child of the ancient. Born of the innate fear of the invisible, and of the desire of warding off evil before it overtakes us, some of these charms, in a very decayed form, carry us back to old-world ceremonies and practices, beliefs and superstitions. That which now appears as a meaningless toy or ornament had, in former ages, a profound mystical significance. The key to that mystery is in the hands of the student of folk-lore, and he opens therewith the gate to the palace of religious fancy and mystical imaginings. Let us turn to the games of children, to counting-out rhymes, and other now quite innocent and often meaningless pastimes. A good many of them, as well as popular dances on certain solemn occasions (popular feasts), are the latest representatives of old religious ceremonies and cults. Popular songs and ballads often turn out to be late adaptations of older motives. The modern hero, who looms largely in the eyes of his contemporaries, is often a mere substitute of an older, now forgotten, hero. In all these changes, what attracts most and invests the study of folk-lore with importance is that we are thereby surprising the work of the people's imagination. It is a living picture of the spirit of the nation, which remains constant amidst manifold changes. It is a chapter in the study of national character and psychology of the relation of one "folk" to another "folk."

True Education. One of the fundamental principles of education is to open the eyes to things great and, above all, to things small; to teach man not to judge by the mere sight of his eyes; to throw a glamour of poetry on even the most ungainly things; and to allow free play to fancy and imagination, the only true "well of youth" from which nations drink themselves back again to the age of youthful hope and inspiration. M. GASTER.

FOLK-LORE SOCIETY, THE.—Folk-lore is "the Learning of the People," and the name was coined in 1846 by the late Mr. W. J. Thoms as a substitute for the expression "popular antiquities." The relics of folk-lore are fast disappearing, and the Society was formed in 1878 to collect, record, and study those which remain.

Folk-lore includes all the traditional beliefs, customs, stories, songs, and sayings current among backward peoples, or retained by less cultured classes among advanced peoples. "It comprises early beliefs about the world of Nature, animate and inanimate; about human nature, the spirit world and man's relation to it, witchcraft, spells, charms, amulets, luck, omens, disease, and death. It further includes customs and rites as to marriage, child and adult life, festivals, warfare, and hunting; myths, legends, ballads, songs, proverbs, riddles, and nursery rhymes." It covers generally the mental equipment of the "folk," and is the expression of the psychology of early man in the realms of philosophy, religion, social life and ceremonials, medicine, poetry, and literature.

Aims and Publications. To promote the study of so wide a range of subjects is the work of the Folk-lore Society, and with this aim in view it publishes a quarterly journal, *Folk-lore*, which contains papers on points of interest in myth, ritual, custom, etc.; records of the folk-lore of given districts; notes from members; and reviews of books on folk-lore and kindred subjects. Frequently other volumes are published dealing at length with subjects treated in the columns of the journal. Among the larger works may be mentioned *Folk-lore of the Fjort* (French Congo), by R. E. Dennett; *The Games and Diversions of Argyllshire*, by R. C. Maclagan; *Jamaican Song and Story*, collected and edited by Walter Jekyll; and *Cinderella*, 345 variants, arranged by M. R. Cox.

There are also seven volumes of *County Folk-lore*, in which many items of interest have been collected from county histories, old antiquaries, or reports of archaeological associations, and classified according to the counties of their origin. When this series is completed, it will form a comprehensive and monumental work on the folk-lore of the British Isles.

The meeting-place of the Society is at University College, Gower Street, W.C.1, where a small collection of books, pamphlets, and folk-lore specimens is kept for the use of members. Eight meetings are usually held in the year for the reading of papers, communication of notes, and exhibition of specimens.

The annual subscription is one guinea, which entitles the member to receive the publications of the Society for the year. Although members of the Society incur no obligation beyond the payment of their subscription, many of them become voluntary collectors and investigators, and the work is now being carried on busily in most European countries.

The Handbook to Folk-lore, published by the Society, is a book of great value, showing what folk-lore is, and containing valuable hints to collectors.

The office of the Society is at 11 Old Square, Lincoln's Inn, London, W.C.2.

FOLK-SONGS, THE TEACHING OF.—The principles underlying the selection of songs for school singing have considerably changed of recent years. Before this change, too frequently songs for children's singing were feeble in character, or abstract and general in theme. Such did not much appeal to the child: it is not given to every rhymester to write simple yet effective verse—verse that will arrest the attention and satisfy the young mind. Interest is essential to good singing; it is quite obvious that, where interest is absent, lifeless rendering is the result. Besides the verse, another feature deserved condemnation—the melodies. These were often as nondescript as the words, if composed specially for schools. If not, German and American airs were used, the principal merit of which was that they were non-copyright and could be used by any hack-writer a publisher engaged. All this showed that songs for schools were looked on as matters where selection was not of much importance. It must, however, be granted that there were exceptions, and that some schools made a point of using certain national songs of merit. Urged by a section of teachers and musicians, the Board of Education became alive to the fact that the songs our children were singing were not of the best, and thereupon it made some "Suggestions" to remedy this. They were chiefly a recommendation that national songs and folk-songs should be used in the singing lesson.

Folk-songs and National Songs. There is considerable diversity of opinion regarding what may be classed as "national" songs and what as "folk-songs." A "national" song is one that has won the approval of a people throughout a number of generations; its composer and author may, or may not, be known—these are matters of indifference—but it is the product of educated or professional writers and musicians. "Tom Bowling," "Home, Sweet Home," "God Save the King," "Heart of Oak," and a thousand others are English national songs. A folk-song, as the Folk-Song Society understands it, is a song that has arisen from the people: "the people" in this case being, so far as book learning is concerned, uneducated.

Such songs have passed down from more or less remote times purely from lip to lip—the airs certainly; while the words have been printed only on broadsides and in "Song Garlands." The beautiful tunes are often built on scales (or in modes) not commonly used by the modern musician.

One difficulty in presenting folk-songs to children sometimes lies in the words. The makers sang of subjects that interested them and their fellows; and so, in folk-song, there is much that is unsuitable for children, arising from the outspokenness of the words.

Use of Folk-songs in Class. Editors of folk-song collections have more or less successfully overcome this difficulty by judicious pruning, even sometimes by re-writing a whole song. How far the thing remains a folk-song after these changes is a question I will not discuss; at any rate, the air is preserved intact. There are also many harmless and delightful unaltered folk-songs in various collections which any child can sing with pleasure: the teacher can seek these out and select with discretion. Folk-song is frequently the expression of personal sentiment or emotion, love being the chief theme. If such a song be selected, it is perhaps not the best taste to hand over the rendering of it to a whole class. The more artistic method would be for it to be treated by a single voice; and the pupil should give such expression to the song as will bring out the best effect.

With a class, light and shade and individuality

are lost in the type of song I mean; but, for class-singing, there are numerous folk-songs which are eminently suitable and gain considerably by the union of voices. Such are songs relating to sheep-shearing, the pleasures of the harvest-home, and farm life, which indicate that a number of persons are expressing a particular sentiment—joy and pleasure, mainly. Any rollicking song, even if a personal one, can be suitably sung in class; but the singing of tender or emotional songs (except as solos by sympathetic voices) is to be deprecated.

The teacher will explain the differences between the folk-song and the song of modern times. He should point out that folk-songs have sprung almost spontaneously from the lips of the humble folk who have made them, being the outcome of genuine sentiment; that, even if the verse be rugged and crude, their earnestness has held them in public esteem for ages; that the melodies, which appear rather strange to modern ears, are formed on scales of intervals formerly used in the Church service; and that these tunes (and, in many cases, the words) have passed down to our time entirely without notation, until they have been gathered from the lips of old men and women who have treasured them in their memory as precious things. All this will help to make his scholars appreciate folk-music and to understand why folk-song is so different from the songs they hear in ordinary life.

The choice of folk-songs for school use depends on the taste of the master and the liking the children show for particular examples; it is obvious that such will be sung with greater effect. Perhaps a certain admixture of English national songs is advisable. These are born of the soil and many have a folk-song basis; all have had acceptance with successive generations of the English-speaking nations.

Where possible, the teacher should give some little account of what the song means, the circumstances which called it forth, and the age of its composition. For example, "The Vicar of Bray" is a good text on which to hang a brief story of political interference with the forms of worship which were in force from the Stuart period to that of the early Georges. Without this explanation, the song is meaningless to any present-day child. The fine song "Heart of Oak," written in 1759, may introduce an account of the events of that "wonderful year"; while "Bonnie Dundee" provides a whole chapter of Scottish history. "The Arethusa" narrates an actual engagement in 1778, and brings to mind the war with France in the eighteenth century. "Tom Bowling" may furnish a little sermon on duty.

Suitable Songs for School Use. National songs present fewer difficulties than do folk-songs. To give a full list of folk-songs that might find a place in school singing is obviously impossible in this short essay, but a personal choice lies among such songs as the following: (1) "I will give you the Keys of Heaven"; (2) "The good Old Leathern Bottle"; (3) "We Shepherds are the Best of Men"; (4) "Green Broom"; (5) "The Painful Plough"; (6) "The Carter's Health." These will be found in *English County Songs*, edited by Lucy Broadwood and J. A. Fuller-Maitland. There is also an excellent book edited by Miss Broadwood, called *Traditional Songs and Carols*.

In Mr. Baring-Gould's collection, *Songs of the West*, are (1) "Widdicombe Fair"; (2) "The Blue 'Kerchief"; (3) "The Sweet Nightingale," among other good singable songs.

In Mr. Cecil Sharp's *Songs from Somerset* are (1) "The Raggle-taggle Gipsies"; (2) "Oh no, John!"; (3) "It's a Rosebud in June"; (4) "Dicky of Taunton Dean"; (5) "The Greenland Fishery"; and (6) "Admiral Benbow."

"The Keys of Heaven" and "Oh no, John!" might be sung in dialogue form, that is, by male and female voices singing alternately such portions as are indicated by the words. F. K.

FOLK-TALES.—"Folk-lore," in imitation of the German *Volksepos* and *Volkslied*, has been used in English literature of the past seventy years to denote the traditions current among the common people of all countries of all times. Each nation and each locality has its own folk-lore, which throws light on the past intellectual, social, moral, and religious condition of the people to whom it belonged. The folk-lore of ancient Greece and Rome has been a matter of deep study and investigation, and has proved very instructive. In Germany, the study of folk-lore has been scientifically pursued, and received a great impulse from the publication by the brothers Grimm of the *Kinder-und Hans-Mährchen* (1812) and the *German Mythology* (1835). These writers made a very large collection of the oral traditions and unwritten customs of the German race. The tales show the unity of belief that prevailed throughout the Teutonic race, being collected "from the mouths of the spinning rooms of German villages," and demonstrate also that the Teutons are only one branch of a far greater family, including Hindus and Celts. Since the time of Grimm, many skilled investigators have continued the work in various parts of the world, and much has been learnt from traditionary tales about the history and primitive customs of savage tribes as well as of civilized races.

FOOTBALL (ASSOCIATION), THE TEACHING OF.—The Association, like its sister game, presupposes certain physical conditions in the player—youth, vigour, soundness and suppleness of limb, a quick eye and natural balance of body: it requires pluck, speed, and control of temper, and helps to develop these as well as the physical powers already enumerated; and it teaches co-operation, quick decision, readiness in emergency, keeping the head, and (in some cases), for a captain of a side, leadership.

Some boys learn very quickly by observation, or in other words, have the knack of teaching themselves; and these, especially if ready to take a hint, develop quickest into good or brilliant players; others gain their proficiency more laboriously and gradually under coaching and practice games and matches. All alike learn much from playing against players better than themselves.

A point that is often forgotten in training boys to play is to insist that the game is a Sport, and that it must be played as such; that the rules, therefore, are to be kept in the spirit as well as in the letter; that it should not be played looking on breaches of these rules and accepting the penalties for such breaches as part of the game; and, consequently, that it is better to lose with honour than to aim at winning or saving the game *anyhow*—by fair means or by foul. There are, for instance, unfair ways of tackling, which involve the risk of a probable trip; or one can be careless about keeping strictly to the rule of not charging from behind an opponent who has got past; and again in jumping at an opponent

in tackling him, or in using arms or elbows to stop him; all these are not uncommonly condoned and allowed in modern games, though contrary to rules and to sportsmanlike play, encouraged as they are by keen partisans looking on at a match. These are faults which the coach must try and eradicate in practice games.

Methods of Instruction. A little, but only very little, can be taught indoors, with the help of a blackboard, perhaps on a wet or frosty day. The positions in the field for a throw-in, for a corner-kick (both in attack and defence), in attacking goal, and in the covering of one back by another in defence, can be shown by diagrams; as can also the offside rule which is so seldom understood by beginners or by the majority of spectators.

Much more may be learnt in practice, apart from actual games. Forwards, for instance, may practise runs down the field, learning to keep their line and formation with, perhaps, three other players to represent a skeleton enemy; the definite objects and methods being to run down, passing from one to another *without a check in the run*, and keeping a more or less crescent formation as they go. Again, for *all* the backs—halves as well as full-backs—ten to twenty minutes' practice, either by itself or at the end of a short practice game, may be very useful, under certain conditions. The ball must be taken as it comes, with whichever foot, right or left, it may come to, without first stopping the ball, and either at full-volley or at its *first* possible bounce, coming down, not half-volley; it must be kicked *straight*, that is, in a line parallel to the side boundary lines; and it must be kept *low* and kicked, therefore, as far as it can be in the direction the player is facing. The chief objects of the practice are to teach using both feet, especially the weaker one, to gain accuracy of direction, to learn to volley and to use the proper part of the instep in kicking, and to gain and keep the proper balance of the body. Lastly, practice in shooting at goal—naturally rather popular with boys—is valuable training, but again, very emphatically, *only* under certain conditions: it may be harmful if these are ignored. This is often the case if too much time is spent at it, if those practising are allowed to stop the ball before shooting, or to dribble it slowly close up to the goal and then make a deliberate shot—conditions which will teach slowness in shooting, and will form habits suited only to circumstances which practically never occur in an actual game. On the other hand, practice in shooting at once as the ball comes, either returned from the goalkeeper or passed from the wing, or off a corner-kick; learning to use the lower part of the instep, to shoot low and hard by throwing the weight forward, to shoot with either foot and to use the one that will cause the ball to curl away from the goalkeeper—all of these should be kept to strictly as conditions, if any real value is to come from the practice. Again, it may be made more useful by telling off one or more as opponents to spoil the shot or tackle the shooter. The goalkeeper, too, can get much useful practice if he sticks strictly to goalkeepers' rules, resists the temptation to run, and keeps himself to his two paces, particularly devoting himself to fisting out a shot; he can also learn much if corner-kicks are taken as part of the practice, and if he sets himself to watch and catch cleanly a shot from close quarters. In practising corner-kicks, the kicker must be taught to look only at the ball, to kick it exactly on that spot which he calculates should land it where he is aiming for, and to avoid looking off the ball at the goal as he takes his kick. It is obvious that in all these practices, whether for forwards, backs, or in shooting at goal, the presence of the coach to direct —or, failing him, of a captain in control—will make all the difference to their value. In games, that is, where two full elevens are playing against each other for practice, the usual way of balancing sides is to pit the best backs and half-backs and goalkeeper against the strongest forward line.

The Work of a Coach. The great objects of the coach should be to ensure clean and sportsmanlike play; to teach, so far as the forwards are concerned, co-operation, quickness in tackling, in passing, in getting on to the ball, as well as in taking and getting away with a pass and in putting in a shot at goal; to impress on the half-backs the necessity of constantly feeding their forwards, of tackling fearlessly and at once, of following up a run of their forwards, of getting back quickly when passed, of using their backs to pass to in emergencies, and of learning to avoid sticking to the ball too long and so putting their forwards offside; to get the backs to talk to and co-operate with their halves and to avoid dribbling habits, on the one hand, and random, aimless kicks, or wrongly-timed attempts to head the ball, on the other; lastly, the goalkeeper must be taught to control with his voice his backs when the ball comes into his area, to know when to run out, and to be on his guard against carrying the ball. All the team, too—and this is essential in the making of a good side—have to learn to watch the "field"—friend and foe alike—while they are also watching the ball, so as to be constantly placing themselves in the best position to receive or to intercept a pass; and, instead of becoming mere automata, to employ mind, eye, and skill together for the advantage of their side. Both coach and captain of the side must work together in pulling up a player who fails to use his eyes, and so blunders into a partner or an opponent; who never thinks of passing back in difficulties, or is constantly in a position where he is covered by his adversary; who shoots from impossible positions or from one in which the shot is easily saved. The captains, too, must be trained to carry out their duties, mainly in directing, controlling and encouraging their side rather than in fault-finding. Their duties include the warning of a player as to an unseen opponent coming up to tackle; the directing of the forwards or halves when to pass and in what direction; the controlling of the tactics of the side in a wind which may require the backs to lie further back or further forward than under normal circumstances, or make it advisable for the ball to be kept mainly to one of the two wings; and, most important of all, to encourage and keep up the spirits of the side in difficulties and to make them realize that they have a leader who knows how to use his voice and who can keep his head.

F. M. L.

FOREIGN OFFICE APPOINTMENTS, EDUCATION FOR.—(See PUBLIC SERVICES, EDUCATION FOR THE HIGHER.)

FOREIGN STUDENTS IN ENGLAND.—The importance of facilitating the study of English in foreign countries is evident. There is reason to believe that our language is being learnt abroad more extensively than ever before; and anything that can be done to help on this study will lead to

a wider acquaintance with our literature and with our outlook and aspirations.

The foreigner generally receives his first instruction in English at school; and the more recently published books for his instruction, on the lines of the reform method, are calculated to give him a lively interest in the English language as well as in the British Empire. A visit to England in the holidays will do much to strengthen that interest. The Modern Language Association has done good work in arranging for the exchange of school children for short periods: for instance, a girl from a French family spends her holidays with English people, whose daughter stays for the same period with the French family. Sometimes foreign children spend a year or more at an English boarding school; this is likely to become increasingly common.

As a rule, however, the foreigner who comes to this country for the purpose of studying English is either a university student or a teacher; quite occasionally, a professional man or woman not engaged in teaching or a private student. If the foreigner makes a stay of some duration, he will naturally let the special object of his visit determine the way in which he spends his time. The universities offer considerable facilities to the foreign student; he is, indeed, on an equality with our own students. On the other hand, it must be conceded that there is very little provision for his special needs. In few cases can he obtain any adequate instruction in English phonetics; this is all the more regrettable, as the teaching of pronunciation is systematic and scientific only in a few foreign countries, and the foreign student consequently needs it very much and hopes to obtain it in this country. Lectures on literary subjects, however stimulating in themselves, are often so badly delivered as to be of little value to the foreigner; and lectures on English life and ways, which would appeal to him particularly, are hardly delivered at all. There is manifest need, in all great university towns, and above all, in London, of institutions in which foreigners could obtain, at a moderate cost, the kind of instruction and advice that they specially require; and it is obvious that such institutions should form a recognized part of our university system. If well organized, it is likely that they would soon become self-supporting; but, even if they required a grant, there can be no doubt that the indirect results would amply justify the expenditure of public funds.

Holiday Courses. In many cases, foreigners can only spend in this country a part of their summer vacation, and for these there is better provision. For a number of years the universities of London and Edinburgh have arranged Holiday Courses for Foreigners, and attention has been paid to the special requirements of foreign students in organizing the Summer Extension Meetings held at Oxford and Cambridge in alternate years. The courses held in London (1904 to 1914) were the first exclusively intended for foreigners, and their success was so great that it soon became necessary to limit the numbers; and a second course was established by the University of London at Ramsgate (1912 to 1914), to which British teachers were also admitted. The courses at Edinburgh (1905 to 1913) also enjoyed considerable popularity; and Oxford and Cambridge attracted many foreigners.

The extent to which a foreign student of English derives advantage from a stay in this country depends largely on himself. The more English he learns before going abroad, the more he will learn here; the less he associates with his own countrymen, and the more he seeks opportunities of hearing and speaking English, the greater will be his progress; and if he wants to understand what may often seem strange in our ways, he must put aside his national prejudices and predilections, and bring an open and sympathetic mind to the observation and study of our idiosyncrasies. On our part, we have the duty of putting aside some of our habitual reserve so as to render more easy the accomplishment of the foreigner's aim, which is calculated to be of great value to us, inasmuch as it will enable him to dispel ignorance and misunderstanding which are at the bottom of international illwill.

Apart from the students of English, our universities have welcomed in recent years an increasing number of foreign students who wish to carry on the study of various branches of knowledge. Some take up a course in Arts, Law, Medicine, or Economics, but the majority study engineering. These students often present a difficult problem, as it is found that they suffer from insufficient grounding or have not enough knowledge of English to follow the lectures with profit. In such cases, the foreigner does best to secure competent private or class instruction in English, Mathematics, etc., before attempting regular work of university standard. W. R.

FORESTRY EDUCATION.—Forestry can be taught only by a combination of class-room lectures and demonstrations and extensive practical work in the woods. The term Forestry is applied to the rearing of trees in the bulk, where the unit is not the individual tree but the quantity of timber that the acre or other unit of area can produce. The final crop is the accumulation of years. In the case of cultivated, intensively managed woodland like some English woodlands, and many Continental woodlands, the rotations would be for 60 to 120 years. It is clear, therefore, that the forester cannot depend entirely on empirical knowledge as the life of his crop is longer than his own. He must take advantage of the accumulated experience of others. This theoretical part deals with the principles or laws on which the practice is founded. These principles and laws, if correctly formulated, are applicable to all sorts of conditions, and to all soils and climates. To apply them properly, however, the forester must study, in the open, as great a diversity of types of cultivated and natural woods as possible.

Underlying the practice of forestry there are parts of nearly all the sciences. The forester must be, to some extent, a geologist, in order to know his soils and their capacities. He must be a botanist. He must know not only how to recognize the different species of trees, but he must know intimately their complete life histories. He must know the lower forms of plant life that prey parasitically on the trees, and often cause their death, in order that he may be able to take preventive and curative measures, as the case may demand. He must be a zoologist, in order that he may recognize the hostile and the helpful animals and insects, and know the signs of coming attacks in time to take preventive measures against them. The importance of this section cannot be over-rated, on account of the extension of artificially created forests where the balance of nature is upset and conditions are created that permit the rapid multiplication of

these insect pests. He must also, to some extent, be a mathematician and an engineer. He is called on to use sometimes complicated formulae to ascertain his future values. He is called on to build roads, bridges, tramways, aerial railways or dry and wet " slides." He must be able to decide what method is best and most economical for the handling of his timber and the bringing of it to market. The forester does not require to be an expert in sawing timber, as that is a different branch, but he ought to be able to extract the round timber from the wood as only then can he control the method of regeneration or restocking of the ground with young trees. With so many different sciences entering into the work of the forester, one difficulty experienced in the training is to preserve a proper balance among the many subjects. It must be remembered that the forester's business is to produce the greatest bulk of merchantable timber in the shortest time. The man with a special interest or with special knowledge of one branch would be inclined to devote his energies or attention to that one side, to the possible detriment of the main object. Hence the training should be mainly in the laws of Silviculture with a general knowledge of the subsidiary subjects. The general knowledge should be such as to enable the practitioner to recognize the signs, and call in the help of the specialist, when necessary. The specialist in this case would be the skilled man in the particular science, and with necessarily only a moderate knowledge of general Silviculture.

A primary condition in all courses of instruction in Forestry is that they should be such as will cultivate a love of nature. While the Forester's main object is the purely utilitarian one of producing a maximum crop at a minimum cost, yet it is necessary for the succeesful fulfilment of his task that his interests be wider, and that he should have a knowledge of all branches of nature with which he is bound to come in contact. Thus his scientific and theoretical work in the laboratory or class-room should from the beginning be associated with practical work outside. This practical work in the field should not consist of parties under the guidance of one instructor in one particular subject. A far more useful result can be obtained when the various specialists take the men to the field together. A fuller programme is assured, and a proper perspective arrived at.

Practical work must not be confused with manual work. The forester in training may do much of his " practical " training without indulging in the purely manual work of planting, sowing and felling. This point is of importance as the terms are so often confused. The practical work of the scientific side consists in learning to recognize the various matters dealt with in the class-room. In Silviculture the practical work consists in learning to interpret the signs of the forest, and to formulate the correct method of treatment. This work can be learned only after much practice, as there are no hard and fast laws governing an operation such as thinning a wood. The principles are there, but each case requires different interpretation. The forester in training with his theoretical knowledge must learn what each phase means. The manual work must not be neglected, of course. The forester must be able to perform all the operations required of his men. He must be able to plant, fell, cross-cut, load and move his timber, but he does not require to be able to excel the performance of each individual whose one and only task in life is to perform one or other of these operations, any more than it is necessary for the editor of a newspaper to beat his linotype operators at their work. The forester of to-day requires to be a manager, with a wide outlook. He deals with a crop that may take a century to mature. His work is to direct the operations and organize his labour; to organize his wood and understand Nature so that her laws may be used to his end. An apprenticeship in the woods is necessary, but much more is required.

Forestry Schools. Forestry schools in this country are of recent origin. On the Continent many were founded in the first years of the nineteenth century. Experience has shown that the student stage of the subject requires three years of study at a University or similar institution specially equipped for the work. This course must be preceded by and accompanied with a certain amount of work in the forest. The subjects of study consist mainly of Silviculture, Forest Management, Forest Zoology (including Entomology), Forest Botany, Forest Utilization, Forest Protection, Forest Engineering and Surveying, Law, Economics, and often a specialist subject, such as Ecology and Geology. The relative importance of the different subjects varies. In countries with large quantities of natural timber, exploitation is of the greatest importance, and hence Forest Utilization and Forest Engineering must get prominence. In countries like Britain, with small areas of woods and much bare land, Silviculture (and meantime only one part of that, namely, starting the new woodland) is of chief importance, and the problem is simple. The diversity of conditions of different countries make any uniform system of training impossible. All systems have common ground so far, namely, that the foundations are laid on a knowledge of certain sections of various branches of science, and on a knowledge of certain laws of Nature. Beyond that, training must take place on specialized lines, to suit the special needs of the country concerned. The forester is not a mere planter of trees, but a director of a complex business requiring foresight, patience, endurance and knowledge of natural science. He can get his training only under conditions where he has the chance of acquiring the accumulated knowledge of other observers and investigators, and at the same time of seeing for himself what past observations and investigations mean in the woods themselves. The Universities now afford the means for the first stage, and the woodlands everywhere the field for the second. W. D.

FORGETTING.—(See MEMORY.)

FORM.—As a school term, denotes one of the sub-divisions or classes of a secondary or higher school. The public schools have long contained six forms, of which the highest has always been the sixth. Where the individual Form is large enough to be divided, its parts are known as Lower and Upper, or indicated by letters as IV (*a*), IV (*b*).

FORMAL DISCIPLINE.— Some educationists assert that Latin and Greek provide an indispensable *training* or *discipline;* according to a former Headmaster of Haileybury, classical studies are " for all boys a gymnastic of the very best kind." In other words, we are asked to believe that these

studies develop the mind in the best possible way for dealing later with all the higher problems of life. It is argued that, just as the arm is developed by dumbbell exercises, thus becoming stronger for boxing, rowing, or throwing, so the mind is strengthened by the study of Latin and Greek for the different and multitudinous tasks it may later have to perform. So stoutly have such views been advanced in favour of Latin and Greek, that even those who desire to voice the claims of other subjects, now of obviously greater intrinsic value, have felt bound to emphasize their disciplinary value. Thus Herbert Spencer maintained that science is the most intrinsically useful subject, and that its study provides the best mental discipline. "It would be utterly contrary to the beautiful economy of Nature," he wrote, "if one kind of culture were needed for the gaining of information and another kind were needed as a mental gymnastic." And similar claims have been made with more or less confidence for many other subjects.

The theory underlying all these views is, stated simply, "that mental power, however gained, is applicable to any department of human activity" (Sleight, *Educational Values and Methods*, p. 1). It is often referred to as the "Doctrine of Formal Training" or of "Formal Discipline." It might, perhaps, more clearly be called the "Doctrine of the Spread of Training."

When Spencer wrote his defence of science, and other writers urged the disciplinary value of other subjects, nobody doubted the doctrine of the spread of training as a general theory. It was merely a question which subject possessed the greatest value as a mental gymnastic. The whole underlying theory, however, has since been assailed most vigorously.

Faculty Training. Psychologists have shown that the mind, being more complex, is not strengthened *all round* by a special form of training as the arm is. Nor is it safe to say that one "faculty" of the mind is developed for general use by specific training in certain particular performances. For, in many cases, it is quite erroneous to speak of "faculties." *Memory*, for instance, is not a definite and unified part of the mind as the arm is of the body. The word *memory* merely summarizes a number of mental facts which, though sufficiently alike to be classed together, may be quite independent and separate. Strictly speaking, we ought not to speak of *a memory*, but of *many memories*. It is a matter of everyday experience to find that a person remembers certain things readily, but forgets others. The learning of anything by heart involves the formation of certain definite associations; and these have, as a fundamental neural concomitant, the freeing of passages for nervous energy between certain definite neurones. Of the millions of neurones in the human brain, possibly some hundreds, or even thousands, are necessary in one memorizing operation, but totally unnecessary in another. Thus, when I memorize $5 \times 9 = 45$, the connections established will be useful in calculations involving these particular numbers, but not when trying to memorize the British Sovereigns.

The Evidence of Experiment. Dr. W. G. Sleight made an extended series of memory experiments on children and adults. By preliminary tests, he divided each class into four groups of equal average ability. Three of these were then respectively practised in memorizing: (1) Poetry; (2) tables; and (3) prose passages, of which the gist was to be reproduced. This practice went on for three weeks, for half an hour a day on four days a week. *The fourth group underwent no training.* Tests in memorizing similar to the preliminary ones were then applied to *all four* groups. Three further weeks were then devoted to practice; and, finally, a third series of tests was applied to the same four groups. Each series consisted of ten tests, some involving *immediate*, some *prolonged* memory. To take an instance of the former type, consonants were dictated once, from four to eight at a time, and the pupils were required to write down as many as they could remember, in as nearly the original order as possible. Among the tests in *prolonged* memory may be cited the memorizing of dates. Two sets of six events, with their dates, were repeated eight times after the experimenter. The pupils were then required to write down the dates when the events were mentioned. No *general* superiority, however, was shown by the practised over the unpractised.

General Conclusions. Almost all investigators agree that the extreme claims made by the foremost champions of formal disclipine are unjustifiable, but this does not warrant our entirely condemning the doctrine. It merely indicates its limitations. The important question in every case is: "Are there any features, or elements of the one operation which are involved also in the other, and can be separated from the one and used in the other?" If so, and if they are used as indicated, we shall find some spread of power in passing from the one to the other. And there are more transferable elements than many suppose. Not only are some of the ideas comprised in one subject common to many others, but the habits of application, the methods of attack, and, above all, the ideals or ambitions, generated in dealing with the one, may often be transferred with advantage to the study of the others (*i.e.* the *form* of an operation can often be transferred, even when the new *content* dealt with is extremely different). Thus, the boy who shuts himself up in his room to apply himself to his history may advantageously act similarly when studying mathematics.

We see, then, that there is a vast field for the doctrine of formal discipline in all those subjects in which, though the information imparted is not of much definite use in after life, the uplifting of the soul to a high plane of purpose is secured. The child who appreciates the force of the words, "Whatsoever thy hand findeth to do, do it with thy might," and accepts the principle as a governing influence in his conduct, will do *everything* better in the future. Literature, moral teaching, and, above all, religious instruction, are thus disciplinary subjects *par excellence*. But with regard to most of the other subjects which claim a place in the curriculum, it is necessary to be cautious. Their supreme disciplinary value must be definitely assured before we agree on such ground alone to their inclusion in the scheme of studies. In the absence of such assurance their utility, *i.e.* their intrinsic value, should be the chief criterion.

B. D.

Reference—

SLEIGHT, W. G. *Educational Values and Methods* (Chap. III.).

FORMAL EDUCATION.—This is the direct and systematic training acquired by a pupil through the organized instruction provided for him by a

prepared school curriculum. This is contrasted with the indirect and informal education which is obtained partly through school influences, but to a greater extent by experiences gained outside the school. The formal education of the mediaeval grammar school was entirely intellectual, and afforded little preparation for practical life except in a few professions such as law and theology. In the later charity schools, it provided only a knowledge of reading and writing, with elements of a few other simple subjects, but not sufficient to enable pupils to earn a livelihood by the knowledge obtained at school. The addition of instruction of a really practical value to the formal education of children is one of the most hopeful features of modern developments. Modern educational systems take cognizance of the educational value of play and the social environment of the pupil, and endeavour to make them supplementary to the more intellectual instruction imparted within the school.

FORMAL STUDY. — (See FORMALISM.) The doctrine of formal culture argues that mental power, however gained, may be applied to any department of human activity. This doctrine is considered to justify " disciplinary " education, and is usually brought forward in support of the teaching of grammar, mathematics, and classical languages. It is held that the disciplinary training acquired by the study of such subjects will produce a mental power which can be applied equally well in practical and professional life. But everyday experience shows that mental skill in mathematics or philology does not ensure alertness in business or in any profession in which there is neither knowledge nor interest. The results of research in experimental psychology all go to justify the rough generalization arrived at through practical experience.

FORMAL TRAINING, THE DOCTRINE OF.— (See FORMAL DISCIPLINE.)

FORMALISM.—The arrangement or disposition of the parts of an object or series of objects as contrasted with the matter or contents, is its form. Emphasis laid upon form as opposed to matter gives us formalism. In their notion of beauty, the Greeks placed supreme reliance upon form (*i.e.* order, measure, symmetry, harmony, and definite limitation). Formalism in studies leads to the predominance of formal aspects over thought aspects, and to the training of correct form in the expression of thought in preference to the training of thought itself.

FORSTER, WILLIAM EDWARD (1818-1886).— A statesman and educationist who was born at Bradpole, in Dorset, and died at Burley-in-Wharfedale, where he long had had extensive business interests in the woollen and worsted trade. He was the son of William Forster (1784–1854), a member of a well-known family of Friends, and a nephew of Robert Forster, of Tottenham. He was brought up as a Friend, and early interested himself in social and political questions, though neither he nor his father seems to have been identified in early days with the British School Society, of which eventually he became a vice-president in 1874 and President in 1883. He was, however, a friend of Thomas Carlyle, who in *Chartism* in 1839 had declared that one way of salvation was the way of universal education. With Richard Cobden he was in close political communion and not least in the reformer's demand for the education of the people, with, if possible, undenominational teaching. These views were enunciated by Cobden in 1851, and they were certainly shared by Forster, who, in 1847, had joined with Cobden, Milner Gibson, Roebuck, and others in the task of establishing the Lancashire Public Schools Association in order to promote a system of public free schools. This Association was opposed by the denominational Manchester and Salford Committee on Education, promoted by that experienced educationist, Sir James Kay-Shuttleworth. In 1850, the Lancashire Public Schools Association in combination with the National Public Schools Association introduced into the House of Commons a Bill for the establishment of free rate-supported locally managed secular schools, which was opposed by both Gladstone and Disraeli and abandoned. In 1851 the Manchester and Salford Committee promoted a Bill to aid the voluntary schools, which was renewed in the following year and referred with a further Bill by Forster's association to a Select Committee. The great Parliamentary struggle for a national system of education had begun, and Forster was in it from the first. Forster's marriage with a daughter of Thomas Arnold, of Rugby, severed his connection with the Friends, but gave him a closer tie with a larger phase of national education. He became a Member of Parliament in 1861, and sat for Bradford from that year until his death in 1886.

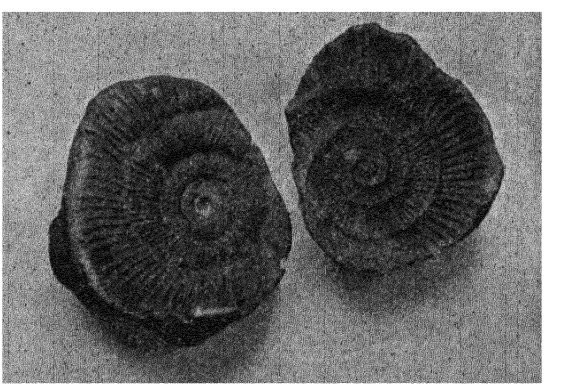
His Parliamentary Career. Forster entered the House at a moment when the education question was becoming acute. The Royal Commission presided over by the Duke of Newcastle had reported on 18th March, 1861, and revealed an evil state of things. The private schools were educationally valueless, while the attendances at the public schools showed that the existing system was practically worthless. Out of 24,563 public week-day schools only 9,378 were subject to Government inspection, and of these only 6,897, containing less than a million pupils, were aided by Government grants, while 70 per cent. of the scholars on the books of the schools were under ten years. The conditions were very evil, as the school inspectors had preached for years. It is not possible here to trace the bitter struggle of the succeeding decade. Forster was not directly engaged at first in the fight made memorable by the brilliant personality of Robert Lowe. In 1865, on the formation of Lord Russell's Ministry following the death of Lord Palmerston, Forster was made Under-Secretary for the Colonies, a position he held until the Ministry fell in June, 1866, to be succeeded by Lord Derby's Ministry, with Disraeli as Chancellor of the Exchequer. At the end of 1868 Gladstone came into power for six years, and Forster was made Vice-President of the Council, and therefore Minister of Education. It was in this capacity that he introduced the famous Education Bill of 1870. The Bill announced by Mr. Disraeli on 14th February, 1868, and introduced into the House of Lords by the Duke of Marlborough offered neither a compulsory nor a rating system, and was so clearly inadequate that it had been withdrawn on 18th May, 1868. Gladstone's administration passed the Endowed Schools Act of 1869, the basis of modern secondary education, and then went on to the terrible question of elementary education for the masses of the people. The conditions of the

children throughout the country were inconceivably bad, bad where there was child labour, and even worse where there was no child labour, since the children were in the streets learning habits of vagrancy, mendicancy, and crime. On 12th March, 1869, Mr. Melly had made a great speech in the House of Commons denouncing the existing conditions, and declaring in the words of the Talmud that "by the breath of the school children shall the State be saved." Mr. Forster agreed that the evidence showed the existence of "this fearful state of things—a large portion of the nation growing up in our large towns without education, and ready to become members of the dangerous classes." With respect to the rating question, he thought that "they would find that a 3d. education rate would soon be more than paid back by the diminished poor rate and prison rate, which would result from it." He evidently thought that the problem would be solved by a 3d. rate, and in fact said so when he introduced his Bill. Half a century has changed that opinion. He also believed that free schools would have the effect in large towns of crowding out the denominational schools. Here again he was in error. But it was clear enough that the voluntary system was totally inadequate even when supplemented by State grants. At the dawn of the compulsory system there were about one million children in actual school attendance, taught by about 11,000 head teachers, with 1,250 assistant teachers, and 10,700 pupil teachers. Of the children on the registers 400,000 were under 6 years, and only 390,000 of the 1,450,000 on the registers were over 10 years. There were nearly a million children between the ages of 6 and 10 years who were not on the school registers at all, and over half a million between the ages of 10 and 12 years. In fact, only two-fifths of the children of the working classes between the ages of 6 and 10 and one-third between the ages of 10 and 12 were on the registers, while the proportion actually receiving education was much lower. Annually 194,745 voluntary subscribers produced the sum of £470,000, and on this annual sum the national system, without scheme or system, rested.

His Education Bill. It was in those circumstances that Forster introduced his Bill in 1870, in order to apply the remedies of compulsory rating and compulsory attendance to a condition of things where two million children out of about 4,300,000 were not at school. Forster explained his Bill in the House of Commons on 17th February, 1870, a scheme of district school boards intended to absorb existing schools, all expenses being met out of fees, grants, and rates, and to enforce attendance if the school board thought it necessary. Forster intended to entrust the school board with absolute discretion in the matter of religious instruction. The proposal created great discontent, but the Bill was carried on a second reading without a division, Gladstone having agreed to reconsider the religious question. A compromise was secured by the time the debate was resumed on 16th June. Mr. William Cowper-Temple proposed a clause forbidding the use of any catechism or dogmatic formulary in any rate-supported schools, while the voluntary schools were to have an increased grant in lieu of rate aid. The Bill was read a third time by the House of Commons on 22nd July, passed the Lords without any real change, and received the Royal assent on 9th August, 1870. It is not necessary here to describe in detail the Act which formed a turning point in the history of State intervention in education. To-day it has outlived its usefulness, and is in effect so overgrown by new developments contained in the Education Acts of 1902 and 1918 that the time has come for sweeping it away and with it the system of "elementary" education as a class badge. But it was a triumph at the time of its passing, and was essentially a triumph for the broad liberalism of Forster and the school that he represented, and it made possible developments which inevitably led to a system of equal educational opportunities for all. From the educational point of view Forster's name will long be rightly cherished. He stood for a great democratic principle, which was shown not only in his tireless labours for education but in his Ballot Act of 1872, and was certainly not inconsistent with his heroic efforts as Chief Secretay (1880–1882) to secure a peace-abiding Ireland. J. E. G. DE M.

FORTY AND FORTY-EIGHT SCHEME, THE.—(See LONDON COUNTY COUNCIL, EDUCATIONAL WORK OF THE.)

FOSSILS, THE EDUCATIONAL VALUE OF.—Fossils readily excite the interest of young and old alike. Is it possible to guide this often shallow and fleeting interest into broader and more lasting channels? The first thing to strike the mind of the fossil-collector is that many of his "finds" are the remains of animals which are now extinct: search as he may at zoological gardens, museums, or aquariums, he will not there find living nor "pickled" specimens of his ammonites, belemnites, trilobites, and many others. On the other hand, he cannot fail to be impressed with the fact that, except in the most recent deposits, the animals which live now are but very sparingly, if at all, represented among his specimens. It is thus borne in upon the mind that changes have occurred in



Ammonite showing external cast made in the stone in which it was embedded

the fauna of the earth, and the pathway is opened towards the idea of Evolution. Individual efforts in the field are not likely to afford a wealth of material sufficient to drive home the conviction that it is by evolution that creation has proceeded; but visit a museum, and carefully compare a collection, say, of existing molluscan shells, firstly, with those obtained from the Pleistocene rocks, then with those from the Pliocene, and, in turn, with those from each of the preceding geological formations in order of increasing antiquity right back to the Lias, and the validity of the illuminating theory which Charles Darwin first rendered tenable will be established in the mind. The matter might be clinched by an introduction to some of the toothed-birds, particularly to Archaeopteryx, and by a careful examination of the teeth and limbs of the ancestors of the horse.

Land and Water Knowledge. A further inference that will early be drawn is that in bygone times the sea covered regions that are now dry land. The inference frequently takes this inexact form, and contains in it the implication that the waters have receded rather than that the solid earth has been upheaved. If now there be grasped the fact first insisted on by William Smith, the father of English geology, that the several formations, strata, and zones can with certainty be identified by their characteristic fossils (*e.g.* the zones of the Lias by the species of Ammonites), it at once becomes possible to trace a given stratum from place to place, and to deduce from its course the conclusion that it is the solid strata themselves that have been shifted upwards from their original sea-bottom position. We are thus led on to realize that the positions of the present geographical continents have not been constant from all time, that their coast-lines have varied over wide limits. Moreover, the circumstances in which a sedimentary formation was deposited can be ascertained with some certainty by comparing its fossils with their living relatives whose habits are known. Thus the whole of the Sea-Urchins are exclusively marine, and the presence of their fossilized spines is proof that the formation containing them was laid down in salt water; or, again, the shells of the pond-snail (Paludina) in the Sussex and Purbeck marbles convince us of the fresh-water origin of the Wealden and Purbeck beds.

But the fossils in a given formation are frequently not all "native" (*i.e.* the remains of animals living when this formation was being deposited), but "derived" from some older formation in which they were already fossils: in other words, they have been twice fossilized—once when their recently dead remains became included in the older deposit; and a second time when, ages later, this formation suffered denudation and thus yielded the material that gave rise to the younger formation in which we are imagining them found. Fossils can be recognized as "derived" by their worn and fragmentary condition; but, notwithstanding their injuries, it is often possible to identify them, and thus to state with confidence that the rocks of which they are characteristic when "native" were above sea-level, forming continental land at the period when those in which they occur "derived" were being laid down as soft sediments in an ancient estuary or sea. By such and kindred processes of reasoning, maps of the ancient continents and oceans have been constructed. Space forbids our proceeding further, or dealing with knowledge gained from study of the chemical changes that so frequently have occurred in the mineral constituents of fossilized remains. Enough has been said to show that fossils may be made the introduction to some of the most fascinating chapters in the past history of the earth. O. H. L.

FOUNDLING HOSPITAL (Guilford Street, London).—The Hospital was established in 1739 by Thomas Coram, a ship-master, in Lamb's Conduit Fields, then a tract of open country in the parish of St. Pancras. Its object was to receive, maintain, and educate exposed and deserted illegitimate children. The present building was opened in 1754, when 600 children were in the charge of the governors. Parliament voted money for the support of the institution from 1754 to 1760, and the Hospital was patronized by the Kings George II and George III. Handel gave the great organ and frequently performed his *Messiah* at the Hospital for the benefit of its funds. He left the score of the *Messiah* by will to the Hospital. Hogarth the artist was one of the early governors, and gave time, labour, and money to help his friend Coram. His picture "The March of the Guards to Finchley" was painted and sold by him for the Hospital. From 1760 to 1801 no children were received unless accompanied by a payment of a hundred pounds. Since 1801 no money has ever been paid for admission. The mothers who desire to deposit children at the Hospital fill up a printed form of petition, and their story, told to the governors, is tested by private inquiry. They are required to resign all claim to the child, and only in very rare cases does a child become acquainted with its parent. The children are kept under very close restraint at the Hospital, they receive a simple education, and care is taken to place them in suitable employment after the age of 15. Children are admitted as soon as possible after birth, provided with names selected by the governors, and for the first five years are brought up by foster-mothers in the counties round London.

FOURIER, CHARLES (1772–1837).—A writer on a communistic system of society, born at Besançon. By occupation he called himself a "shop-sergeant," and in a cloth-house, chiefly at Lyons, he earned £25 to £37 10s. a year. Poor, he loved pageantry. Without buying books, he read books in public libraries. Regular in daily habits, he was out of work-hours a dreamer, but systematic even in his dreams. A confirmed bachelor, he was interested in, though he could not be said to love, children. He contemplated a future in which children would be managed on a communal basis (*i.e.* taken away from individual homes, and be placed in a communal phalanstery). Though communal, each individual has control over his own earnings, though he must live in the common building, which has been described as "a great hôtel-pension." He is required to labour only at that which is attractive to his own "passions." In 1822 he wrote his *Traité de l' Association domestique agricole*, in 1838 issued as *Théorie de l' Unité Universelle*. Fourier analyses the primary instincts of children, and attempts to note these at the earliest age. As soon as he is able to walk, the nurses lead him to diminutive workshops with tiny tools, and he engages in industry in miniature, from which activities his tastes can be judged. (See UTOPIAS, EDUCATIONAL.) He should be

educated in accordance with these " passionate tastes," not according to tradition and custom. Fourier especially considers that two resources are neglected by ordinary educational methods: cookery (which trains the active senses of smell and taste) and the opera (which stimulates the passive senses of sight and hearing). Perhaps Fourier deserves special mention as the early advocate of small culture, the raising of fowls and bees, and the cultivation of fruit and vegetables by the small farmer. F. W.

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FOXE, RICHARD (1450–1528).—Bishop of Winchester, and minister under Henry VII and Henry VIII; founded Corpus Christi College, Oxford, in 1516. Wolsey was one of his chaplains at Winchester, and owed to him his introduction to the favour of Henry VIII. Foxe founded Corpus Christi College out of the private revenues of himself and his friends; built and endowed schools at Taunton and Grantham; and was a benefactor of Magdalen College, Oxford.

FRANCE, THE EDUCATIONAL SYSTEM IN.—The reader will, perhaps, be helped in forming an opinion on the guiding principles and sources of inspiration of the scholastic institutions of France if he notes a few of the common characteristics they display. In the first place, the whole of the new system of education owes its birth to the Republic. It is a method of instruction possible only in a free country, amidst democratic manners and habits of life. It is education conceived of as forming part of the rights and duties of the sovereign nation; education instituted by and for civil society, as distinct from religious society and political, social, and professional circles; in short, lay education for a society of laymen. But the applications of this principle take place in circumstances as complex as the principle itself is simple. The new pedagogic system was installed in an old body, viz., the Napoleonic " Université " (meaning the whole system of public instruction). And, just as Napoleon transformed the scholastic foundations of the Convention, while preserving, at any rate, to begin with, many of their names and shapes, so the Third Republic, reviving boldly the plans of the First, considered it unnecessary to destroy the framework. It was a revolution, but it came from within, not from without. It was a change of spirit rather than a change of formulas. It was a national, not a mere party, undertaking. And the nation, unchallenged mistress of her own concerns, could sweep and garnish and set her house in order, and extend it progressively without needing to pull everything down in order to build it up again. Thus the time-honoured hierarchy of the three *enseignements* (*supérieur, secondaire, primaire*), their scope and inter-relations, and their bearing on the non-university *enseignements*, in the course of a few years have been completely remodelled, without tearing up the charter of the university, turning out the staff, and burning the syllabuses, regulations, and text-books. Practice has modified pure theory in many respects. In theory, education is a public service; yet the State refuses no one the right to compete with it, and exercises no kind of supervision or control save over health and morality. In theory, every public school is secular, but it must not, on any pretext, assume an aggressive attitude towards any form of religion; it owes them all that neutrality which is the clearest expression of absolute respect for freedom of conscience.

In theory, education is gratuitous; but, even if some of it is really so, there are still, in the rest, such expenses as to make it inaccessible to children in poor circumstances, except for the mitigation afforded by a system of scholarships (" bourses ") which satisfies to some extent, for the time being, the requirements of democracy.

The second general characteristic is the appearance of instability and inconsistency which the life of this " Université " has exhibited for forty years. To one who goes no further than outside appearances, it must seem as though differing, nay, even conflicting, influences are still contending for this " world in the making." It would be a mistake to attribute this appearance of disorder, restless humour, and perpetual inconstancy to mental irresolution or a want of plan. In reality, it is a mental conception which has not yet reached its full development. The reform has been made, but not yet perfected: elementary schools, *lycées*, universities, professional schools—all are still, in different degrees, in process of formation.

We do not now proceed as our ancestors did at the time of the French Revolution: we no longer have to proclaim principles, and raise before the world the figure of a new education. We never lose sight of our ideal, but we do not disdain the lessons of experience. Modern education has not, and will never again have, the beautiful rectilinearity, the symmetrical simplicity, the immutable rigidity of former schemes of study. Our teaching is in process of evolution to-day; as it will be to-morrow; it is no longer contented with what is good, but must always be aspiring to what is better, even at the risk sometimes of compromising that which is good.

As for the spirit that animates French instruction, everybody recognizes in it an intention to produce a species of education that shall be essentially humane. Human personality—that is the end the French school particularly aims at. France does not forget that she is the country of the Rights of Man: her pedagogy bears witness to it. It is not that she disdains the intrinsic value of the learning, nor the services which education renders; but the highest service that can be rendered to society is to give it men. Other countries have proceeded otherwise, widening the scope of things in education and restricting that of man; attaching more importance to information and less to general culture. It is the old quarrel of " realism " and " humanism." France is what she has always been —the champion of " humanism "; to-day more so than ever, for she has now put the training of women, at every stage of national education, on the same footing as that of men. Even if, politically, feminism is still almost unknown in France, make no mistake about it: its triumph is nearer at hand than it seems to be. A country which gives so large a place in the school to woman will not long be able to refuse her the same in the State.

Elementary Education. The Republic early saw the need for a great national effort to develop

popular education, which the Empire had neglected notwithstanding the noble efforts of Victor Duruy. The first millions disposed of after the payment of the indemnity were devoted without hesitation to school buildings. Supplies were voted unanimously from 1875 to 1878; in a few years the country had expended on this single object more than £20,000,000, and it continues to apply thereto considerable sums every year. Republican ideas of education could not be pressed so long as the Republic itself was in abeyance. It was necessary to wait for the defeat of the "*Gouvernement de l'Ordre moral*" and the advent of Jules Grévy as President. But it was known beforehand what the attitude of the republicans would be. Under the Empire they had revived the traditions of the Revolution, including the famous "plans for national education," which had been outlined before 1789, welcomed with enthusiasm by the country and the Constituent Assembly, and translated at last by the Convention into projects for organic laws. They had adopted, with Jean Macé, the triple formula: "Compulsory, gratuitous, secular instruction." They had also declared themselves in favour of "*Morale Indépendante.*" This catchword denoted a system of education able to give a scheme of morals worthy of the name, dissociated from all positive religion and even from definite systems of metaphysics.

The Minister of Public Instruction, Jules Ferry, was one of the most determined partisans of this radically republican educational policy, and maintained it energetically and uncompromisingly. The Chamber was already considering a great project for the reorganization of elementary education, of which Paul Bert was in charge. To break down opposition, especially in the Senate, Jules Ferry divided up the difficulty by presenting a series of partial laws to Parliament. In this way he managed, in spite of the desperate resistance of the conservative party, to pass the law establishing normal schools for teachers, with exclusively lay staffs (10th Aug., 1879); the law setting up an exclusively lay Higher Council of Public Instruction (1880); the law dealing with certificates of competency ("buvets de capacite") to be required of the whole teaching profession (16th June, 1881); the law rendering public elementary education gratuitous (16th June, 1881); and, finally, the law making elementary instruction obligatory and giving the public school a syllabus in which religious teaching no longer found a place, but which contained, instead of "instruction morale et religieuse," moral instruction and citizenship, viz. "instruction morale et civique" (29th Mar., 1882). Alongside this legislative work, Jules Ferry conducted simultaneously the work of administrative reorganization which was to give the new system of education a staff of teachers and officials, disciplinary and pedagogic jurisdiction and authority, syllabuses, methods, and books. This work, after Jules Ferry, was carried on by his successors at the Ministry in the same spirit. Jules Ferry had begun by secularizing the syllabuses of the public schools. Goblet carried a measure requiring the staffs of the public schools to be themselves laymen (30th Oct., 1886).

Jules Ferry tried in vain to prevent the Jesuits and other religious bodies from carrying on education, but he was defeated by the rejection of the famous Article 7 in the Senate (18th Mar., 1880). Waldeck-Rousseau (1st July, 1701) obliged all religious bodies to apply for permission and authorization, on pain of dissolution. And M. Combes obtained from Parliament (7th July, 1904) the suppression of all teaching conducted by religious brotherhoods under clerical direction, even under the form of private schools. Thus, for thirty years the system of secularized education gradually gained credit, and ended by becoming the academic system of France. Little by little it has passed into the customs and habits of the people. Objections now are hardly ever advanced with any animation except by the clergy and part of the conservative Press. They no longer have any effect upon the country, which, ten times now, at the quadrennial general elections, has clearly expressed its approval of the "*lois Ferry.*"

France is the only country in Europe that has applied in its entirety, with all its logical consequences, the system of the separation of Church and State both in academic and in civil affairs. The consequences to education may, perhaps, be summed up under a few characteristic heads, the principal being the following—

THE SPREAD OF POPULAR INSTRUCTION. The general progress of popular instruction is undoubted. Though it is not easy to measure it in figures, a number of incontrovertible facts exhibit it in a clear light. There are few villages now to which newspapers do not come, to be read with avidity by most of the inhabitants. Very rare are the remote corners where only a *patois* is spoken; French is understood everywhere. If a traveller of fifty years ago should re-visit rural France to-day, he would be amazed to find how many ancient superstitions, and absurd and absurdly tenacious traditions, have disappeared; how widely the mind of the peasant has opened to ideas which used to make no impression on him at all; how rapidly improvements in agriculture have developed habits of observation, reflection, and judgment. To be sure, school is not the source of all this progress; but it has co-ördinated, multiplied, and accelerated it.

PUBLIC AND PRIVATE SCHOOLS. The wise preservation of freedom of instruction facilitated the establishment of the new order of things. It was difficult to complain of persecution so long as the law allowed scholastic obligations to be fulfilled as well in the private school, where religious exercises were practised, as in the public school where they were ignored. In spite of their differences, they have both contributed to the spread of education. Private schools represent in round numbers a million children, against nearly five millions on the rolls of the public schools. Private education is almost entirely catholic: parish schools have taken the place of those conducted by the religious societies. The private school tends, so far as studies are concerned, to approximate closely to the public school. Even if it claims superiority from the religious point of view, it does not neglect secular education: many parents insist on their children taking the examinations for certificates, and this compels practically the same level of instruction to be maintained as in the public school.

MORAL EDUCATION AND INSTRUCTION IN CITIZENSHIP. Considerable difficulties of various kinds faced the teachers of this new subject—new, that is, to them. The natural embarrassment of the master who finds himself confronted by a delicate matter hitherto reserved for clerical treatment; the reasonable fear of alarming the Church, the parents, the political committees, or the school authorities; the

risk of shocking the child, yet at the same time avoiding triviality and affectation: there are so many things to hamper both moral and civic instruction. But the modest, practical way in which they were presented was most effective. By being simple and natural, the teacher not only disarmed suspicion, but conveyed, by his very manner, the impression that he was giving instruction which any decent man might give and any child receive as the A B C of the moral beliefs which form the life of the human race. This experiment had been going on for thirty years when the Great War broke out. Tragic and decisive test! By its scholars shall the school be judged! This school, said some, has irreparably divided the country against itself: there are two Frances. Events have given their answer: never has been seen such an outburst of national unity. Others, taking too literally certain figures of speech, charged it with having taught the love of peace and the horror of war to such an extent as to deaden courage and dry up the springs of patriotism. Others again suspected it of having weakened moral sentiment by separating it from religious sentiment: morality without God would become sooner or later morality without any foundation to rest upon. What remains of all these apprehensions after you have seen thousands of men, of all ages, sorts and conditions, and of every creed, setting one another examples of heroism, and of the sublimest heroism of all—that which is anonymous! When did any land inspire more devotion? For a whole people, without distinction or exception whatsoever, to be ready for such a sacrifice, and to maintain itself for so long at this height of self-abnegation in face of a supreme danger, education must have silently planted in its soul the seeds of a strength and virtue which cannot be raised in a day.

Position of the Teaching Profession. To provide this new education, the Republic was resolved not to employ the religious brotherhoods, nor to leave the choice of staff to the clergy. A body of teachers, therefore, had to be raised to supply more than 100,000 elementary classes, and schoolmasters and mistresses were drawn from the lower middle-class population, especially in country districts. Not the least daring expectation was the hope that a legion of educators would thus spring up from the masses of the people. The work which the Church had with great labour organized by using all the forces of religious sentiment, monkish discipline, and the ecclesiastical hierarchy—would the democracy be able to take this up and do it again with an army no longer composed of a select body of religious men and women dedicated to a life of poverty, but consisting of men and women of the people, with their livelihoods to gain and families to support? The difficulty was all the greater because during the first twenty years the Republic did not realize the utter inadequacy of the salaries paid to the elementary teachers. They had been long accustomed to pay the schoolmaster miserably; they could not all at once grasp the necessity of giving him a material position corresponding to the new place which they had found necessary to give him in society and in the country. The teachers knew how to wait, and put their trust in the Republic; for some years the Republic has at last guaranteed them suitable salaries, though these are still lower than those obtaining in certain monarchies.

Their moral position has been settled also after rather vigorous discussions. The very spirit of the new academic organization, as conceived by the Republic, necessitated heavy demands being made for the education of the new educator. The "dominie" ("maître d'école" or "magister") of old, the teacher of the alphabet, the writing-and spelling-master, was becoming an *instituteur*—a happy term coined during the Revolution, signifying "educator" with all the moral force of that word. Is it at all surprising if the pioneer of the principles of the Republic in the provinces took his mission seriously to heart, and sometimes performed it with a zeal that brought upon him severe reprobation? Since the Republic had taken possession of him, he required of her the complete performance of her schemes. Charged with the duty of teaching the principles of democracy the teacher became saturated with them. He wished to make them respected, especially by the republicans themselves, which led sometimes to his being regarded as a revolutionist or a Utopian.

When France returned at last to the doctrine of free countries and proclaimed the right of association, that condition necessary as a guarantee of all forms of freedom, the teacher thought fit to make use of it. At first under the rather bold form of syndicates, and then under the broader, more correct form of what may be called "friendly societies," the teaching body acquired corporate powers. It thus set itself in a position to offer effective opposition to the old spirit of authority of Napoleon's *Université*, of which traces still survived. The system of liberal administration, outlined by the Ferry laws, could not fail of fulfilment: it was to become gradually more and more democratic. It seems as though the *modus vivendi* applied at the present time to French elementary education provides a satisfactory solution of the problem: the authorities maintain their right and duty of supreme direction, but they give wide scope for freedom of thought and action which an educator of free men cannot do without.

Higher Elementary Education. One of the best consequences of the development of elementary primary education was the creation, in a manner of speaking the spontaneous generation, of a system of higher primary education. The establishment of this intermediate stage between elementary instruction and classical studies had been attempted by Guizot in 1833 *enseignement primaire superieure* and again by Duruy in 1865, under the name of *enseignement secondaire special*. The Republic succeeded in organizing it, partly in the *cours complémentaires* and in the higher elementary schools, and partly in the technical schools of agriculture, handicrafts and manufactures, and commerce. It is a kind of intermediate education which meets the needs of the democracy pretty well. In the army of labour, as in the other army, there must be, between the great captains and commanders and the mass of the soldiers, this body of subalterns and non-commissioned officers who provide a link between them. Having once grasped the idea of command, they will be able to translate it into formulas which will make it popular and secure obedience.

Secondary Education. The reform of secondary education was not effected by a single stroke. It was begun, in 1880, by the foundation of the *Conseil supérieur* and the *Conseils académiques* (27th Feb., 1880). "The chief innovation contained in this law was the idea of making the

great councils of education almost entirely elective bodies, and turning them actually into university assemblies. This law limited admission to the *Conseil supérieur* to representatives of learned societies and the teaching profession." The same principle was applied to the *Conseils académiques*. Thus, "all projected reforms," said Henri Marion, "and all questions of national education would be freely studied and discussed under the public eye by the elected representatives of all the learned societies and of every class of educator, from masters of special subjects in high schools down to elementary teachers. At the same time, the entire teaching community, called on to choose its representatives, was, as it were, placed by that very circumstance under the necessity of forming its own opinions on the matters which they would have to decide, and consequently of considering and debating these matters on its own account—a condition of things which was favourable to a subsequent appreciation of the solutions which would be arrived at. Hence their minds were powerfully stimulated, and soon there followed educational progress in all directions at the same time."

After the establishment of these university councils, secondary education received certain new features, which were impressed upon it by the reforms of 1890 and 1891 and by that of 1902. The reform of 1890 took up again definitely and methodically the intentions of Jules Simon and Jules Ferry. It is the work of the Minister of that time, M. Léon Bourgeois, who summed it up in the following words: "Two principal ideas appear to me to dominate it. From the point of view of instruction, it is intended to simplify, co-ordinate, and graduate in such a way as to adjust exactly the matter taught to the pupil's powers of assimilation, aiming rather at the development of the mind than at the accumulation of knowledge. From the point of view of discipline and education, it is meant to unite and strengthen the disciplinary powers of every establishment, to fortify thereby the authority of all and sundry, so that it may be possible to relax without danger with regard both to the severity and the number of the punishments; and thus to get obedience from the child, no longer from fear of chastisement, but from the self-conceived notion of duty being the one essential condition of the health of the mind." This has been called the advent of liberal discipline in the education of young people of the middle classes.

The reform of 1891, carried out under the Goblet ministry, consisted essentially in the institution of "modern secondary education" (the Minister had proposed to call it "French classical education"), defined in these terms: "The new education will be general and classical; it must be organized so as to meet the new needs of modern society and attract to its secondary French studies young people who have neither taste nor leisure to undertake the study of the dead languages." The principal subjects were French and the other living languages.

Finally, the reform of 1902, which includes and completes the preceding, was accomplished as the result of a great Parliamentary inquiry directed by M. Ribot.

The movement in the direction of "modernizing secondary education" is now at last characterized, not by vague, general tendencies, but by definite organic measures. This is how one of the last Ministers before the War, M. Georges Leygues, laid down its principles—

"In a country like France, where the professional and industrial classes (commercial, manufacturing, and agricultural) form 45 per cent. of the whole population—18 million individuals out of a total of 40 million—where the industrial capital amounts to more than £3,840,000,000 and the agricultural capital to £3,120,000,000, the *Université* cannot confine itself to the preparation of the young men and women committed to its care for the learned professions and the higher branches of teaching. . . ."

Hence the necessity of so organizing secondary education that, "while remaining purely secondary, it may give the pupil the most useful instruction possible with a view to his future career." In other words, the problem offered for solution was "to give the pupils the opportunity of choosing that instruction which is most suited to their capacities, their proposed vocations, and the economic needs of the regions in which they live, without prejudicing that common fund of general knowledge which characterizes secondary education and assures its unity."

Thus it was proposed to give the young people of the *lycées* "a method, a disposition of mind, and a mental discipline, as indispensable to the enlightened and liberally educated aristocracy of intellect as to the directing staff and officers of the army of labour." To secure this object, the decree of 31st May, 1902, divides secondary education into two courses ("cycles") The first, which forms a continuation of the four years of preparatory or elementary studies, lasts for four years; the second has a duration of three years. In the first course the pupils are divided in accordance with their parents' wishes into three divisions: the first take Latin and Greek; the second Latin, but not Greek; the third substitute science for Latin and Greek. In the second course (in which there are three classes, called, respectively, the second, the first, and mathematics or philosophy) there are four divisions—

Section A (Latin and Greek).
Section B (Latin and Modern Languages).
Section C (Latin and Science).
Section D (Science and Modern Languages).

M. Compayré has pointed out the resemblance between this system and that of the "election courses" in the United States.

The baccalaureate is divided into two parts, which are separated by an interval of at least one year.

It is to be noted that the first course does not necessarily lead to the second. It had been anticipated, more perhaps than has actually been borne out by experience, that a certain number of pupils would probably leave the *lycée* at the end of their third year. And it was desired that even in this case a boy should carry away from school "something better than mere smatterings"; that he should leave with "an equipment of knowledge, modest perhaps, yet forming a complete whole in itself and capable of being turned to account." He will have studied more or less thoroughly the classics of his native tongue, learned one of the other three chief modern languages, and done general arithmetic, geography, and history down to 1889.

In short, according to the formula of M. Belot, an inspector-general, "secondary education must

be conceived of as the culture of the entire human personality, not as a mere unproductive heaping up of knowledge. Undoubtedly, all subjects are not equally adapted to cultivate all the faculties; some, such as literary criticism or psychology, are best for developing subtlety of intellect; others, like the exact sciences, train the geometric sense; some exercise the historic sense, others develop the power to generalize and produce the philosophic mind; some increase the respect paid scrupulously to truth and reality; others foster the habit of understanding that there are domains, also, in which intuition and sentiment are of importance and prove at times to be legitimate guides, more trustworthy than a rigid, unqualified logical examination. But, in every subject, it is not the matter that is of consequence; it is the spirit and form of the instruction. And for the same reason, what must be modern is particularly the method, not the object. It is possible to teach physics in an absolutely scholastic way and the dead languages in a living manner. We shall be modern, and I may say French, if we rely on the intrinsic interest of the various forms of discipline, if we appeal to experience, the spirit of observation, and the freedom of the judgment. We shall not be so if we appeal solely to the memory and verbal docility of the child, to fear of the ferule or anxiety about the baccalaureate."

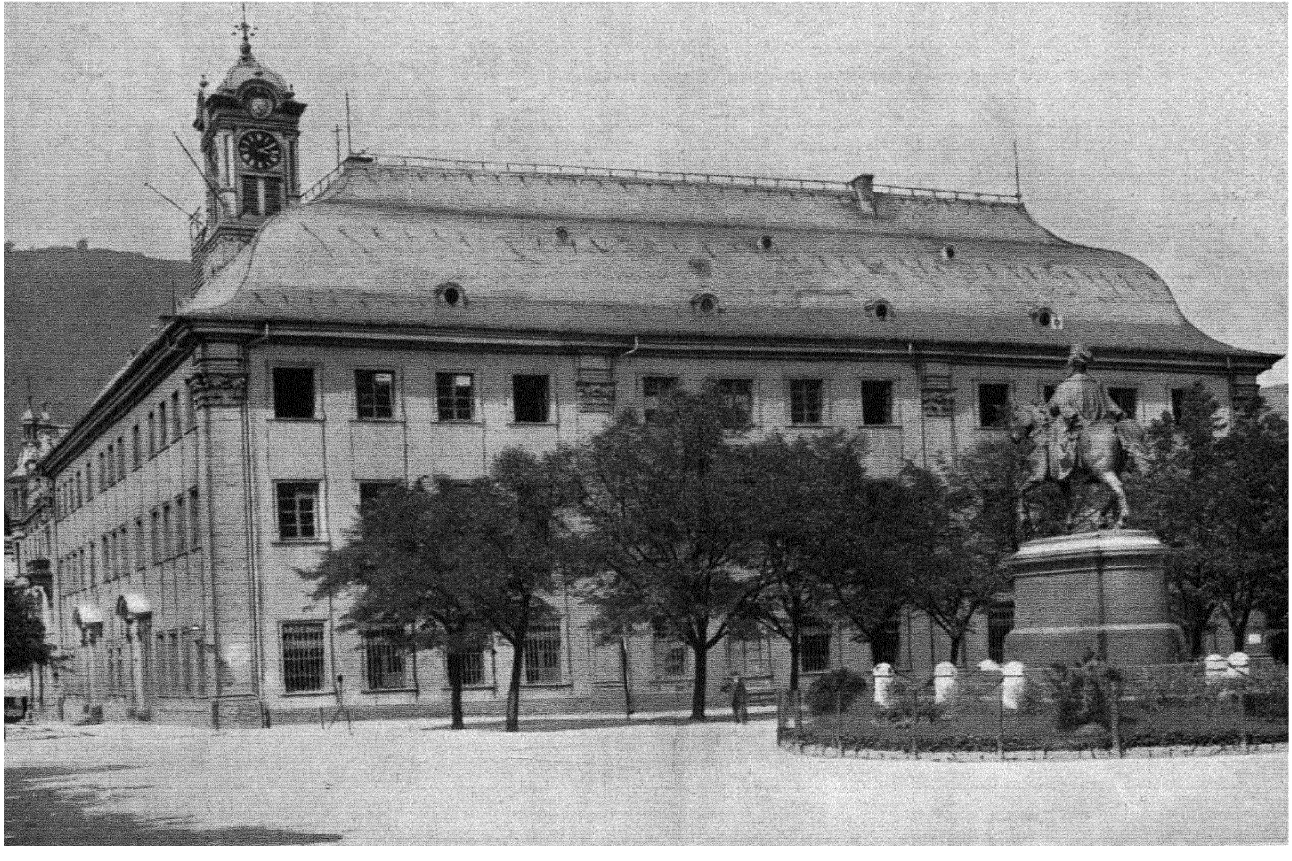
The reform of 1902 had, among other consequences, the reorganization of the higher normal school (*Ecole normale supérieure*) which has become a "pedagogic institution," the pupils of which receive professional preparation in common with the students of the Sorbonne who are candidates for the *agrégation* (a certificate of capacity to teach a subject in all its developments); a new conception of the position of the *répétiteurs*, one of the knottiest problems in French secondary education, solved by throwing open to them admittance to the ranks of the *professeurs-adjoints;* the establishment of the *Amicales* (Mutual Aid Societies) for secondary education, grouped in district federations and in a national federation; the extension of the system of scholarships ("bourses") which facilitates every year access to secondary studies to hundreds of clever children belonging to families not in very easy circumstances.

The development of the secondary education of girls, which dates from 21st December, 1880 (the law of Camille Sée), was rapid and brilliant. As Legouvé aptly put it, it consisted chiefly in realizing that, in the separate education of the sexes, there should be "difference without disparity" (*l'égalité dans la différence*). The scheme is the same as for the boys' *lycées*, minus the ancient languages, and with science, especially mathematical science, not carried so far; some few branches of study, on the other hand, relating to the arts and other work that are peculiarly the province of women, as well as those that bear on their place in the household, are added. The length of the curriculum does not exceed five years (from 12 to 17), and the number of hours' teaching is not greater than twenty per week. "We do not intend," said M. Gréard, one of the chief inspirers of the new feminine education, "to suppress in their studies the efforts which alone can bring forth good results; we would only like to make a better use of them. What we require for them is plain, succinct instruction, consisting largely of results and conclusions, and sparing them an excess of detailed and minute knowledge; they are not concerned with curiosities. It is sufficient to elucidate thoroughly for their benefit the sentiments, ideas, and achievements of human civilization."

Higher Education. It was the law of 10th July, 1896, which transformed the ancient French *facultés* into "universities," that is, which created higher education under its modern aspects. The *facultés* were special schools, each devoted to a number of different subjects, which were detached from one another and entirely without correlation. The universities are an organic whole, flexible, varied, and opulent, whose parts, though autonomous, are knit together closely and furnish mutual support. They are the centre, not of one branch of knowledge, but of all. And a threefold function may be attributed to them: an intellectual function, from the point of view of the level of the general education of a country; an economic function, as a factor of national wealth; a social function, in forming a public spirit. The reform, initiated by Goblet, the Minister of Public Instruction, who conferred a civil status on the *facultés* and established a general council among them, was completed by M. Léon Bourgeois and M. Raymond Poincaré. The organization of the universities rests on the institution in each of a university council, which has very extensive powers, as well concerned with the administration of its revenues as with the organization of its lectures and discipline, under the authority of the higher council and the Minister. The Rector of the university is the president of the university council. It would be impossible to depict definitely and exactly the inner life of the universities. Their very freedom and variety stand in the way. "The ideal state of things," said M. Liard, "in higher education would be the entire absence of an official programme. You cannot force knowledge to flow in narrow channels by means of regulations. Knowledge takes its rise where it chooses; it goes where it chooses by ways of its own choice; who wishes to follow it, follows it." But, in France, the ancient *facultés* had, besides the teaching of advanced education, another mission which had become their principal function, viz., the conferring of university degrees, from the baccalaureate to the doctorate, at the same time admitting candidates as *agrégés*.

Under the new *régime* it did not seem possible to deprive higher education of the power of conferring degrees; but, first, the conditions of examination in each faculty were reformed, and then, in all of them, the methods of instruction were transformed by joining to the public lessons, which were of old addressed to a motley audience, a complete series of lectures, practical exercises, and special and profound studies, so answering the conception to which Albert Dumont gave expression in 1883: "The *facultés* must choose young men of promise and prepare and equip them so that they may become teachers. Between the teachers and the pupils there should be an association formed which does not end with the obtaining of a degree, but continues throughout their subsequent careers."

Thanks to this profound transformation, French higher education has been undergoing for twenty years an entirely new development, which must not simply be measured by statistics, but is testified to by the output of scientific work, by the number of publications, and by the undoubted influence of the universities on the public mind. Let us add that the war of 1914–1919 displayed



Heidelberg University

PLATE XL

the flower of the French young manhood at its universities animated entirely, in spite of the claims of universal brotherhood, by a spirit of patriotism that translated itself into miracles of heroism. These students, so many of whom figure in the Golden Book of those that die for their country, justified the words of their illustrious teacher, M. Lavisse: "They love France as she must be loved, both by instinct and by reason. They have the patriotism of the valiant. They have, too, what I may call a philosophic patriotism: they love France because she strives after justice, both for her own people and for those of other nations; because, in short, she seeks peace and ensues it."

Professional Education. This fourth division is the one, it must be confessed, which France has left longest neglected. Not that its importance was not early recognized. The First Republic had asserted it at a time when it was not possible to foresee the enormous developments of industry that would follow in the train of the double revolution which was about to place at its service, on the one hand, the incalculable forces of steam and electricity; and, on the other, the mighty power of the resources heaped up by organized capital. But various causes helped to delay the methodical arrangement of a system of education that was meant to be a continuation of one of the other three as its direct application to trades and occupations of all classes. In a general way, technical instruction is differentiated from the other three by three characteristics: the place of preponderating importance which it assigns to practical work (laboratory, workshop, or commercial office); the direction of theoretical studies, as such, to practical applications; and its variety, due to the specializing of processes in obedience to the needs of each industry and district. In technical education, by analogy with general education, three grades are differentiated: elementary, intermediate, and higher. The first grade comprises the practical schools of commerce, industry, and even agriculture, which are still far from numerous; the intermediate class includes the national schools of arts and crafts, and various schools in Paris and a few other great cities; in the higher class there are the *Conservatoire des Arts et Métiers*, the *École Centrale*, the *École des Hautes Études Commerciales*, and one or two more. The organization of this instruction in its two higher grades can be considered to be very nearly satisfactory. But, in the first grade, in what concerns the affairs of the great masses of the army of labour, employees, artisans, and workers on the land, it is impossible to fail to recognize a lacuna, which is the more conspicuous because a comparison with foreign systems allows one to cherish no illusions in this respect. Public opinion, therefore, of recent years, has made a very forcible outcry for this extremely urgent reform. The associations of masters and men, after long hesitation, are to-day unanimous in demanding the immediate organization of a system of popular education analogous to that in Switzerland and Germany: a scheme of systematized professional education, running side by side and abreast of the whole apprenticeship, must be made compulsory for the mass of the youths of the working classes, if only in the shape of regular professional courses, for three or four years, at the rate of a few hours a week, with the hall-mark of a final examination awarding the *certificat d'études* to the apprentice. At the present time, out of the 900,000 young men and girls who are engaged in commercial pursuits and manufactures, not 100,000 receive this instruction, even in a partial shape. The law Astier was promulgated on 25th July, 1919; a great law, a sort of organic statute dealing with the whole of technical education. The Chambers could not wait longer before passing it and setting in motion the work of reparation which cannot be postponed: more than ever it is a question of life and death for the French apprenticeship, and consequently for the industrial and commercial progress of France. F. E. B.

FRANCE, INSTITUT NATIONAL DE.— The National Institute of France—the work of the Convention, the First Empire, the Restoration, and the Monarchy of July (1830)—is an amalgamation of the Academies of Old France.

Early History. There were five of these before 1789: the *Académie française*, the Academy of Inscriptions and Medals, the Academy of Sciences, the Academy of Painting and Sculpture, and the Academy of Architecture. In 1793, the Convention suppressed them all; but, two years later, it founded by Art. 298 of the Constitution of the 5th of Fructidor, year III (22nd Aug., 1795), a "National Institute to record discoveries and improvements in arts and sciences." This body—organized by the laws of the 3rd of Brumaire, year IV (25th Oct., 1795), and the 15th of Germinal, year IV (4th April, 1796); maintained by the Republican Constitution of year VIII (13th Dec., 1799), which contained a special article devoted to it; and reorganized by the consular decree of the 3rd of Pluviôse, year XI (23rd Jan., 1803)—was composed, during this first stage of its existence, of three or four *classes*, which answered very much to the several Academies. The latter were revived more plainly and precisely, when Louis XVIII, on 21st March, 1816, decreed that the Institute should comprise four Academies: the *Académie française*, and the Academies of Inscriptions and *Belles-Lettres*, of Sciences, and of Fine Arts.

Sixteen years afterwards (26th Oct., 1832), a fifth, the Academy of Moral and Political Sciences, was founded by Louis-Philippe, who thus re-established a section set up by the Convention in 1795 and abolished by Bonaparte in 1803. The Institute thus assumed its final form. In 1666, Colbert had designed the amalgamation of the Academies then existing in order to form them into a "permanent Parliament of Literature, Art, and Science." (Medicine and Agriculture form two separate academies not included in the Institute, but represented, as will be seen later, by two sections of the Academy of Sciences.)

Administration. A central committee administers the property and endowments, protects the interests, and directs the collective activities of the Institute. A general bureau, composed of representatives of the five Academies and presided over by a delegate of each of them in turn every year, represents the Institute officially. The Institute possesses *civil personality*, and receives the benefactions intended for individual Academies; in it are vested, for example, the Château of Chantilly (the Condé Museum), the Hôtel Thiers (the Thiers Library), the Spoelberck de Lovenjoul Collection, the Jacquemart André Hôtel-Museum, the Château de Chaalis, the Abbadia Park and Observatory, etc.; the Government grants to each Academy are also

consolidated in a common general fund. The five Academies hold all their meetings in the same place, viz., the Palace of the Institute (formerly the College of the Four Nations, founded by Mazarin), Nos. 23 and 25, Quai de Conti, 1 rue de Seine, 2 à la rue Mazarine, which also houses the office of the Secretary of the Institute, the agents of the five Academies, and the common library. All five adopt the same method of filling up vacancies viz., election by a majority of votes after candidature, the names of the successful candidates being submitted to the Government for approval. Members all have the same official designation, "Members of the Institute," and wear the same ceremonial uniform,—l'habit vert—prescribed, and even designed by Napoleon I in 1801.

Composition. Though united in this way, all the Academies are autonomous. Each, in particular, has its own special composition, as the following statement will show—

The *Académie française* is not divided into sections. It consists of 40 members, one being permanent secretary. It has no honorary members, associates, or corresponding members, either French or foreign.

The Academy of Inscriptions and *Belles-Lettres* is not divided into sections. It contains 40 regular members, one being permanent secretary, and has, in addition, 10 honorary members, 12 foreign associates, and 70 corresponding members [40 foreign and 30 French].

The Academy of Sciences is divided into eleven sections: Geometry, mechanics, astronomy, geography and navigation, general physical science, chemistry, mineralogy, botany, rural economy, anatomy and zoology, and medicine and surgery. It is composed of 66 regular members, besides 2 permanent secretaries—one for the mathematical sciences, the other for the physical sciences. It admits 10 honorary members, 6 members residing outside Paris, 12 foreign associates, and 116 corresponding members—some native, some foreign.

The Academy of Fine Arts is divided into five sections: Painting, sculpture, architecture, engraving, and music. It has 40 regular members, besides a permanent secretary; and, in addition, 10 honorary members, 10 foreign associates, and 50 corresponding members—some native, some foreign.

The Academy of Moral and Political Science is divided into five sections: Philosophy; ethics; legislation, public law and jurisprudence; political economy, statistics and finance; and general and philosophical history. It contains 40 regular members, one being permanent secretary. It admits 10 honorary members, 8 foreign associates, and 60 corresponding members—some native some foreign.

The number of regular members of the Institute is, therefore, 229; of honorary members and members resident abroad, 46; of foreign associates, 42; and of corresponding members—both French, and foreign—296.

Differences in composition seem due to the development which mathematical and biological science underwent in the nineteenth century, as did scholarship and social science also. Each Academy has its own traditions and individual customs. The *Académie française* and the Academy of Fine Arts hold their ordinary meetings in private. On the other hand, the former holds public meetings of ceremony for the admission of newly-elected members; these the other Academies admit at meetings which are public like the rest, but not any more formal or ceremonial. The reports of the meetings and transactions of three of the Academies (Inscriptions, Sciences, and Moral Science) are published both as summaries in the newspapers and *in extenso* in periodical journals, edited by each of them. The reports of the *Académie française* and the Academy of Fine Arts appear only as summaries in the newspapers.

Intellectual and Social Influences. Two hundred and fifty is a small number of the "elect" of all branches of human knowledge in a country so active intellectually as France. The figure 200, which approximately represents the choice of the Institute abroad, is even more restricted. A happy selection results from the narrowness of these lists. Another result is that, in each of the Academies, a majority once formed can keep in permanence for a fairly long time certain philosophical tendencies, literary doctrines, and aspects of art.

Community of interests creates points of intellectual contact (which, however, might be even more numerous) among men occupied with studies of the most varied kind, and influences each of them in his own domain. This solidarity is evidenced by the fact that members of one Academy frequently belong to one or more of the others, producing a cohesion and homogeneity which help to maintain, in the region of the mind, the unity of France.

Owing to its pecuniary resources, the Institute is able to undertake on behalf of the nation great learned publications or great humanitarian enterprises. It protects and assists French educational institutions abroad, such as the Schools at Athens and Rome (Academy of Inscriptions), the School at Florence (Academy of Moral Science), etc.

Each of the five Academies publishes itself, or patronizes editions of the complete works of many celebrated French authors, Descartes, Bossuet, Laplace, Cauchy, etc. Seven editions of a large *Dictionnaire de la Langue française* have been published between 1694 and 1878 by the *Académie française*.

The Academies of Inscriptions and of Moral and Political Science control several collections of epigraphic or archaeological specimens and ancient texts, charts (*Ordonnances des Rois de France, Histoire littéraire de la France,*) etc.

By the prizes which the Institute is commissioned to distribute, it has gradually become the agent of private individuals anxious to encourage, not merely science, literature, and art, but also virtue, the domestic and social qualities, philanthropy, self-sacrifice—or even merely desirous of helping the unfortunate. The famous prizes founded by Baron de Montyon in the eighteenth century at the *Académie française* and the Academy of Sciences have had numerous imitations. We may mention, among the foundations relating to virtue or misfortune, the prizes bearing the names Audiffred, Audéoud, Veuve, Carnot, Baron and Baronne Davillier, and Étienne Lamy; among those rewarding intellectual work, the prizes called Osiris, Jean Reynaud, Gobert, Bordin, Guzman, Bréant, Barbier-Muret, Thorlet, Piot, Dourlans, Jecker, Charruan, Davaine, Lacaze, the Duc de Loubat, Berger, Lefèvre-Deumier, Prince Roland Bonaparte, etc. The prizes preserve the names of their founders, and guarantee a decent immortality to many modest worthies among such illustrious benefactors as Guizot, Cuvier, Thiers, Laplace, Janssen, Émile

Augier, François Coppée, Georges Picot, etc. Benefactors and prize-winners are announced formally every year, either at the Collective Public Meeting of the Institute (25th Oct.), or at the public inaugural meetings of the Academies. Prize-winners may be foreigners, as also may benefactors. At the *Académie française*, the annual announcement of the Prizes of Virtue is made in a special report read at a public meeting. This part of the duties of the Institute, which makes it a kind of social and scientific bench of judges, gives rise, in each Academy, to numerous investigations, reports, and complicated financial arrangements. Every year, the amount of the awards is close on a million francs (£40,000).

The Institute has enjoyed, throughout the nineteenth century, the favour—or at any rate, the respect—of successive Governments; and it occupies in the democratic system, almost by official sanction, that position of counsellor and intellectual collaborator which Colbert and the Convention meant it to take. A. RÈBELLIAN.

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FRANCIS PEEK FUND.—This was established by the late Sir Francis Peek to provide meals for necessitous children in elementary schools. The fund was administered from 1875 to 1884 by the Charity Organization Society, and during that period soup kitchens were opened in poor localities throughout London, and dinners were served free, or at a very low charge, during the winter months.

FRANCISCANS AND EDUCATION. — (See MENDICANT ORDERS DURING THE MIDDLE AGES, EDUCATION IN.)

FRANCKE, AUGUST HERMANN (1663–1727).— He was born at Lubeck, and in 1692 became Professor of Oriental Languages at Halle. He was a pupil of Spener (*q.v.*), the founder of the Pietist movement, who taught that religious fervour should be manifested in acts of piety and charity. Francke's pietism took a practical form, leading him to found, endow, and organize various educational institutions in Halle. These included a school for the poor, and in 1698 he had a hundred orphans under his charge, as well as 500 day scholars. The orphanage became the most important of his institutions. He also founded a burgher school, a Latin school, and a seminary for the training of teachers. At the time of his death there were over 2,000 children in the institutions under his management. The first object of Francke was to provide religious education for poor and neglected children; to this he added practical instruction, including manual trades, and instruction in natural science and the German tongue. Francke's institutions are still in existence, and provide for the education of over 3,000 children annually.

FRANKLIN, BENJAMIN (1706–1790). — An American statesman and natural philosopher; was born in Boston, in New England. He served an apprenticeship as a printer, and in 1726 established a printing business in Pennsylvania. He established a successful newspaper, and in 1732 published *Poor Richard's Almanac*, acquiring wealth and fame by his efforts. In 1746 his experiments led him to discover the identity of electricity and lightning, and to invent a lightning conductor for the protection of buildings. It was on his advice that Pitt planned Wolfe's expedition to Quebec, and his services were recognized by all in England. When troubles arose between George III and the American colonists, Franklin strove to promote moderation and peace, and was the principal negotiator between the colonists and the representatives of George III. He spent much time in England endeavouring to bring about a reconciliation, but also devoting attention to scientific studies and observations. On his return journey to America in 1775, he performed valuable experiments on the temperature of the ocean. On the Declaration of Independence, he was entrusted with a mission to France to secure help for the colonists, and at the end of the war took an active part in the peace negotiations. Franklin's *Poor Richard's Almanac* is remarkable for its valuable concise maxims for the economy of human life, all tending to industry and frugality. His observations in regard to electricity led to his discovery of positive and negative electricity, and an explanation of the Leyden jar. In 1749 he first suggested an idea for explaining the phenomena of lightning, thunder, and the Aurora Borealis on electrical principles; and in 1752 he completed his discovery by the experiment of the electrical kite, which, raised into the clouds, brought lightning to the earth. In 1750 he founded an academy in Philadelphia with classical, mathematical, and English schools; and in 1755 the college was incorporated by charter. Besides letters on his scientific discoveries, he wrote political papers and essays.

FRATRES COMMUNIS VITAE.—(See BROTHERS OF THE COMMON LIFE.)

FREDERICK II OF PRUSSIA (surnamed "the Great").—He was born in 1712, and reigned from 1740 to 1786. In early life his liberal tastes caused him to rebel against the irksome military training and the narrow system of education provided for him. From 1734 he held a kind of literary Court at Rheinsberg, devoting his leisure to the study of music and French literature, corresponding with Voltaire and studying his philosophical doctrines. He wrote much on political, historical, and military subjects, and his works were published by the Berlin Academy (1846–1857).

FREE SCHOOLS.—The term "free school" now means a school at which pupils are received without payment of fees. In this respect it differs from the expression "free church," which means a church which is free from State control. The early monastic, cathedral, and collegiate churches provided education gratuitously to the public, but it is doubtful whether many of the early endowed schools were free to all comers, although the donor's instructions were usually that education should be provided without charge to a stated number of pupils. From the scanty records of mediaeval schools (see FEES), it appears that fees were common in all classes of schools, and that the profession of schoolmaster was a lucrative one; but many of the schools described as "free" were provided with an endowment too small for the maintenance of a schoolmaster, and were obliged to supplement it by taking payments from those who could afford to give them. Thus the Song School at Durham Cathedral possessed an original endowment of £2 a year, and was described as a free school by the Commissioners of Henry VIII, and the master was

paid out of the episcopal funds. Eton College (*q.v.*) was founded by Henry VI for the education of twenty-five poor scholars, and the master was charged to teach them without any kind of payment from them. This provision is typical of the system in vogue at a large number of the old grammar schools and, as the number of pupils increased, payments were made by well-to-do parents. Edward VI founded a number of free grammar schools, and many more were established by Elizabeth and James I. In the statutes of these schools, payments were forbidden; but a system of gratuities sprang up, and in many cases developed into compulsory donations.

Free Schools in Modern Times. The end of the seventeenth century saw the rise of charity schools, which were quite free, and pupils in them were provided with free clothing as well as free education, and sometimes with free board and lodging as well. In the eighteenth century the larger grammar schools became "Public Schools," and in them free education ceased to exist. But in the smaller grammar and endowed schools, the question of the right of children to free places led to endless disputes and scandals, which continued until the series of Acts dealing with endowments put an end to the original schemes, and re-appropriated funds which had ceased to be adequate to carry out the donor's original purpose. (See ENDOWMENTS.) The nineteenth century saw the spread of a desire for learning among the lower classes, and the demand for places in the free schools increased so rapidly that the endowment, which had once been sufficient to provide for one master and a score of boys, proved insufficient and, led away by the name "free school," parents raised an outcry that the poor were being robbed. The Court of Chancery to which the disputes were referred failed to solve the problem, and Acts of Parliament put an end to the troubles by sweeping away the pretence of freedom and by re-establishing the schools on a new foundation. Compulsory education has been followed by a new class of free schools—free in the sense that school fees are not paid; but not in reality free, because every resident in a school area contributes to the support of the schools in that area. Elementary schools in England are free from school fees, and secondary schools provide free places to pupils drawn from elementary schools up to 25 per cent. of the number of pupils admitted.

FREEDOM.—(See INDIVIDUALISM.)

FRENCH COLONIES, EDUCATION IN.—France, like most other modern colonizing powers, gives great attention to the moral and intellectual welfare of her native populations, and takes care to provide them with suitable education.

The first schools, opened immediately after annexation, were kept by soldiers, as they still are in Morocco. Afterwards missionaries—monks and nuns—came and opened private schools, but their tendency to proselytize hindered the development of their establishment. So, about twenty-five years ago, State education was introduced into all the colonies.

The system, of course, is not the same everywhere, for the degree of civilization of the natives must be considered. Each colony has its own organization, the plan being drawn up by the Governor, not by the central power. Still, we may discern the application of some common rules: the primary school is secular, free (though not yet compulsory), and gives a large place to technical education.

In the old colonies—Réunion, Guadeloupe, and Martinique—primary and secondary schools are both as in France, and so is it for the European population of the colonies acquired during the nineteenth century: Algeria, Tunisia, and Indo-China. The teaching is given in French, an arrangement adopted with a view to assimilating foreign elements.

In considering native instruction, we must distinguish between colonies where schools were in existence at the time of annexation (North Africa, Indo-China, and Madagascar), and colonies inhabited by primitive tribes, with no school organization at all (French West Africa and the Congo). In the former, the native schools have been retained: the Koran schools in the Mussulman countries, Chinese schools in Indo-China, and the schools of the *bonzes* in Cambodia. But they are declining as Franco-native schools increase, the course of studies also being modified by the introduction of scientific teaching. Native colleges for higher literary education still exist: *Medersas* for Arabic students; and Chinese colleges in Indo-China, where the solemn triennial examinations take place at Kuang-nam-din as in former times.

The organization of the Franco-native schools is nearly the same everywhere. (1) The village school, under a native master called a monitor; (2) the district school, directed by a French master, with native or European assistants, the teaching being given partly in French, partly in the vernacular; (3) the provincial, regional, or residential school, which is really a high school, in which the teaching is given entirely in French.

Each capital—Saïgon, Hanoï, Hué, and Pnom-penh, in Indo-China; Antananarivo, in Madagascar; and St. Louis, in West Africa—has a *collège*, where French and native boys are sometimes taught together, sometimes separated into sections. Some of the best native pupils are sent to France for higher studies.

In West Africa and Madagascar there are Schools for chiefs' sons. The pupils become State servants, or non-commissioned officers in the Army.

Colonial Teachers. Native teachers are trained in Franco-native schools of the highest class. The best are sent to a training college similar to the French ones at Gia-din (Cochin China), Antananarivo, or St. Louis for three years, and appointed assistants in the schools directed by a European.

European masters are largely trained teachers from France. Most undergo additional training in a special school: *la Bouzaréa*, an annexe to the Algiers Training College, or the Jules Ferry School in Paris, managed by the *Mission laïque française*, where they study the language of the country they are going to, and get some notions of medicine, hygiene, handwork, and agriculture.

Technical Education. Technical instruction is an important part of the Colonial school curriculum. In the village schools, the teaching is practical. Besides French, taught for speaking rather than writing, the chief work is very elementary science and object lessons. In the district schools, the teaching is largely vocational, and adapted to the needs of the country—agricultural, industrial, or commercial. There are also technical schools for the training of skilled workmen and the public service, especially the telegraphs.

Tunisia has an important technical school (*École Émile Louget*), and technical sections in various other schools. Agriculture has a large place, with experimental gardens and fields; weaving, an old local industry, and the renowned carpet industry of Kairwan, are being revived by this means. The Apprentice School, founded on the principle of co-operation of employer and school, is greatly valued by the natives.

Saïgon has a practical school for mechanics, which has trained very skilful workmen. It has, also, a professional school, with three sections: agriculture, industry, and commerce. Madagascar has agricultural or technical sections in every regional school, and a higher technical school at Antananarivo. In West Africa, there is a technical school or section in each of the five colonies. The Congo has two: at Brazzaville and Libreville. Koulikoro, on the Niger, has a school of agriculture and a farm school for rubber-growing.

All we have said relates to boys. Far less has been done for girls, except in Indo-China. Mussulmans are hostile to education for women, and little can be done. To get a few pupils, the usual curriculum is abandoned, and needlework, tapestry, embroidery in North Africa, and lace-making in Madagascar, form the bulk of the work.

The organization of teaching in the French colonies has not yet reached its full growth, but sound principles have been laid down. Future developments will accompany the mental development of the natives, and be more or less rapid according to the aptitudes of the various races.

F. V.

FRENCH (COMMERCIAL), THE TEACHING OF. —The study of Commercial French is of great importance, but the results are frequently far from commensurate with the labour bestowed on it, both by teachers and students. It is worth while to examine the different methods adopted to produce satisfactory progress.

Elementary. For students only moderately familiar with the regular and auxiliary verbs, the matter used should be simple, although including the everyday expressions of general business life; *e.g. Les marchandises ne sont pas encore arrivées* (The goods have not yet arrived); *Nous attendons vos nouveaux échantillons* (We await your new patterns); etc. Constant translation of this kind from and into French is bound to bear good fruit. To introduce variety into the work, well-chosen original French letters may be taken phrase by phrase and, after being thoroughly assimilated, the full translation may be taken orally, and repeated until the student can, with occasional reference, reproduce the French original from his own English translation.

A useful plan with beginners is to substitute dashes for certain indispensable words in the French letter, the student restoring the missing words. To write the letter again in the plural, if the sender has written in the singular, is also profitable; *e.g. Nous confirmons notre dévouée du* 11 *courant*, in place of *Je confirme ma dévouée du* 11 *courant* (I confirm my respects of the 11th inst.); or *vice versâ*. Besides exercises in phrases and complete letters, practice in speaking, a thing of the highest importance, may be obtained from a simple Commercial French Reader on subjects connected with the work of an exporting house, or on a traveller's business journey, etc. If not sufficiently elaborated in the Reader, these should be developed by the teacher himself out of his own experience of commercial transactions and the circumstances of foreign travel. A practical way of dealing with these sketches from actual life is for the teacher to read them out slowly several times, explaining new words and phrases, and to question the pupils afterwards on the meaning of each paragraph. When he thinks that all the pupils have a fair idea of the purport, he gets them to write down the whole from his dictation; he then reads it again sufficiently slowly for them to make necessary corrections. Afterwards the students "change and correct," while the teacher reads the whole piece again. Simple questions in French on points of the piece taken down will give opportunities of supplying suitable answers based on the text, and will lead gradually to fluency in conversation.

Advanced. When the pupils have had sufficient practice of this kind to be considered advanced students, the plan of campaign may be extended on the lines indicated. By this time, it will be of benefit if the teacher makes a practice of reading short compositions in French, and asking the pupils to reproduce them in English: this system of dictation and reproduction is adopted by the Royal Society of Arts in their *vivâ-voce* tests in languages.

Encouragement should be given to the composition of letters, essays, and conversation on commercial subjects. Headings may be given in advance, in order to afford opportunities for thinking out details and acquiring variety in phraseology by means of researches into suitable books.

For instance, a programme could be drawn up for the session, and compositions recommended on such subjects as—

1. *Arrangements entre associés* (Agreements between partners). Capital, Establishment of a Shipping House, etc.; then the teacher dictates in English a circular to be sent to prospective customers.

2. *Offres de service pour emplois et réponses* (Applications for agencies and replies), on which will follow getting in patterns from different manufacturers, and names of principal goods exported, such as woven goods, hardware, machinery.

3. *Envoi d'échantillons à des maisons d'outremer* (Sending patterns to various firms abroad), embracing letters written in French, offering goods, price-lists, conditions of payment, etc.

4. *Engagement d'un voyageur* (Engagement of a traveller), in which we deal with his pattern-set, circulars in French to announce his visits abroad, letters of credit, etc.

5. *Commandes reçues* (Orders received); with contracts, purchase-notes at home; sale-notes for abroad; goods delivered by manufacturer; and claims on him, if necessary.

6. *Frais de facture* (Invoice charges), comprising making-up of goods; packing, cartage and carriage; shipping and freight, the latter bringing in, as side issues, chartering vessels, fines for delay at destination in presenting bill of lading, Custom House fines for wrong formalities, insurance, bill-stamps, reference patterns, bank commission, brokerage, discounts, commission, postage, and telegrams.

7. *Fils; filage et tissage* (Yarn; spinning and weaving), with all details, such as bleaching, calendering, dyeing, embossing, filling, finish, length, material, printing, quality, stiffening, stretching,

and width; other goods with corresponding technical details.

8. *Avis aux agents maritimes* (Advices to shipping agents), with consular invoices in French, French Custom House tariffs, etc.

9. *Calcul des prix* (Calculation of prices), loco London, Manchester, Liverpool, etc.; free packed, free rails, f.o.b. port, free dock or D/D, delivered alongside (F.A.S.), free port of departure, C.F., C.I.F., franco port of destination, free delivered C.H., free duty and free domicile (*i.e.* customer's warehouse or store).

10. *Factures des marchandises* (Goods invoices), with debit and credit notes for particular items, etc.

11. *Connaissements* (Bills of lading), which will supply an immense number of technical terms.

12. *Traites sur banquiers* (Drafts on bankers), drafts on customers, remittances received, accounts-current sent, promissory notes, receipts, banking in general, bills and various financial operations.

13. *Réclamations pour livraison retardée* (Claims for late delivery), claims for defective goods, shorts, missing goods; particular average, total loss and general claims; allowances made or refused, and goods left for account.

14. *Compte de consignation* (Consignment account) including sales by auction, etc.

15. *Procès* (Law disputes), bringing in chicaneurs, dunning, defaulters, failures, fraudulent bankruptcy, compositions, dividends, extension of term of credit, embargo on goods, etc.

16. *Arrivée des clients* (Arrival of customers), visits to them at their hotel, selling goods to them and getting out value each day for mutual guidance, arranging terms of payment, instructions with orders, and generally making the customers' stay agreeable.

17. *Amener les clients chez les fabricants* (Taking customers into the market), if this suits the merchant's line of business; taking them to make private purchases, and to theatres, concerts, etc.; of course, before doing business in the first place, we shall have written various letters in French asking for information about them.

18. *Voyageur pendant son premier voyage d'outremer* (Traveller on his first journey abroad): aboard ship, arrival at destination, hotel life, calls on customers, orders obtained.

19. *Vie à l'étranger* (Life abroad): French offices and stores, social footing, French book-keeping, etc.

20. *Change* (Exchange), introducing fluctuations in the rate of exchange, gold premium, silver question, bimetallism; produce sold here for customer's account; and market reports at home and abroad.

The above-named subjects offer considerable scope for writing and conversation; under an enthusiastic teacher, the study of Commercial French should make rapid progress, while affording much interest to the pupils.

French is spoken and taught in every country in the world. Along with English, it may be considered as a universal language, such as the authors of Volapük and Esperanto have had in view.

A. CALVERT.

FRENCH IN ENGLAND, THE EARLIER TEACHING OF.—The French language was learned by courtiers even before the Norman Conquest, but it was after 1066 that French became indispensable for all who wished to make a distinctive career. In 1357, Ralph Higden declared in his *Polychronicon* that children construed their Latin, not into English, but into French, and accordingly learned French "from the time they were rocked in their cradle." Amongst the working classes, Flemish and French artisans settled in the country in the fourteenth century. The law courts were French-speaking from *c.* 1116 till 1362. After that, the law discussions in the "Moots" were recorded in French, even as late as 1680. There is evidence, however, that the use of French in schools, instead of English, had subsided by 1387, in a revised edition of Higden's *Polychronicon*, made by John of Trevisa. In the universities, the use of French was also sometimes prescribed. The Black Plague, and the Hundred Years' War, and the War of the Roses helped to extinguish the un-English elements amongst the nobles and people; and in the early Tudor times, first Spanish, and then Italian, occupied a more leading position in the education of English nobles and gentry than did French.

Teachers of the Tudor Period. The most distinguished teacher of French in Henry VIII's reign was John Palsgrave (*d.* 1554), who is remarkable in having produced a work on the French language, incomparably superior to any treatise written either in England or in France, up to 1530 (*Lesclaircissement de la Langue Francoyse*). Sir Thomas More remarks on the British accent given to the French spoken by our countrymen of his time.

In 1539, Thomas Cranmer suggested French as a subject of instruction in his proposed cathedral colleges. Udall (*c.* 1550) says that French is learnt with Greek, Latin, or Italian by "young damsels," but the instances cannot have been numerous. In 1561, in the articles for the bringing up of Her Majesty's wards, French was to be a subject of daily teaching.

The Seventeenth Century. It is also suggested, in 1572, for Sir Humphry Gilbert's Queen Elizabeth's Academy; in 1636 for Sir F. Kynaston's *Museum Minervae*; and in 1648 for Sir Balthazar Gerbier's Bethnal Green Academy. In 1619, Thomas Morrice (*Apology for Schoolmasters*) advocates an Englishman, with good accent, as a better teacher of French to English boys than a Frenchman ("lest the latter hurt the children's English"), but he is decidedly against the substitution of French for Latin in the education of children. Mrs. Bathsua Makin, in 1673, in her *Essay to Revive the Ancient Education of Gentlewomen*, is the first to call attention to the value of English girls' reading the modern French vernacular literature. Though Milton knew French, of modern languages he advocates the general teaching of Italian only.

Manuals for Teaching French. The earlier printed manuals for the teaching of French include a *French Littleton* (*c.* 1566) for law students, and commercial French phrases, along with those of other countries [*e.g. Colloquia*, by N. Barlement (London, 1639)].

But the greatest source of French manuals of England connects itself not with Court, and not with men of commerce, but mainly with Huguenot religious refugees. Michael Angelo Florio, an Italian, and his son, John Florio (1553?–1625), were interested in the teaching of French, but only secondarily to that of Italian. Pierre de Ploiche appears to have been the first French religious refugee teacher; and was followed by John Véron, who died in 1563, having produced a Greek-Latin-French dictionary. But the chief pioneer in French teaching in England was Claude Holyband, who wrote the *French Littleton*, already mentioned, in

1566. He taught at the sign of the " Lucrece " in St. Paul's Churchyard. Even his manual of legal French contains, in French, the Lord's Prayer, Articles of the Faith, Graces, and Chapter V of the Acts of the Apostles. In 1573 came the second edition of his *French Schoolmaster*, a book of dialogues. In 1580, he issued his *Treasurie of the French Tongue*, which afterwards developed into a dictionary, and became the basis of Cotgrave's famous *Dictionary*, published in 1611. In 1592, G. W. de la Mothe wrote his *French Alphabet*. He laid stress on practising daily *conférence* with some Frenchman, and advised attendance at the French church, if one exists in the town where pupils live; but models for French speaking should be *good*, and all learning of French in England must be subordinate to residence for a time in France. De la Mothe's book shows that he could appeal to a *clientèle* of lady-pupils. In 1605, Pierre Erondelle, a Huguenot refugee, wrote his *French Garden, for English Ladies and Gentleman to walk in*. Dialogues are on such topics as rising in the morning, on a French lesson, on a lady and the muse, another on a mercer's shop, and another on a goldsmith's shop; and, of course, the dinner-table, giving a large vocabulary for food and cooking. Another dialogue sings the praises of London and the Thames. Erondelle is associated with Hakluyt as the translator of *Nova Francia* for the great geographer. Other refugee teachers and authors of manuals were Jean de Grave, *Pathway to the Gate of Tongues*, 1633; C. Maupas, *French Grammar*, 1634; Gabriel Dugrès, *French Grammar* (1636) and *Dialogues* (1639) [both written in Latin, French, and English]. In 1652, Claud Manger wrote his *True Advancement of the French Tongue*, and had a large number of lady-pupils. In 1658, a revision was made by William Herbert of Paul Cogneau's *Sure Guide to the French Tongue*. One of the last French students of the seventeenth century was Herbert Palmer, who could " not remember his learning " of French, so young had he known it; and, it is said, he could not be distinguished from a native Frenchman. The most accomplished teacher of French in England in the seventeenth century was Guy Miège (1644–1718 ?), who wrote much also on geography and commerce; and this typifies the increasing use of French for commercial purposes. But the element of French Protestantism accounts for Puritanic interest in French. Mrs. Elizabeth Bury learned French to converse with French refugees, " to whom she was an uncommon benefactress." It must be remembered also that Huguenots greatly helped to develop the private schools of England in the eighteenth century. They were often men of unusual attainments, in mathematics and science as well as in languages. Amongst the best known eighteenth-century teachers were Abel Boyer, Palairet, Chamband. Amongst the private schools, probably the dissenting academies, were the leaders in French teaching. Joseph Priestley was a warm advocate. In 1766 there were two Frenchmen on the staff at Eton, teaching French out of school hours. From 1826 to 1851, Mr. J. C. Tarver was French master at Eton, and was succeeded by his son. It was only in 1868, under Dr. Hornby, that French became a fully-organized part of the curriculum. On the whole, French is one of the subjects in which the best girls' schools have, until the twentieth century, taken the lead in comparison with boys.

F. W.

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FRENCH INFLUENCE ON ENGLISH EDUCATION.—It must be confessed that, in the past, the influence of France and of French educational thought has been slight, especially when compared with the almost overwhelming influence of German methods and systems. This is all the more remarkable when we consider the ancient relations that have existed between France and England, and the real sympathy that English writers have always shown for French literature, from the early days of the *Plëiade* (to say nothing of the Gallicized Arthurian legends and the preponderant French element in Chaucer) to the present admiration for Anatole France, Bourget, and others. It is difficult to say how much even so great an educational thinker as Rousseau has influenced English education. His *Émile* was translated into English in 1763, but little trace can be found of his ideas in the English school system denounced so recently as 1914 by the author of *What Is and What Might Be*. It seems probable that Herbert Spencer was acquainted with his work, but again it would be difficult to show how much Spencer's *Education* has practically influenced our schools. To-day, Rousseau is frequently studied in training colleges, but the work of Guyau, Mme. de Maintenon, Fénelon, Pérez is still little known. So much for general theory—little enough when we think of the influence of Kant (*q.v.*), Hegel (*q.v.*), Herbart (*q.v.*), and Rein. Froebel (*q.v.*) and Pestalozzi (*q.v.*) are, of course, Swiss. Compayré's *History of Education* has been translated, and is well known to English students.

Administration. When we come to administration, there is no sign whatever of French influence. It is only of late that we have begun to investigate French systems, and the work of Mr. Michael Sadler when he was at the Board of Education is among the most valuable additions to our knowledge of the subject. In this connection must also be mentioned the work of Mr. Cloudesley Brereton.

Special Subjects. In the matter of special method, there is more to be said; but it should be noted that the influence, for the most part, has been philosophical rather than detailed. It has been rather a matter of spirit than of letter. Séguin's (*q.v.*) work in sense-training is undoubtedly having its effect on the more advanced of our training colleges, and its effects are to be seen also, indirectly, in the work of Madame Montessori (*q.v.*), now familiar to the more venturesome of our innovators. In the teaching of mathematics, the more philosophical ideas come from recent workers in France, among whom Poincaré and Laisant must be mentioned. It would appear that the practical and outward result of our interest in French mathematics is that we are beginning to write our text-books as combined course books, not separating geometry, arithmetic, and algebra, but considering mathematics as a whole.

Again, in geography, it is a considered opinion that the French have had very little direct influence on us, but they have produced text-books on the

subject that have undoubtedly instructed and stimulated English teachers. The influence of Elysée Reclus is especially noteworthy; his great work *Nouvelle Géographie Universelle*, published in nineteen volumes between 1878 and 1895, has been translated into English, and has been widely recommended by English teachers of geography, such as Herbertson and Unstead. The study and teaching of human geography (*i.e.* the influence of environment upon human development and the manners and life of people) have been greatly stimulated by the work of Le Play, continued by Edmond Desmolins.

While the influence of French historians such as Michelet, Guizot, Thiers, and Taine has been considerable, it would be difficult to say in what manner their writings have affected the teaching of the subject, unless we are to regard J. R. Green as a product of French historical science, an altogether unlikely thing. Taine and de Tocqueville are probably the two French writers who have most influenced the study of history; Taine's methods are now less favourably considered, although his philosophy still appears to hold good.

Our debt to French science is, of course, enormous; but within the narrow limits intended by the word "education," it cannot be said that French methods have influenced us in the schools. In this subject, the most noteworthy change has been the substitution of carefully controlled experiment by the pupil for lectures by the teacher. But this heuristic or synthetic method is almost altogether the work of English reformers, although there has been a similar development in France; and Rousseau pointed the way in his *Émile*.

Special Influence in Language Teaching. In the study of modern languages, it would seem that we owe some of the features of the "Reform" reading-book to indirect French influence acting through German channels. But the "Reform method" is now an English synthesis of Swiss and German methods. Oddly enough, the study of phonetics, which started in Germany, has come to England quite as much through French channels as through German. The work of Paul Passy—never at any time carried so far as that of Victor, Jespersen, or our English Daniel Jones—has become widely known both in the original French and in the English translation. But it has been left to Englishmen to develop a method of teaching phonetics in the class-room by the application of general principles which have their origin in a sound psychology, owing no doubt much to French thought, but quite as much to common-sense. As might perhaps have been expected, it is in the teaching of the mother-tongue that the English owe most to France. The operation of this influence is quite recent and, indeed, the French methods themselves are not more than forty years old, and have been perfected only recently. For that reason, we must look forward to an increase of this influence in the near future. Generally speaking, the French attitude towards the teaching of the mother-tongue is that, in it, we have an instrument for developing thought generally; that language is only valuable in so far as it enables us to express that which is within us; and to appreciate the world in which we live and the thoughts of others. Again and again we find in the text-books produced in France, in recent years, this stressing of the living, human element in language. The old vice of what is sometimes called "sentence-mongering" is denounced, and instead we have the short, complete piece of prose or verse used as material for grammar-teaching and development of vocabulary. The psychological intention is to develop association centres, not only the literary but the visual and auditive, so that words and phrases shall regain once more their colour and sound, and shall suggest as they were originally meant to do. So, also, grammar is regarded as the life of the language—the flow which converts static words into dynamic sentences. It would be invidious to name English authors now engaged in applying these French methods to the teaching of English. Again, we owe much, chiefly through the work of Mr. P. J. Hartog, to French methods in the teaching of composition; while French methods of literary criticism of a text in the class-room are now being introduced in several English universities. This *explication de textes* is one of the most remarkable products of the French mind. The books of Lanson and Rudler are among the best. Finally, in the teaching of reading aloud as a method of literary appreciation—although we lag far behind—we owe a great deal to Legouvé and Bonnier, chiefly through the not yet sufficiently known work of Mr. Arthur Burrell. H. O'G.

FRENCH LANGUAGE, THE. — The present article is concrned with French regarded as part of the general school carriculum. The method of teaching it, which has, therefore, to be explained, is the one that realizes most surely, and with the least loss of time, the objects determining its introduction into this curriculum. They are to give the learner—

1. The ability and the desire to read what is best in French literature. (*Literary aim.*)
2. A command of spoken and written French sufficient to provide a secure basis on which to build any special technical instruction that may be required in the practical affairs of life. (*Practical aim.*)
3. Some knowledge of the character and achievements of the French (*Social aim.*)
4. The literary discipline in the mother-tongue that is to be gained by translation as a fine art.

On the first two objects rest chiefly the claim of French to be included in the general school curriculum, a claim justified by the fact that French literature is unquestionably among the greatest, and that a certain command of the language is an indispensable means of access to much information of the highest value—scientific, philosophical, and other. The third or social aim can to a great extent be achieved without learning French, and its complete realization is more properly the function of another branch of instruction, History and Civics. The fourth does not acquire importance except in the case of pupils who take French as their chief or only foreign language. The methods of realizing these four aims will here be treated separately, in order to emphasize what is characteristic of each. In practice, no clean-cut division can be made; in realizing one aim, we are to a greater or less extent realizing the other three.

Literary Aim. It is important to note that the aim is twofold: what has to be acquired is not only facility in reading, but the desire to read the best. If a pupil leaves school with the facility but without the cultured taste, the aim in his case has not been realized, and may never be realized; for experience proves that literary taste cannot safely be left to develop of its own accord after the school period.

Facility in reading can obviously be acquired only by reading much; and literary taste only by reading good literature and by reading it solely for the pleasure and profit to be derived from it as literature. Such reading should not, therefore, be made the basis for linguistic exercises or for displays of philological erudition, except in so far as either serves to increase the literary interest. It may take three forms, to all of which as much time should be given as is possible under existing school conditions.

The first is rapid reading of a selected book in class. Here the essential is that the readers should grasp the sense sufficiently to satisfy interest. Once the sense is clear, the reading should proceed. It must not, of course, take the form of the old-fashioned running construe, which, apart from being a very undesirable exercise in slipshod English, tends by its slowness and monotony to defeat the object we have in view. The book should be read aloud in French, and only what is not understood need be explained. Though the teacher should not hesitate to give at once the meaning of uncommon words, he will be well advised to insist on the class overcoming all difficulties within its reach. If these difficulties occur often, and so hinder rapid reading, the book should be discarded for an easier one. Rapid reading of simple stories may begin in the second year of instruction.

The second form is the close reading of selected masterpieces, with a view to the fullest possible appreciation of the highest qualities of French literature. There is nothing better to begin with than the simpler fables of La Fontaine.

The third is private reading at home. This is of the utmost importance, for the habit of private reading of good literature is precisely what we desire to establish. Everything should be done to ensure that such reading shall be regarded not as a task, but as recreation. The books will be supplied chiefly from the classroom library. Care must, of course, be taken that the texts are easy enough to make frequent recourse to a dictionary unnecessary, and that the subject-matter is likely to interest. Each reader, when returning a book, should be expected to submit a short written account of its contents and his judgment upon it, with reasons for the same. The use made of the classroom library will be the best test of the teacher's success in achieving the literary aim.

Practical Aim. The realization of the practical aim means the acquisition of such facility and accuracy on the part of the pupil in understanding French and expressing himself in it as is possible within the limits of his school career. Of the two, understanding and self-expression, the former is the more important. It suffices to give access to French literature and to works of technical value; it is essential for all, whereas the ability to use the language to any important extent as a means of communication will only be required by a relatively small number, and will become smaller with the inevitable spread of some recognized international speech. The essential value of self-expression in the language, especially oral self-expression, lies in its use, not so much as a means of communication, but as a method of instruction. This will become evident as we proceed.

In teaching skill in the use of a language, we are concerned both with sounds and with their representation in lettering. This creates, in the case of a foreign language, a difficulty which faces us in the very first lesson. The difficulty arises from the fact that the sounds represented by the same letters in two languages are frequently different. These differences are very marked in the case of French and English. Good examples are provided by the following words, which are common to both: *Plume, imitation, rose.* The result is that the pronunciation of the beginner in French suffers from the suggestive influence of the native spelling. When he sees, for example, in French, *une plume,* the tendency is to pronounce the words as they would be pronounced in English. The difficulty can be overcome only by removing its cause, namely, by deferring the introduction of the ordinary or nomic spelling until a habit of pronouncing the foreign sounds correctly has been established. With respect to this, there is practically general agreement. Differences of opinion arise when we go on to consider whether it is better to make the instruction entirely oral until the correct habit has been formed, or to introduce from the start a phonetic script. The essential argument in favour of the use of the latter is that it not only eliminates the wrong suggestive influence of the unphonetic nomic script, but that it substitutes for it the right suggestive influence of the phonetic script. It has a positive as well as a negative value. The only serious arguments to the contrary are: (1) that the habit of using the phonetic spelling confuses and hinders the subsequent instruction in the nomic spelling; (2) that the extra time required to master the phonetic script cannot be spared. Experience has shown that, if the transition from the phonetic to the nomic spelling is made with sufficient care, the first objection has no importance. To the second, it is replied that the extra time required to master the phonetic script is a matter of only a few lessons.

The question as to what time can be spared for phonetics raises the wider issue as to whether it is worth while insisting on accuracy of pronunciation at all, whatever be the method of teaching employed. The answer necessarily must remain a matter of opinion as to relative values; but it may be pointed out that, without correct pronunciation, *complete* literary appreciation is impossible. It is upon harmonies of sound that the beauty of literary phrasing mainly depends. To appreciate these harmonies to the full, it is obviously necessary to reproduce them. For the reader who cannot, appreciation must remain incomplete.

In teaching pronunciation, the essential is to insist on careful listening and exact imitation, the latter being materially aided by information as to the correct position of the lips, tongue, etc., in the production of each sound. The order in which the sounds should be taught, and other details of method, are to be found in any of the few good class-books so far available. A gramophone or phonograph is a useful adjunct to the instruction. It serves (1) to accustom the ears of the class to French spoken by others than their teacher; (2) as an exercise in understanding the spoken tongue; and (3) for dictations.

If in learning pronunciation the first essential is careful listening, in learning spelling it is careful looking. The teacher should insist that every new word be closely scrutinized. Then should follow systematic and repeated oral practice, for like pronouncing, spelling is an art. A certain number of generalizations will be found useful (*e.g.* those which govern the use of the grave accent). Care should be taken to proceed on the principle of the

prevention of error. There is, for example, no greater mistake than to try to teach spelling by dictation. The latter should be regarded, not as a method of instruction, but as a test.

A thorough grounding in French pronunciation and the transition to the nomic spelling will occupy nearly two terms under favourable conditions. Until the end of this period, instruction in vocabulary and grammar remains subordinate; it will then be systematically taught, a few minutes in each lesson being still, however, devoted to pronunciation and spelling practice.

It is now usual to base the teaching of grammar and vocabulary upon good continuous prose instead of, as in the past, upon disconnected sentences invented to illustrate grammatical rules. This does not exclude systematic teaching of grammar; but, by shifting the centre of instruction from the grammar book to the reading book its effect is to ensure that those grammatical points which in actual use occur most often, and are, therefore, the most important, shall receive most attention. The matter of the reading-book should preferably take the form of passages—wholes, not fragments—from various good modern authors, so as to secure the necessary variety of vocabulary and construction for the realization of the practical aim as distinct from the literary aim.

Given the "reader as centre," what should be the method of instruction in the vocabulary and grammar for which it supplies the basis?

In the case of vocabulary instruction, let us note that the object in view is not only to make clear the meaning of the French word, but to associate this word and its meaning so intimately in the mind, that the one promptly recalls the other, and does so without the intervention of the native idiom; in other words, our object is to give the learner, within the limits of his vocabulary, the power to summon to consciousness the French word, or its meaning, with the same certainty and rapidity as he does an English word or its meaning. There are three ways commonly used of making clear the meaning of new words: (1) Giving the English equivalent; (2) explanation in French either by definition, example, or otherwise; (3) performing the action or showing the thing—actual or pictured—that the word represents. Of the last, only limited use can be made. Translation is effective for interpretation in every case, except when the French word cannot be rendered (*e.g. képi*), or when the English equivalent is itself not clearly understood. Explanation in French corresponds to the use of the English dictionary in the study of the native tongue, and becomes increasingly effective as the French vocabulary of the pupil grows. But even with advanced pupils, it saves time, in certain cases, to resort at once to translation. A description of *pinson* (a chaffinch) would, for example, be more likely to mislead than not, and so would a coloured plate, unless it were very good and the class familiar with the species. Considered merely as means of interpretation, there is not much to choose between the three methods. It is by the extent to which they respectively serve to stamp upon the memory the association of the new word and its sense, that their relative value for instruction must be determined.

Now, the power to recollect words and their meanings varies from individual to individual not in degree only, but in kind. Some recall more readily what they have seen, others what they have heard, and others again what has involved some form of muscular movement (*e.g.* articulation, writing, touching, acting). These differences hold both for the memory of *things* and of *words*. And they may all be represented in the same classroom. In teaching vocabulary, therefore, the claims of all must, as far as possible, be recognized. This is ensured in the case of each new *word* by having it heard, uttered, seen, written. To ensure the same in the case of the associated *meaning* is a much more difficult matter. If the new word is associated with the *thing*—actual or pictured—that it represents, a strong appeal is made to the visual type of memory. This appeal should, whenever possible, be made, for there can be little doubt that, in the case of things, the visual memory is the most common. The association with an action makes also a wide appeal and, at the same time, turns to account the strong dramatic interest in young learners. In practice, however, it is upon translation and upon explanation in French that the teacher has chiefly to depend. What is their relative value for memory?

Considered from this point of view, the chief objection to translation is the danger that the pupils may form a purely mechanical association between the two words, French and English. In the case of learners who have the capacity for retaining such associations, no harm is done, but their number is limited. By the greater number these verbal associations are quickly lost. The objection is to a greater or less extent removed by using the alternative method of explanation in French; its effect being to summon to consciousness a part at least of the meaning behind the word, and thus to strengthen the first impression it makes upon the memory. An example will make this clear. When *boulanger* is explained by "baker," the learner probably does not do more than substitute one verbal symbol for another. When *boulanger* is explained by *celui qui vend ou fait du pain*, part at least of the meaning is actually revived. It may be said that the same result can be produced by explanation in English. True; but as our object is to teach French, the more French and the less English heard and used in the classroom, the better. Every unnecessary English word is a hindrance to progress. By so much our method becomes less than the best.

Except in the case of a particular type of memory, probably not common, translation makes but a relatively weak first impression. The impression may be strengthened by constant repetition of the process of translation. The objection to this is that it tends to create a habit of translation and thus to defeat the end in view, which is to establish the opposite habit of directly associating the French word and its meaning. The safe general rule for translation is: Use it, either to make clear the meaning of a new word, or to make certain the meaning has been understood, *only when it cannot be avoided*. This, because: (1) as a means of interpretation, its value for memory is relatively small; (2) its use, unless strictly necessary, means so much less than the maximum use of French; (3) its repeated use, in the case of any given word, necessarily hinders the direct association of this word with its meaning, and thereby hinders the attainment of facility.

If the maximum use of French is to be ensured and the direct association made habitual, the method of repetition, of re-impressing the meaning of a new word upon the mind, of using it in varying

contents, must be mainly by oral question and answer in French, be the method of interpretation translation or not. This repetition may take several forms, of which the most important can be classed under the following heads: (1) Questions on the context in which the new word occurs and recurs; (2) direct questions on the word itself (*e.g. Qu'est-ce qu' un boulanger? De quoi fait-il le pain?*); (3) association with other words related to it by sense or form (*e.g. boulanger, boulangerie; pain, cuire*, etc.). An important effect of this vocabulary practice is to deepen the meaning of a new word and establish its full connotation, which is by no means always equivalent to that of the usual corresponding English word (*e.g. jouer à la balle; recevoir une balle dans la tête; balles de coton* [ball, bullet, bale]). In selecting words for vocabulary practice, the clear principle is to ignore uncommon words and let the most common take care of themselves. The latter, it may be added, will be learned by unconscious assimilation in classes in which the rapid reading and private reading recommended in the previous section (Literary) have their due place.

From the teaching of vocabulary, we turn to that of grammar, which is its necessary sequel. Here the essential point to grasp is that skill in the use of grammatical forms, like other kinds of skill, can be acquired only by practice. This does not mean that the rules of grammar are unnecessary; on the contrary, in the art of grammatical self-expression, as in all arts, the first attempts *to do* are aided by instruction in *how to do*. It does mean that when the necessary skill in doing has been attained, the rule, considered as a means, has fulfilled its purpose. If, for example, the learner can at once and without conscious effort say *Je le lui ai donné*, when he wishes to express the fact represented by this phrase, it is obviously unnecessary (examination requirements apart) that he should continue to recall to mind the rule that, if two personal conjunctive pronouns occur together before the verb, the accusative must precede the dative. In all cases where possible, the rule should be found by the class itself after comparison of examples. This ensures that it shall be not only better understood, but better remembered.

For the reasons already given in discussing vocabulary practice, grammar practice must be, for the most part, oral and in French. Examples of the methods of practice so far devised will be found in any good class-book.

A few words with respect to written work. In this it is important to distinguish between what serves to teach and what serves as a test of results. The first may take the form of (1) composition based upon the text in use, and done on the blackboard by teacher and class together; (2) free composition, or translation into English, done by the pupil himself with the aid of his dictionary and grammar; (3) translation into English done in the way presently to be described. Tests are supplied by (1) questions in French similar to those used in the oral practice; (2) dictations; (3) free composition or translation without aid of teacher or dictionary.

The preceding principles, when applied to the construction of a given lesson based upon a passage of a text, usually take the following form: (1) Reading the passage, and interpretation of it by the methods above described; (2) questions in French upon the text, preferably so framed that they require some alteration in the wording of the text; (3) other forms of vocabulary practice, mainly oral; (4) grammar practice, mainly oral; (5) tests, mainly written, preceded by oral practice in the spelling of new words. Practice in pronunciation is supplied by the reading of the passage that begins the lesson.

The ideal lesson, a work of art requiring the finest skill, is that which obeys the first principle of art, namely, unity of design; each stage in the lesson should bear chiefly upon the same selected word-material with a view to impressing it as strongly as possible upon the memory of the learner, and in such a way that, up to the limits of his progress, he has it available for prompt and accurate self-expression.

Social Aim. The aim is to develop in the pupil (1) a habit of mind, that of holding it right that one's country should endeavour to be just, not merely self-seeking, in its dealings with other countries; (2) the sound political judgment that makes it possible to distinguish between true and false in politics. Though the realization of this aim is properly the object of the teaching of History and Civics, the teacher of French can contribute toward it both by the exercise of his personal influence and also by giving a place in the reading matter to sympathetic accounts of French life and history, and especially to those parts of the history not likely to receive adequate attention in the British history class. This reading has also value for the achievement of the literary aim: a general knowledge of French life and history being essential to a full understanding of its literature.

Translation as a Fine Art. The value of translation as a method of teaching French has already been considered. We are here concerned with it as a means of literary discipline in the mother-tongue. What is its value as such? It is not an exercise in composition, in the sense of arranging ideas in an orderly sequence to form a literary whole: the ideas are given and their arrangement fixed by the passage to be translated. It is essentially an exercise in construction; in the careful choice of the exact word required by the sense, and in the arrangement of words to form harmonious phrases. It is an exercise in which the first condition of success is absence of haste—time to polish and re-polish until a result has been achieved that satisfies a cultured taste. It is, therefore, far better to occupy the whole time available for this form of translation during a term in working through even one passage thoroughly than half-a-dozen passages short of thoroughly. To begin with, teacher and class should collaborate so as to enable the former to show what is meant by a high literary standard, and how it is to be reached. Only when the pupils have realized the spirit in which the art has to be approached, and the extreme care that it demands, should they be allowed to work by themselves.

Accessories. The following will serve either to aid teaching or stimulate interest in the work: (1) Wall-map of France, lettered on one side, unlettered on the other; (2) a plan of the school-buildings and grounds to serve as a basis for oral and written work; (3) an almanac easily made with coloured chalks, showing only the initial letters of the names of the months and days, and the date figures; (4) a clock-face for teaching the time of day; (5) pictures, photos, picture-post-cards, grouped geographically: these, together with pictures of animals, plants, etc., will be of use in

vocabulary teaching: they can, for the most part, be pasted on cardboard and hung on the wall; (6) a collection of French coins, stamps, telegrams, tickets, match-boxes, advertisements, etc.; (7) an album of newspaper cuttings on all possible subjects (*e.g. petites annonces*, marriages, accidents, etc.); (8) table of the metric system and, of course, as much blackboard space as possible; (9) a classroom library; (10) gramophone. F. B. K.

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FRENCH REVOLUTION, EDUCATION DURING THE (1789–1799).—Before the great French Revolution, elementary education scarcely existed in France. True, the laws of 1695 and 1724 ordained the establishment of a school in every parish; but so little came of them, that the *cahiers* (copy-books) of grievances and instructions issued by the assemblies of voters to their deputies, in the Spring of 1789, spoke of education as almost non-existent. "Schools are wanting everywhere in the rural districts. Long have we desired a master to instruct the youths, who are stagnating in ignorance." The few teachers "are bad because they are not paid." Certain *cahiers* suggest 300 francs as a minimum annual stipend. The great mass of the French people was illiterate. Meanwhile, the philosophic and humanitarian movement in France insisted on popular education, the great impulse towards which had been given in the famous novel of Rousseau, *Émile.* (See ROUSSEAU.) The fundamental idea of his *Contrat Social* (1762) was that men, as citizens of a free State, form a political community on equal terms; and this implied education. Montesquieu, in his *Esprit des Lois* (Bk. IV, Ch. 1) [1748], also insisted that in a republic, education must instil principles of virtue. These and similar notions created a general demand for the much needed boon. "We must get hold of the rising generation," said a prominent democrat; and that was the opinion of the National Assembly, which cleared the way by abolishing the monasteries, hitherto the chief medium of instruction in their several districts. The confiscation of Church lands and similar measures also did much to overthrow the school-system of the old monarchy; but the first National Assembly (1789–1791) had not time to draw up the national system which was desired. Mirabeau wrote on the subject, advising, among other things, a Lycée National or State University. But the most definite suggestions were contained in a Mémoire drawn up for the Assembly by Talleyrand who advised the separation of primary from secondary education, the latter being reserved for the best scholars. Primary education was to consist of reading, writing, and a knowledge of the laws and constitution of the country. It must be spread to every village, but not made absolutely compulsory. The aim, it will be seen, was largely political, viz., the strengthening of popular government in France. Physical training was to be the rule both in the primary and secondary schools, with a view to strengthening the future generations and preparing them for the national defence.

Condorcet and the Legislative Assembly. The new men, who came in (Sept., 1791) with the second or Legislative Assembly were Condorcet (*q.v.*), Lacépède and Romme, who became the moving spirits on the Committee for Education appointed by that body. The first named, already known for his educational efforts and philosophic writings, implanted on the new scheme of education his enthusiasm for mankind and his logical acumen. He showed that all studies must be correlated so as to effect a unity, secondary education completing that given in the primary schools, though in them, too, there were to be intermediate studies both in languages and sciences preparatory to more advanced work. The utilitarian aim is emphasized by instruction in trades and agriculture, while languages (especially the classical languages) hold an ill-defined position. In fact, the division into classical and modern subjects finds no place in his system. A knowledge of the laws and the constitution is to be inculcated, of course, far more fully in the secondary schools. His purpose and that of the committee was to give to all pupils the elements of education in some 31,000 elementary schools, at an estimated cost of 24,400,000 francs a year. Above the secondary schools were to be 110 institutes or colleges, in which advanced studies found a place, the political side being designed to prepare students to become the magistrates, jurists, and legislators of the future. Clearly, this generous programme implied a time of peace and orderly development. Very different were the actual conditions. After the fall of the monarchy and the September massacres (Aug.–Sept., 1792), the National Convention succeeded the Legislative Assembly, and took over the Report of the Committee. But the war and the strifes between parties (Condorcet having allied himself with the Girondins, who were to be proscribed on 2nd June, 1793) told against the execution of a programme which obviously demanded a time of peace, order, and large and continuous expenditure. Condorcet's scheme also being suspect, the extreme Jacobins, especially Lepelletier, drew up another, which finally was touched up and accentuated by that fanatical follower of Rousseau, Robespierre.

Robespierre and the Jacobins. The new programme contained some excellent features. It distinguished between education proper and mere instruction, a distinction which Rousseau had drawn and Pestalozzi was further to emphasize. The Jacobin programme now laid stress on educative methods as apart from the imparting of facts. The Jacobins also insisted on physical training in its most elementary form; viz., the feeding of the very poor children, in order that they might profit by teaching. They further demanded that morality and virtue must be inculcated; that boys and girls be taught together up to 12 and 11 years of age respectively, and be clothed in a kind of national uniform. After that time of life, co-education was to cease, and regard was to be had to the future calling of the young citizen. But, in all its parts, elementary education was to be of almost Spartan severity, the aim being to level social differences and produce a national and strongly republican type fitted to endure hardships, fight hard and work hard for *la patrie.* The State was to take the place of the family, children being taken over and placed in boarding-schools at 7 or 8 years of age. Obviously, the training of individual character, on which Rousseau had insisted in *Emile*, would largely disappear, along with the influences of home life. The levelling

tendencies of Robespierre's plan were too drastic to commend it even to the Convention. Danton opposed them; and that body left parents free to choose between a day-school or a boarding-school. Having thus lightened the financial problem (at least for the rural districts), the Convention prepared to found *Écoles nationales*, including sections for the very young on the objective system of teaching suggested by Rousseau. But it declined for the present to proceed with the secondary schools except in very small numbers. The law of 19th December, 1793 (the first attempt on a large scale at universal elementary education), provided for the erection of a large number of elementary schools, where reading, writing, and arithmetic were to be taught, and at which attendance was not absolutely compulsory. More, perhaps, could not have been attempted at that terrible time, shortly before the climax of the Reign of Terror, when France was in danger from foreign invaders.

An important part of the work was the preparation of school-books and the training of teachers. Little could be done for the latter, for neither a system nor an organization was at hand; but in regard to school-books something was effected. Robespierre's proposal of national prizes for the best text-books seems to have had no very satisfactory results. But, in January, 1794, the "constitutional" Bishop of Blois, Grégoire (a devout Romanist, though a fervid Republican), presented to the Convention a Report of the Committee on Education, in which he sought to stimulate interest in this important topic and to indicate the lines to be followed in these educational works. Among the subjects handled were: French Grammar (where the chief practical difficulty was provincial *patois*), Arithmetic, Geometry, Natural Phenomena, and Republican Morality. The last-named topic was treated from the point of view of a work entitled the *History of Citizenship and of Republican Virtue*, which centred in the deeds of the French Revolutionists. Romme and others compiled a little book entitled *The Farmer's Diary*, giving facts of natural history for the months of the year, the weights and measures, and other useful knowledge, together with a Republican Diary. The popularizing of knowledge, along with a presentation of the democratic case, must have produced very widespread results, especially among a people where ignorance had been profound. The clearness and convenience of the new weights and measures, the New Calendar (due largely to Romme), and the famous Declaration of the Rights of Man, tended to mark out a new era in the thought and life of France; and education played its part in helping the growth of the new ideas.

The Thermidorian Reaction. That they failed to win complete and permanent acceptance was not the fault of the educationists, but of the politicians. The extravagance of their fanaticism, as shown in the later phases of the Reign of Terror (May–July, 1794), led to the overthrow of the Robespierrists in what is known as the Thermidorian Reaction. Force of circumstances rather than conviction brought their successors to a less drastic policy. Consequently, the rigour of the Jacobin educational system was relaxed. Fewer schools were founded or maintained; in most cases the payment of fees was required; and the strict supervision of private schools was considerably relaxed. Thus, by the end of 1794, the exigencies of the situation and the decline of political fervour served to defeat the effort for an ultra-democratic system. The deaths of Romme, Condorcet, and other educational enthusiasts had also been a fatal blow to the movement. Some efforts were made to keep up or even improve the advanced *Écoles Centrales*; but they, too, made little progress after the year 1794, despite the effort of François de Neufchâteau, the member of the Directory who was responsible for public instruction. In the years 1795–1799, the most interesting developments were in higher education; viz., the Conservatoires of Arts and Music and the re-organized Institute of France; but these topics do not fall within our province. After the State bankruptcy of the early autumn of 1797, elementary education fell into a sorry condition. It appears that in 1799 there were only twenty-four elementary schools in Paris, with a total attendance of less than one thousand scholars; and this was not exceptional. Such was the state of things when the *coup d'état* of Brumaire (Nov., 1799) placed Bonaparte in power as First Consul, and ended the period of the French Revolution. As in many other spheres of action, the extravagance of the efforts of the leading democrats entailed failure. Nevertheless, France pointed the way towards a system of national education, which had its influence on the Swiss reformer, Pestalozzi, in 1799, and on the Prussian reformers, Fichte, Humboldt, etc., who, after Jena, saw in the education of the people the means of reinvigorating their ruined State. Thus, the movement originating at Paris was to have the first practical outcome in Switzerland and Prussia, at the very time when the reactionary influence of Napoleon sterilized the educational impulse in France herself. J. H. R.

FRESHMAN.—The name applied to a university man during his first year. In Dublin University he is a junior freshman in his first year and a senior freshman in his second year. At Oxford the title lasts for the first term.

FRICK, OTTO (1832–1891).—The son of a Protestant priest, born near Magdeburg, in Brunswick, and educated in Halle and Berlin universities, studying chiefly literature, philosophy, and theology. He then spent some years teaching in German gymnasia, becoming a principal in 1864. In 1880 he became director of the Francke Institution at Halle, where also he established an institution for the training of teachers in the German higher schools, and founded a magazine for teachers, in which he expounded his views on practical pedagogy and the training of teachers.

FRIENDS' SCHOOLS.—The history of Quaker education may be said to date from 1667, when George Fox, the founder of the Society, records in his *Journal* his recommendation that two schools should be established near London, for boys and girls respectively, that they might be instructed "in all things civil and useful in the Creation." In accordance with this suggestion, a school for boys was started at Waltham, and one for girls at Shacklewell. By 1671, there were in existence fifteen boarding schools under the charge of Friends in different parts of the country. The dangers of a merely intellectual training were recognized, and it was laid down as a general principle that children should "not only be instructed in languages and sciences, in the way of Truth, but likewise in some profitable and commendable labour or industrious

exercises, which may prevent many temptations attending idleness." Arrangements were made for the training of suitable boys and girls as teachers, financial assistance being given when necessary.

An educational project that aroused a good deal of interest at the close of the seventeenth century was set forth by John Bellers in his " Proposals for raising a College of Industry of all useful Trades and Husbandry, etc." It was a scheme for the establishment of a self-supporting community of young and old, to provide " all the conveniences and comforts a man can want and a Christian use." The children were to be taught useful occupations at an early age, so that they might not become wearied with excessive book-learning. An attempt to carry it out was made on a small scale at Clerkenwell, but the results were discouraging; and the idea of a labour school, defraying its own cost from the work of the scholars, was eventually abandoned. The existing Friends' School at Saffron Walden is the descendant of this institution, but its character has been radically changed in the course of two centuries. The early years of the eighteenth century proved a period of educational reaction. Quakerism was passing through the stage of Quietism, when there was a tendency to regard intellectual activities as dangerous to spiritual growth; the original adherents to the Society included men who had received a liberal education at Oxford or Cambridge, and they had left few successors; for Friends, like other Nonconformists, were denied the privilege of a University training.

Character and Management of Quaker Schools. In the middle of the century interest in education was again aroused, finding expression in a school at Ackworth, near Pontefract, in 1779, for the children of Friends " not in affluent circumstances." Its founder, Dr. John Fothergill, received generous support from other members of the Society. The numbers, small at first, soon grew, and Ackworth is still the largest of the Friends' Schools, comprising about three hundred boys and girls. Sidcot (Somerset) dates from 1808; Wigton (Cumberland) from 1815; Rawdon (Yorkshire) from 1832; Penketh (Lancashire) from 1834; Great Ayton (North Yorkshire) from 1841; and Sibford (Oxfordshire) from 1842. Some of the schools were confined at first to children who were members of the Society; others were intended for children closely connected with the Society who had not the status of members. This distinction has largely disappeared. All the schools, including Saffron Walden, were intended primarily for boys and girls who needed financial assistance for their education. In the meantime, two schools were established in York for the children of parents in better circumstances: one for boys, now Bootham School, dating from 1823; and one for girls, now the Mount School, dating from 1831. Leighton Park School, near Reading, was founded in 1890 with the object of providing a " Public School " for boys, under the management of Friends. With the exception of Leighton Park and the two schools at York, all these schools have from the outset provided accommodation for both boys and girls, but the two sides were formerly kept distinct, and it is only within recent years that co-education has been adopted in most of them.

In connection with all the Friends' Schools, strong Old Scholars' Associations have grown up, keeping former scholars in touch with their school and enabling them to give practical expression to their loyalty. In early days, the Society relied mainly on privately-managed schools: some private schools exist at the present time partly staffed by Friends. The public schools are managed by committees appointed by official meetings of the Society.

There are four Friends' Schools in Ireland: one for boys at Newtown (Waterford), founded in 1798; one for girls at Mountmellick (1786); and two which receive both boys and girls: Brookfield (1836) and Lisburn (1774).

The gift by Benjamin Flounders of a considerable sum of money for the training of men teachers has had an important influence on the educational work of the Society. A training college was established at Ackworth, being subsequently removed to Leeds. In this institution a large proportion of the men teachers in Friends' Schools received their training; in 1909 the plan of a residential college was abandoned, and the income of the Trust is devoted to providing scholarships for University education.

An interesting feature of Quaker education in the twentieth century has been the establishment, in 1903, of the Woodbrooke Settlement, near Birmingham, for the training of Friends and those in sympathy with them in religious and social work. Non-residential Settlements along similar lines, and frequent Summer Schools, seek to extend the influence of this movement, whereby the Society endeavours to equip its members for service.

Scope of Educational Activities. In the last twenty years no new school has been founded, and Friends have concentrated on their existing educational establishments; they have been intensive rather than extensive. In this movement, vigorous work has been done by the Central Education Committee of the Society of Friends, and by the Friends' Guild of Teachers, which is affiliated to the Teachers' Guild of Great Britain and Ireland. There has been a rough grading of the schools into three sets, according as the leaving-age approximates to 18–19, 16–17, and 14–15. Each school has reconsidered its aim, and has endeavoured to provide a well-planned and carefully defined scheme. A noteworthy boarding-school experiment is being made at Sibford with " a three years' course, definitely designed to suit the needs of boys and girls likely to conclude their school life at the age of 14 or 15 years; to cultivate alertness of mind by graded lessons in which educational handicraft takes a prominent place; to promote bodily activity by means of organized games and outdoor life in the open country; and to develop strength of character by the maintenance of high ideals and an atmosphere in harmony with the religious and moral training. . . . Children in whom exceptional ability is discovered are encouraged to pass on to a higher school before they reach the leaving age at Sibford." In some cases this is made possible by means of Transference Scholarships offered by one of the other schools or by the Central Education Committee.

Obviously the curriculum in the schools varies according to the aim. In those with the higher leaving-age, boys and girls are prepared for professional or commercial life, and for the old and new Universities. Some of the schools share in the training of teachers, either by taking student-teachers for a probationary period, or by allowing graduates to begin teaching in the school under supervision, whilst studying the aims and methods of education and working for a Teachers' Certificate. For nearly sixty years the education and training

of women teachers has been part of the work of the Mount School.

The Friends have never concentrated on intellectual development alone; they give careful attention to games and physical culture and to the employment of leisure hours. The first School Natural History Society was founded, in 1834, by John Ford as Head Master of the School at York, now known as Bootham School. The schools aim at a true development of personality by a many-sided education; they have built up a great tradition of national service in paths of peace.

"Influence rather than authority" is a watchword with the teaching staffs. A high education authority, who has included the Friends' Schools in his wide range of study, has recently used words which members of the Society, conscious of gulfs separating aim from achievement, would hesitate to use. "In the schools of the Society of Friends, we feel the power of a spiritual tradition. They follow and enjoin a settled way of life. What is best in them breathes a spirit of reasonable service and reveals the secret of a quiet mind. The distinctive marks of the Friendly tradition in education are naturalness, simplicity, and good sense. But the living power of that tradition lies in the principles which support and guide it, and those principles win their way to the heart by patience, by prayer, and through the persuasive power of personal example." A. ROWNTREE.

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FROEBEL AND MONTESSORI, THE FUNDAMENTAL PRINCIPLES OF.—Both educators start with the fundamental belief that within the child are forces which impel him to seek those activities that will best help him in his development; hence he must be free to follow the call of his inner nature.

Realizing this, in the *Education of Man*, Froebel says education must be passive, following, not prescriptive and interfering; and, in the accounts of the school at Keilhau, we find that the children were left wonderfully free, especially in games and creative work. But, in spite of this, the principle of non-interference which Froebel regards as fundamental to his method has remained merely an inspiring ideal.

Dr. Montessori has gone further, and has shown how it can be put into practice in the schoolroom. The school environment is carefully planned so that free movement is possible. This enables the child to change his position whenever he likes, so that no strain is put on the growing body. He is left free to choose his work, but within certain limits. This, Montessori considers necessary, because, if the child be left free to choose anything in an unlimited environment, he suffers from a surfeit of material, and his ideas will be less clear than when gained from a comparatively few well-chosen objects. Hence she has selected types of work that will stimulate the natural instincts and appeal to the "profound needs" of the child. He is left free to take his own time over his work, since it is detrimental to the organization of nervous matter to attempt to hurry a young child in his thinking In these ways, work is perfectly adapted to the needs of the individual: there is no forcing the pace, no keeping back of anyone as is necessary in any form of teaching in groups.

From the study of the *Education of Man* and the *Mutter und Kose Lieder*, it is evident that, while Froebel urges that the educator must consider the development of the child in all its aspects, he is more concerned with the development of mind than with that of the body; Montessori would have most attention given to sensorial and muscular education during the earliest years of life, and this is in accord with modern scientific research.

Although it is impossible to separate physical and mental development, we can emphasize either aspect, and this has led to the different conclusions arrived at by Montessori and the Froebelians as to the types of work deemed most suitable for young children. Froebelian work, especially in its later developments, is concerned far more with the vivifying of ideas, while work in the Montessori schools is directed chiefly to sensory and muscular education. This has led to different forms of handwork for little children. The Froebelians lay great stress on creative and expressive forms of handwork, and would give a wide range of materials from which to select; while Montessori teachers believe in the more formal training given by the didactic apparatus. Through the testing of the senses made possible by this apparatus, defects are discovered while the child is very young, and, where possible, remedied: for the mind has need of accurate and trustworthy *data* in the guidance of conduct.

In the relation between teacher and pupil, one of the chief differences is seen. In Froebelian schools the children are taught in groups, and are given lessons. (Students taking the examinations of the National Froebel Union are examined in lessons previously prepared.) Recently there has been a tendency to allow more freedom and greater choice in occupations, but the teacher directs the work through the morning. In Montessori schools, Froebel's ideal that education must follow the nature of the child is actually carried out. The work is individual, because, since no two children are alike, it is obvious that they cannot require precisely the same educative experiences. The teacher's part is, therefore, more passive than in Froebelian schools; she closely observes the children at work on the different problems presented by the didactic apparatus; and when each is ready for further suggestions, she gives an individual lesson. In a large class, some children naturally gather round and, if they are ready, profit also by the lesson.

One great difference between Froebelian and Montessori practice is that, in the former, when new ideas are gained, ways are devised by the teacher for their immediate application; in the latter, there is no attempt made to encourage the child to apply his knowledge. The teacher is content to wait until, urged on by the force of his awakened powers, the child applies them of his own initiative to the discovery of the world about him, and in so doing lays the foundation for the acquisition of knowledge. M. S.

FROEBEL, THE PRINCIPLES OF.—Froebel's great work, the *Education of Man*, in which he sets forth his educational theories, was published in

1826, the year before Pestalozzi died; his first kindergarten in which he endeavoured to put those theories into practice was opened in 1840, the year before the death of Herbart. Both Herbart and Froebel certainly owed much to Pestalozzi whom, on different occasions, both visited. On the whole, however, they tend to emphasize completely different aspects of Pestalozzi's teaching. Two of Pestalozzi's main theories were that Life and Experience teach and that all development comes from within. Herbart developed from this first idea the doctrine of the many-sided interest, Froebel adopted the second and expanded it into the chief of his theories, *i.e.* the necessity for the self-activity of the child.

Both in body and mind, he says, the young child is restless and must have an outlet for his restlessness; education, therefore, must evidently be sought in activity on the part of the child, wise direction on the part of the teacher. "Education should necessarily be passive following (only guarding and protecting) not prescriptive, categorical, interfering."

Self-activity was to be the means of Froebel's system of education, he does not leave us in doubt as to the end that he had in view. "Education" he says, "consists in leading man as a thinking intelligent being growing in self-consciousness to a pure and unsullied conscious and free representation of the inner law of Divine Unity, and in teaching him ways and means thereto."

This idea of a "Divine Unity" is the other outstanding principle of Froebel. Everything came in the beginning from God, who is the central unity: the aim of education should be by a process of self-development to lead man back to that unity. The spirit of that divine unity is shown in all the works of God and can therefore best be studied in Nature. It was the expression of such views which led the Prussian government to style Froebel a Pantheist and to close the kindergartens of Prussia in 1851, because they were supposed to be imbued with Pantheistic or atheistic ideas. Froebel, however, always repudiated the suggestion that he held Pantheistic views, simply urging that education is a progressive development of the individual to a larger life which is God.

Froebel was essentially a psychologist. Much of his psychology is now disproved, but all of it was distinctly in advance of his own age.

He recognized that although development must necessarily vary greatly with the individual child there were yet certain principles governing it that might be generally accepted.

Perhaps the most important of these was his theory of continuity. All development, he felt, must depend on the "connectedness of humanity" on what we should now call heredity, *i.e.* what the individual has inherited from previous generations. Here, of course, Froebel diverges widely from Herbart who denied the presence of innate ideas and faculties in the child.

Then too, self-development will in every case be determined largely by opportunity and the use made of opportunity or on what we should call environment and training. This, of course, is where the work of the teacher comes in; he must aim at directing the child's activities along natural lines, and the most natural activity for the young child is play. "The spontaneous play of the child discloses the future inner life of the man."

Anything which interests the child is play to him, so Froebel invented a series of gifts, really play-things by which the child's senses might be trained; and occupations, mainly social games, to provide educative exercises for the young child.

The social idea is indeed largely emphasized by Froebel. "Our aid" he said once, "is to train brave sons for our fatherland—upright, industrious citizens for the State." He realized that the child had to be trained to live as a member of a community, and was one of the earliest advocates of group-work. He did not believe with Fichte that the State through the school should have sole charge and direction of the child, but he did not agree with Pestalozzi that the ideal education was by the mother at home. The school he thought had a definite share in the child's development.

As Froebel was concerned with the development of the child and not with the mere imparting of information, it is not surprising to find that there is no place in his system for narrative teaching or for rote-learning. It is because many of his followers have imparted no information and at the same time have failed to bring about development, that the Froebelian system has been so often and so severely criticized. Nothing shows this weakness more clearly than the manual side of his system; he believed in manual training: not to train the senses merely, as did Pestalozzi, nor for economic reasons as did Rousseau, but solely to find an outlet for the natural restlessness of the child's body. With this end in view he devised many manual exercises. His followers have for the most part lost sight of the governing principle but insist on the rigid performance of the exercises—valueless in themselves.

Kindergartens have now spread over almost the whole of the civilized world, but the spirit of Froebel is not so readily assimilated. Without the real ideas behind it, the system tends to become mechanical and formal, and liable to repress rather than to encourage the free development of the child. The real danger of the system lies in what Prof. Adamson calls the "almost superstitious or pedantic use of one definite set of apparatus. This danger besets also the Montessori system, a later attempt to deal with the education of young children, which in many ways resembles the system of Froebel. But the defects in their interpretation do not impair the undoubted value of the principles. C. I. D.

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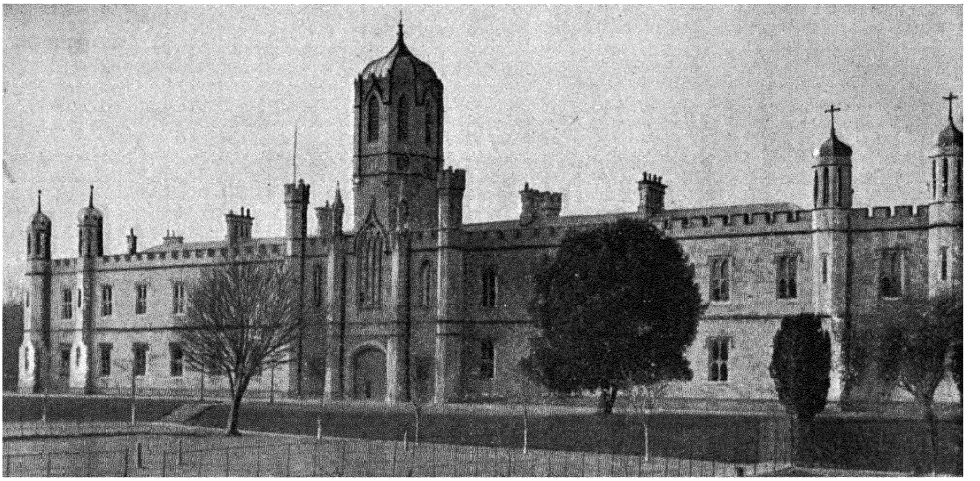
The Commission reported in 1907, and the Irish Universities Act was passed in 1908. The Royal University was dissolved, and two new (teaching)



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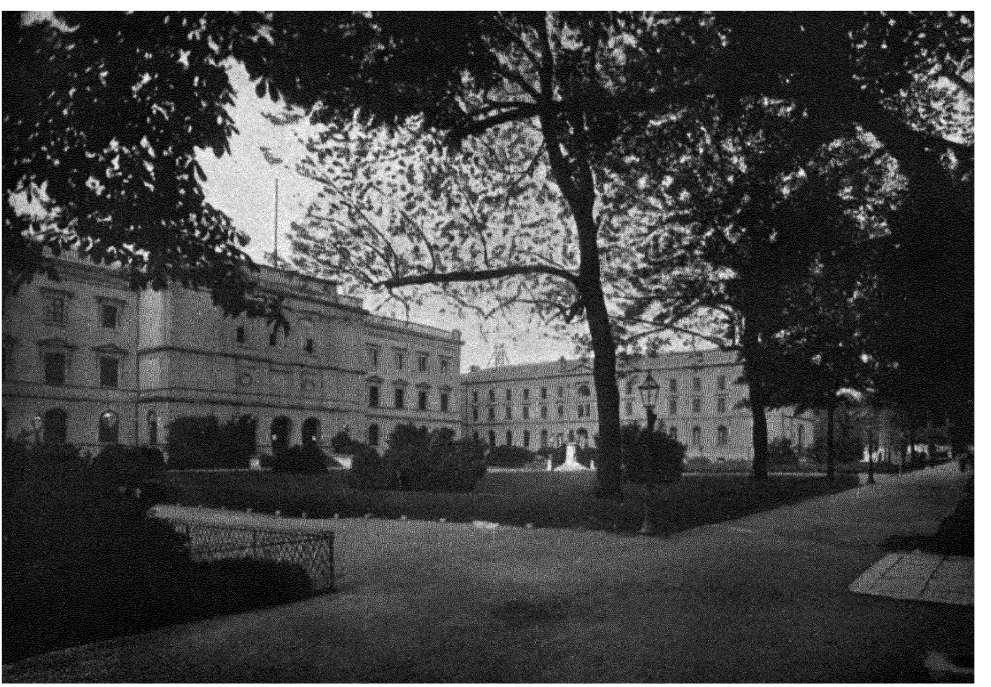

The University of Geneva

PLATE XLI

Universities were founded—one at Belfast and another at Dublin—to which the existing Colleges (other than Trinity) were affiliated. Trinity College was let alone. A. E. L.

FULLER, THOMAS (1608–1661).—He entered the church in 1630; and from that time continued to write a vast number of sermons and religious treatises, stories, and essays full of shrewdness, wisdom, and quaint humour. On the outbreak of war, he supported the royal cause and shared its misfortunes, writing more treatises in his enforced leisure, including a History of Cambridge University and a Church History of Britain. His greatest work, *The Worthies of Britain*, left unfinished, occupied twenty years of his life, and is a valuable collection of facts about the counties of England and their famous sons, written, as he says, "to preserve the memories of the dead, to present examples to the living, and to entertain the reader with delight."

FUNCTIONS, ALGEBRAICAL.—(See ALGEBRA, TEACHING OF.)

FURNIVALL, FREDERICK JAMES (1825–1910).—A colleague of F. D. Maurice, who taught for ten years in the Working Men's College. He founded the Early English Text Society (*q.v.*); the Chaucer, Ballad, New Shakespeare, Browning, Wicklif, and Shelley Societies. He edited many of the texts published by these societies, including a valuable edition of Chaucer's *Canterbury Tales*. For the Shakespeare Society he edited several books in the "Shakespeare's England Series," and wrote an introduction to the Leopold Shakespeare. He was the first editor of the Philological Society's *English Dictionary*, and for some time was secretary of the Society.

G

GAELIC, THE TEACHING OF.—Gaelic, one of the oldest languages in Europe, still retains many of its old inflections, idioms, and rules of syntax, and different phases of the language present peculiar problems requiring special treatment.

I. **Junior Course.** Aim: To enable the pupil (1) to read and write with facility; (2) to acquire a good working knowledge of grammar; and (3) to develop a taste for literature. One school period daily for three years will be required, and beginners should be about 12.

A. PHONETICS. Not only is a mastery of phonetics desirable as a basis for correct pronunciation, but it is of great use in overcoming the difficulties of accidence, syntax, and especially spelling. Every letter or combination of letters must receive its distinctive value, which differs in every instance from its English value.

Any satisfactory method of teaching Gaelic phonetics must draw copiously on the pupil's knowledge of the spoken language. From the outset, attention should be directed to the parts played by the lips, teeth, etc., in the production of sound. This, besides being a training in phonetics, will help to eradicate dialect solecisms. The pronunciation of written examples should be followed by the writing of dictated examples.

B. GRAMMAR. Gaelic, as an inflected language, presents grammatical difficulties from the very start. These, however, will be greatly minimized if the spoken language is used to establish the main grammatical rules, formal grammar being introduced gradually. The hardest thing is the combination of the noun with the article and adjective. The verb is comparatively simple save for the tendency to employ the dependent, instead of the independent, forms of the tenses, and for the peculiarities of the substantival infinitive. Enough grammar to read and write Gaelic intelligently, and no more, should be required at this stage.

C. READING. The eye and hand must co-operate with the ear and tongue throughout. Reading and writing should be practised from the outset. The whole range of modern Gaelic prose can be drawn upon, but care should be devoted to presenting it in order of simplicity. As for verse, the poetry of the Golden Age is too difficult for beginners. A start should be made with recent poets. Even towards the end of the Junior Course, only selected pieces by eighteenth-century poets can be advantageously read. But the genius of the language is so adapted to poetic expression, that poetry should bulk largely in the course of reading. Great attention should be paid to reading aloud. This will tend to soften down dialectical variations in pronunciation, and counteract the increasing tyranny of the stress accent over the unaccented syllables.

Pupils with a knowledge of both Gaelic and English should make precise idiomatic translations.

With a view to increasing the pupils' vocabulary, as well as improving their powers of thinking in the language, they should be asked questions in Gaelic. Grammatical rules, idiomatic usages and syntactical forms must be established from the reading lesson.

D. COMPOSITION. Translation from English into Gaelic might well be first confined to re-translation of passages already translated into English. This would tend to increase the vocabulary and command over idiom. Re-translation should be followed by translation of analogous English passages, thus leading up to the translation of general prose. Practice in free composition should start early. The reproduction of traditional Gaelic tales is excellent material to begin with, to be followed by the reproduction of tales related in English. The excellence of Gaelic as a conversational medium suggests exercises in dialogue, a form of composition in which Gaelic-speaking pupils delight. Towards the end of the course, pupils ought to be able to write readily on subjects connected with everyday life.

II. **Senior Course.** This should enable pupils to read and write Gaelic fluently and correctly, and give them a first-hand knowledge of Gaelic literature and some acquaintance with the influence of civil history upon it. The course should provide an outline of the history of the language, and a sketch of

mythology and folklore. Six teaching periods per week for two years should be the minimum time required.

A. PHONETICS. Attention should now be paid to diphthongs, triphthongs, unaccented long vowels, and the tendency of the spoken language to introduce sympathetic vowels after liquids. The course should include also the phonetic development of the language.

B. GRAMMAR. More formal grammar, particularly syntax, should be taken; the points of similarity with other languages studied should be remarked, and the difficulties of the apostrophe and the hyphen explained historically.

C. READING. In the highest class some early modern Gaelic must be included to serve as a basis for subsequent university work, and also to give some idea of the historical development of the language. The passages should be chosen so as to show the adaptability of Gaelic as a medium of expression: Gaelic poetry is voluminous. Attention should be drawn to the large variety of metres, the regularity of the rhythm, and the assonances. The choice of poetry should be made from that written subsequently to 1700; older poetry needs more exposition than can profitably be given in school, though specimens of pre-seventeenth century poetry should form part of the senior reading. The general prose difficulties are those of vocabulary and idiom. Gaelic poetry is closely connected with the life of the people, and needs careful explanation.

D. COMPOSITION. Regular practice in translating graded passages of standard English prose into idiomatic Gaelic is necessary. Essay-writing and letter-writing must be continuously practised, the themes being thought out in Gaelic—a *sine quâ non* if idiom is not to suffer.

E. HISTORY OF GAELIC LITERATURE. The teacher's function here should be limited to guiding the pupils to an appreciation of Gaelic literature. Against the terseness and vigour of Gaelic prose must be placed its scantiness and relative unimportance. Much Gaelic poetry betrays poverty of theme and narrowness of vision. The love of Nature breathed in Gaelic poetry is unsurpassed; Gaelic love-poetry is the finest in the world; in Gaelic mythology, heroic romances, and literature throughout the ages, woman is assigned a position which even now she is accorded but grudgingly by the Teutonic races. A useful exercise would be to compare Gaelic and English poets (*e.g.* Duncan Bàn with Wordsworth, William Ross with Burns, etc.). The bearing of history on Gaelic literature will require a review of national and Highland history. The influence of English literature upon modern Gaelic literature, especially poetry, should be noted, and it may be pointed out that Macpherson's *Ossian*—poetry of a type of which Gaelic literature possesses a store—perhaps exercised a greater influence on European literature than any other single published work.

F. HISTORY OF THE LANGUAGE. This is as deserving of attention as the history of Gaelic literature. Some time should be devoted to the historical development of typical Gaelic words. Loan words bulk largely in Gaelic. Those from Latin, Norse, and English are suitable material for school work; the proto-Celtic elements generally form university work. Lists of loan words should be made, and their presence noted in the writings of various periods. It is interesting to a Gaelic-speaking child to learn that "*Sgrìobh an t-ùghdar leabhar, agus leugh e litir*" is, except for the article *an*, the conjunction *agus*, and the pronoun *e*, identical with the Latin "*Scripsit auctor librum, et litteras legit.*" The facility with which Gaelic can build up words—even technical and scientific terms—from native sources should be contrasted with these borrowings.

G. MYTHOLOGY, FOLKLORE, AND FLOATING LITERATURE. Attention should be directed to the rich field still presented by the Highlands for the collection of mythological tales, floating legends, and poems; proverbs, aphorisms, and riddles; seasonal and weather lore; place names, etc., etc.

III. **University Course.** A university course should provide for—

(*a*) A scholarly exposition of Gaelic classic poetry in respect of distinctive metres, vocabulary, syntax, and historical or other allusions.

(*b*) A good knowledge of early modern Scottish Gaelic, and early modern and middle Irish.

(*c*) The exposition of Gaelic literature, Irish and Scottish, with a critical assignment of its position in the world's literature.

(*d*) Instruction in the sources and affinities of the language, and its position in the Aryan family.

(*e*) Instruction in formal Gaelic philology.

(*f*) A review of the historical events that have affected the language and its literature (*e.g.* the institution of the Celtic Church; the Norse invasion; the extinction of Pictish; the abolition of Gaelic as the Scottish Court language; the substitution of the clan system for the Pictish tribal system; the rise and downfall of the Lords of the Isles; the influence of the Church in the Middle Ages; the Reformation, which led to the divorce between Scottish [Gaelic] and Irish literature; the economic policy that led to the depopulation of the Highland glens; the Disruption; the Education Act of 1872; the Crofters' Acts, etc.).

(*g*) Instruction in Celtic mythology and art.

H. A. F.

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GALEN (Claudius Galenus).—A celebrated Greek physician; born in A.D. 131; studied medicine at Alexandria; and in 158 became physician to a school of gladiators at Pergamus. He was afterwards employed by five emperors of Rome; and died in Sicily about A.D. 201. He wrote many treatises on medicine and philosophical subjects. His works on anatomy are on a high level of scientific excellence; those on medicine and physiology are coloured by his belief in contemporary theories regarding the elemental qualities of the human body.

GALILEO (1564-1642).—The Christian name of Galileo Galilei, upon whose work in mechanics the superstructure of the physico-mathematical sciences has been built. Born at Pisa, he studied medicine at the university there. In 1583 he noticed that the period of a pendulum, measured in pulse beats, remains constant as the swings die down; and constructed *Pulsilogia* for the use of doctors. A chance lesson in Euclid showed him his bent for mathematical studies, the growing passion for which led to neglect and final abandonment of his medical course. Appointed professor of mathematics at Pisa in 1589, he proceeded systematically to question the mechanics of the ancients. By his famous experiment of dropping weights from the

leaning tower of Pisa he refuted the Aristotelian doctrine that heavier bodies fall much more quickly than light ones. Greek science is not, as is sometimes stated, a mere matter of argumentation without experimental basis: but its dynamics was puerile, and the results of Greek thinkers—especially Aristotle—had become so interwoven with theological dogmas that to question the one was to doubt the other. Galileo reasserted the need for untrammelled investigation of natural phenomena.

Professor of mathematics at Padua in 1592, he invented the air thermometer and an improved magnet armature, and in 1604 lectured publicly on a new star—arguing boldly for the Copernican view. Hearing of the telescope in 1609 he reinvented one, improved it, and began his brilliant series of astronomical discoveries. He estimated the height of lunar mountains; explained the visibility of the old moon in the new moon's arms by earthshine; and recognized the true nature of the milky way. He discovered the satellites of Jupiter—a Copernican system in miniature; the peculiar shape of Saturn; and the phases of Venus —thus verifying the prediction of Copernicus a century before. This last discovery was made in Pisa whither he had been tempted by relief from lecturing duties; but this move from a free Republic to a Papal State proved fatal. News of his work, including the discovery of sunspots in 1611, was spreading apace; and the opposition of the Church was growing. Forbidden to teach the Copernican view in 1615, he was summoned to Rome in 1633, after the publication of his *Dialogues on the Two Systems of the World;* and under "rigorous examination"—usually the euphemism for torture—was made to recant. Broken and isolated he made the further discovery of the moon's libration, and still continued to meditate and write on mechanics even after he became blind in 1637—his last suggestion being the use of pendulums to regulate clocks. His later work on mechanics contains many important advances, including a full treatment of how bodies fall; but his main claim to fame is that his clarification of the fundamental ideas of dynamics—his notion of acceleration and of force as resulting in it (with its corollary, the principle of inertia), together with his recognition of the independence of forces—set that science on firm and sure foundations

A. E. H.

GALLAUDET, REV. THOMAS HOPKINS (1787–1851).—He was born at Philadelphia, and became, in 1815, the pastor of a congregational society at Portsmouth, New Hampshire. At Portsmouth he undertook to teach the deaf and dumb child of his friend, Dr. Cogswell of Hartford. He succeeded in developing the child's faculties, and her father took up the task of providing means for affording similar instruction to other deaf and dumb children in the United States. Mr. Gallaudet proceeded to Europe and applied to the London Deaf and Dumb Asylum for assistance. The only conditions on which aid was offered were that he should enter the institution as a junior assistant and spend three years in training. Gallaudet, therefore, proceeded to Edinburgh, where he found that the teacher at the Deaf and Dumb Asylum was pledged not to impart his system to others. He then went to Paris, where the Abbé Sicard, who was at the head of the school there, gave him every assistance in his power. Gallaudet returned to America in 1816, accompanied by Lawrence Le Clerc, a deaf mute, formerly a pupil of the Abbé Sicard, and at that time one of the most efficient of his teachers. Gallaudet was appointed principal of the Society for the Education of the Deaf and Dumb; and in 1817 became the head of the first American asylum, with Le Clerc as his chief assistant. His system was based on that of the Abbé Sicard, which he modified and improved. It resembles that of Pestalozzi, awakening and developing the intelligence of the pupils, and leading them to use their powers of imagination and description, instead of making education a mere matter of memory. In 1830, failing health made Gallaudet give up his work at the Hartford Asylum; but he continued to interest himself in education, giving attention to the improvement of teachers, and to the care and training of prisoners and the insane. For a time he was chaplain of the State Retreat for the Insane, and endeavoured to demonstrate the efficacy of kind treatment in such cases. When he died in 1851, the deaf mutes erected a monument to his memory at Hartford, the designer and architect both being deaf and dumb.

GALTON, FRANCIS (16th Feb., 1822–17th Jan., 1911).—He was physicist, mathematician, and biologist. Travel, meteorology, heredity, and eugenics (*q.v.*) occupied him successively, but his strongest bias was towards numerical representation of *data*. He possessed exceptional scientific ingenuity and originality of outlook. He was born near Birmingham on 16th February, 1822. His Galton ancestry were Quakers, of business capacity and scientific tastes; his mother's father was Erasmus Darwin. He was educated at King Edward's School, Birmingham, from 1835–1838; and speaks of these years as "a period of stagnation." He spent two years in Birmingham and in London preparing for a medical career; and entered Trinity College, Cambridge, in 1840. He enjoyed the sociability of university life, and acquired considerable mathematical knowledge, but overstrain in his first year made a serious continuance of mathematics impossible. His father died in 1844, and Galton abandoned all thoughts of becoming a physician, and for the next six years led the desultory life of a young man of means. He travelled in Egypt and Syria, and undertook the scientific exploration of S.-W. Tropical Africa; his results are embodied in *Tropical South Africa* (1853), and *Art of Travel* (1855). He obtained a gold medal from the Royal Geographical Society, with which Society he always remained closely associated. In 1853 he married Louisa Jane Butler. In 1861 he was occupied with meteorology. He devised important graphic methods for indicating weather conditions, and he originated the theory of the anti-cyclone. He published *Meteorographica* in 1863.

Heredity and Eugenics. In 1859 *The Origin of Species* was published, opening up to Galton vistas of unsolved problems of heredity. Prevailing opinion on the subject of human heredity was vague and contradictory. The statistical survey of the vast field of human inheritance engaged Galton from 1865 onwards. He collected a mass of anthropometric *data*, and applied to them the statistical methods which he had used to make meteorological predictions in terms of probability. The application to human qualities of his methods of measuring the degree of interdependence between variables was

the basis of the biometric school. In 1897 he enunciated his Law of Ancestral Heredity, a mathematical statement of hereditary phenomena with no attempt at qualitative physiological meaning.

His discussion on Organic Stability is an interesting view of the problem of what constitutes a species; while his observations on the co-mingling or alternating inheritance of qualities, and his belief in large as distinct from minute evolutionary steps, acquire added interest from subsequent Mendelian re-discovery and its corollaries. (See *Hereditary Genius*, 1869; *English Men of Science*, 1874; *Human Faculty*, 1883; *Natural Inheritance*, 1889.) He was also a pioneer in analytical work on finger-prints as a method of identification. The last ten years of his life were devoted to eugenics. He originated the word, and already, in 1865, had urged that the facts of human heredity could be used as the basis for racial improvement. He emphasized the importance of a variety of gifts in the composition of a nation, and deprecated any pursuit of uniformity of type: "Men differ in a variety of ways almost as profoundly as animals in different cages in the Zoological Gardens; . . each may be good of its kind." He strongly advocated the prohibition of procreation in thoroughly defective stock, but he was no extremist. His hopes lay in the formation of a more eager desire for the welfare of the unborn.

Galton regarded Man as an aggregate of innumerable genetic factors, on which education acts as environment, developing and restraining, but not creating. This factorial view of human nature is of immense importance to educational theory. Whereas the early nineteenth century had been inclined to allow no limit to the possible improvement of mankind through education, Galton proved that educability is an innate character—that men emphatically are not born equal. Some may regard his work as derogatory to education; others will find new hope in his survey of mankind as a highly variable species, whose young cannot all be thrown into one and the same educational mould. N. B.

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GALWAY, QUEEN'S COLLEGE.—(See BELFAST, THE QUEEN'S UNIVERSITY OF; GALWAY, UNIVERSITY COLLEGE; IRELAND, THE NATIONAL UNIVERSITY OF.)

GALWAY, UNIVERSITY COLLEGE. — The college occupies a quadrangular building in Tudor Gothic style of grey limestone. It was founded in 1845 as Queen's College with other colleges of the same name at Belfast and Cork and its name changed when granted a new charter pursuant to the Irish Universities Act, 1908. It had faculties in law, medicine, arts and engineering.

The college is now undenominational and free from tests in awarding its degrees and making appointments. Irish language is essential to entrance. The state endowment amounts to over £12,000 a year; this is raised to £15,000 by Treasury aid and donations given for the purpose of enlarging the teaching staff, and it has recently received £6,000 from public funds for building. The number of matriculated students reach 300. The lecture fees for an art course are £10 per annum and increase up to £16 for other courses. (See also IRELAND, THE NATIONAL UNIVERSITY OF.)

GAMES FOR GIRLS.—Games have always played a prominent part in the school life of boys; but until some thirty or forty years ago, out-of-door games with vigorous exercise, such as hockey, lacrosse, and cricket, were practically unknown in girls' schools. That they now form a recognized part of girls' education, that no girls' school worth the name is without its playground, is the work of the educationists of this generation, and is a recent development. The movement was initiated by the newer type of boarding school, as the boarding school has charge of the pupils' leisure as well as of their instruction; but the day schools were not far behind, and have done much more than a consideration of the difficulties in their way would have led one to believe possible. There was opposition to face to this movement, as there was to that for giving higher education to women; and if higher education gave us the "blue stocking" as an extreme type, so the games have produced the "hockey girl" for objectors to exclaim at: but, fortunately, these eccentric products have not arrested either movement. An increasing number of parents look forward to a university career for their daughters, and insist that the schools to which they go shall provide for games. The only serious objection of a possible injury to health has been met by taking proper precautions (*e.g.* changing completely after a hard game, wearing protective pads and gloves to prevent minor injuries, and greater care to avoid playing when not physically fit). With these precautions, the fear of harm has subsided, and the good games may do physically has become recognized. So the ground is won, and we no longer have to convince public opinion that games for girls are desirable. But it may not be out of place briefly to recall why we considered them worth fighting for, even at the risk of repeating what everyone knows.

Influence on Character. We value games mainly for their influence upon character. It is true that the staple school games are magnificent healthy exercise, and that exercise is important; but there are other ways of providing for healthy physical exercise—while the influence of games upon character is unique. A game from the very nature of the case is a fine piece of discipline. Its enjoyment depends on the strict observance of its rules and on the fairness and good temper of the players. To play a game, the player must learn to submit to abstract law, apart from personal caprice, and thus learns one of the first lessons of citizenship. Dishonesty and bad temper are strongly condemned by public opinion, not so much because of their immorality as because of their inherent incompatibility with the game.

In proportion as a game is considered important will public opinion operate strongly to repress actions in the players which spoil it. Besides this discipline incidental to all games, those outdoor games which employ large numbers, and in which the players take sides, have a further hold on the players. They are called upon to efface themselves for the good of the side, thus fostering *esprit de corps* and unselfishness. Also cricket and other ball games demand quick judgment and resourcefulness, and train the hand and eye.

Thus the effect of games on the character is to train the players to be public-spirited, unselfish, able to give and take, and to be ready for a place in the work of the world later. It has long been recognized that the public schoolboy benefits in

this direction from his playground training, and now the world has awakened to find that his sister needs the training and benefits as much as he does.

Perhaps nothing illustrates this so startlingly as the splendid public-spirited work so many of the younger women have done in the recent national crisis, and which may be regarded as due in no small measure to the spirit evoked by the new training which has included games as part of a girl's normal school life.

Organization. The indirect ways in which games may help the general discipline of the school are not negligible. They help by providing healthy interests and topics of conversation, by bringing forward some of those who do not shine in other sides of school life, by teaching the elder girls valuable lessons in organization (as they have to settle many of the details connected with the smooth working of the games), and thus fitting them to take responsibility in later life. Such results, however, are only obtained if the players feel the games to be important, hence the necessity for good organization, careful grading of the players, for a large playground which makes it possible for the whole school—or, at any rate, a considerable section of it—to play at the same time, so that the girls can be classified for games independently of the classification of the school for work.

The games played should also be such as interest girls in other schools, and after school age, so that they recognize they are sharing in something of national interest. Thus it is satisfactory to note that the Women's Colleges are as well organized for games as the schools. At first only lawn tennis, was generally taken up (though one college played cricket from the first), and this was the first game in which inter-collegiate and inter-university matches were arranged; but hockey, lacrosse, and cricket (*q.v.*) have since been added, and have become general. The two former games, moreover, are organized into Ladies' Associations, with a large membership of clubs in all parts of the country playing county and international matches.

The recent introduction of "organized games" into the curriculum of the elementary schools may help to popularize them among girls of the working classes, and lead to their forming the same bond of union between different social classes of girls and women as they have long done in the case of boys and men. P. L.

GAMES IN ELEMENTARY SCHOOLS, ORGANIZED.—Play is the natural element of childhood. It is the child's introduction to the serious work of life. There he gains experience, learns initiative, and makes mistakes when mistakes matter least. There he becomes a member of a community, and acquires habits of self-subordination and collective action.

Play is contemporary with the whole of childhood. Man has a longer period of childhood than any of the lower animals. He needs it to develop his great potentialities, and to acquire the skill to deal with difficulties and emergencies as they arise. It is hardly too much to assert that the activities of adult life are proportionate to the amount and variety of play in childhood.

No school can be happy and successful without a proper playground usefully employed in accordance with child nature. Educational critics often assert that work in school is entirely distinct from, and out of touch with, the child's out-of-door life, and that education suffers thereby. Games should form a connecting link, and break down the barrier between the teacher and the child. A sum in arithmetic based on a popular game is worked with enthusiasm. Long measure is tedious, and a furlong is unintelligible until it has been expressed in terms of the quarter-mile race or as so many cricket pitches. No child carries the classroom into the playground, but how welcome is anything pertaining to his games in the classroom!

All teachers who have organized their pupils' games are convinced of their educational value. A class which was dull and listless before the play interval returns to the classroom after a good rollicking game full of brightness and animation, and far better prepared to take advantage of succeeding lessons.

The playing-field gives further opportunities of teaching elder pupils cricket, football, hockey, basket-ball, etc.—games which all cultivate endurance and persistence, the sinking of self, the habit of playing for one's side, and the power of overcoming combined resistance by combined effort.

In many districts, and in London in particular, great advances have been made in swimming. This sport possibly has no equal. The delight of the scholar at being able to propel himself in a new element is intense. Perhaps nowhere is swimming more appreciated than in the slums of London, where opportunities for other sports and games are few. A visit to the Hoxton Schools Swimming Gala is a sight never to be forgotten.

Competition in games, as in business life, tends to bring out one's best efforts. No amount of urging or encouragement by the teacher produces such endeavour from a scholar as a neck-and-neck race with a well-matched rival. The mental concentration and keen determination to win are of even greater educative value than the muscular effort put forth.

Many elementary schools now include organized games in their curriculum, and educational authorities readily grant facilities for inter-school competitions and galas. A. SAYWELL.

GAMES, SCHOOL.—The Greek system of education included, as one of its essential elements, "gymnastic," or the cultivation of the body. Even in Greece, this element proved liable to over-emphasis and misuse, as Plato was careful to point out. But he remained none the less convinced that it was a necessary part of a young man's education, and, if conducted on right lines, a very valuable part. To achieve its proper end, gymnastic must be "a simple, moderate system," aiming rather at the stimulation of the spirited element of a man's nature than at the acquisition of mere strength, designed as a safeguard against softness and over-gentleness, acting in conjunction with "music" to produce a well-balanced soul.

The place occupied by games in our public schools has often been the subject of bitter comment and attack. They take too much time; too much importance attaches to success in them; they produce a contempt for knowledge, and by their appeal to the lower man kill interest in rational discourse and intellectual pursuits: in a word, they produce ill-balanced souls.

The English boy certainly has, though in a lesser degree than formerly, a contempt for knowledge; but only a superficial person will attribute that entirely or mainly to games. In part, it is a national

characteristic of more ancient standing than are organized games; in part, it is due to faulty methods of teaching and ill-chosen subjects of education which effectively concealed from the patients any attractiveness or utility in the process of their education. Modern improvements in the matter and the form of their instruction have already gone some way towards remedying this evil, without damaging the position of games. And, all along, there has been a far larger proportion of boys than is generally admitted who combined a living interest in things intellectual with a healthy enjoyment of and skill in games. The cure for over-emphasis of games is not to curtail them, but to improve the methods of educating the mind. The two are not antagonistic, but complementary.

Over-specialized Games. Only those games in which the Platonic ideal of a simple, moderate system has been lost are open to the charge that over-much time is spent on them. Most of the organized games concentrate the maximum of exercise and other beneficial things in the minimum of time. "Forty minutes each way" is not an excessive allowance out of twenty-four hours. Cricket and rowing, however, may fairly be criticized on this and on other grounds. Rowing is a questionable occupation for growing boys, imposing as it does a strain on the body better suited to the full-grown man, and involving long intervals of doing nothing. Cricket is no longer simple: it is highly specialized; it has the further disadvantage, from which football is free, that to the inefficient player it brings little exercise or enjoyment. Compulsory cricket shares this disadvantage with compulsory Latin, that the grace and beauty of the expert is dearly bought at the expense of the "duffer." But there is nothing to take its place; and, though the drawbacks to it be recognized and its specialization be regretted, its advantages remain.

Lessons Learned from School Games. Let us come back to the "well-balanced" soul. In the building up of character, school games contribute all that Plato demanded of gymnastic, and more. They encourage not brute force, but the spirited part of man's nature: courage, pertinacity, initiative count more than size. They are a safeguard against softness: many boys have learned self-mastery and healthy-mindedness more from the playing-field than from the chapel; any schoolmaster knows the dangers that beset the boy who is unable to play games. They do more than that, more than Plato could know, in making a boy a valuable member of society. If a boy has played the school games, he has been put in the way of acquiring some of the most valuable qualities of the well-balanced soul—justice, obedience to law, fairness towards opponents philosophy under defeat, combination with others, individuality in its proper context of socialism. The lessons so learned have borne fruit in many a corner of this rambling Empire of ours. And it is significant that, in the light of the Great War, reformers have attacked no longer the games-system of our schools, but only the intellectual training provided.

The O.T.C., etc. For the abuses to which games are liable, over-specialization and over-emphasis, remedies are already operative. Of these, the greatest are the Officers' Training Corps and Cadet Corps, which in their development have encroached upon the time allotted for games, and made a huge place for themselves in the interests and activities of boys. After the war, as before, these share with athletics the education of the "spirited element," to the great gain of both. If ever again it is suggested to employ a special fund and special trainers to produce athletes for the Olympic Games, the suggestion will find no support in the attitude of English schools to games.

Some Appreciations. The greatest tribute to the value of the present system comes from those who have it not. Our allies and our enemies have envied it. Missionaries on the frontiers of our Indian Empire have introduced it as the only way of teaching manliness. Wise persons have seen that it is just the moral education of organized games that is wanted in the primary schools of this country. One of the wisest has written in *Across the Bridges* of the effect of the introduction of games into elementary schools, and urged their wider employment: "The stern ethics of cricket and the hardness of strict football react upon their character almost more effectually than anything else." Plato said: "Whosoever can best blend 'gymnastic' with 'music' and bring both to bear on the mind most judiciously, such a man we shall justly call a master of true harmony." That harmony is the ideal of the English school; and, without undue boasting, we may say that in our schools the ideal has been more nearly realized than at any time since Plato's own nation fell. G. F. F.

(See also CRICKET; FOOTBALL; HOCKEY; LACROSSE; ROWING, etc.)

GAMES, THE PSYCHOLOGY OF.—The term "game" is used in connection with certain more or less organized forms of play, which are found chiefly amongst human beings, although some evidence exists to show that a rudimentary form of such play is found amongst the higher animals.

It is probable that every game has a traditional element in it. Each nation has its own rich literature of folk songs and games, based upon the national traditions. Lady Gomme, in her *Dictionary of British Folklore*, gives a very full account of traditional English games. She divides these into two sets: (*a*) games of skill; (*b*) dramatic games. All children's games have in them traces of ancient customs at one time of importance to the race. The line games, of which "Nuts and May" is an example, are derived from tribal contest; while the circle games, such as "Ring a ring o' Roses," can be traced back to religious ceremonies. The evolution of the marriage customs of a country can be followed in its folk games. "Nuts and May" illustrates marriage by capture; "There came three sailors," marriage by purchase; while "Sally Waters" shows courtship followed by a definite marriage ceremony.

The psychological basis of such national games is the powerful instinct of imitation which forms such a strong factor in the education of man and of the higher animals. Games of skill owe their attraction to the instinct of rivalry, while contest games make use of this and the pugnacious instinct.

The highest form of game, known as the organized group game, is typified by hockey, football, or cricket, and is only found amongst nations which have reached a certain stage of mental development. These games seem to appeal most strongly to the Anglo-Saxon races, in which they have attained their highest level. They are all ball games, and their origin can be traced to the simplest forms of motor play found in young animals and children. Ball games can be divided into two

classes: those in which the ball is propelled by part of the body, and those in which a club or bat is used. The instinct of throwing a missile at an object is derived from the simple experimentative act of throwing down. The use of a club or stick is a development of this; hitting is derived from throwing.

The higher forms of the group game involve another factor (*i.e.* the tendency towards co-operation: work under a leader which is such a marked feature of the adolescent).

It is probable that a group game, such as football, supplies a special need in giving vent to the primitive instinctive tendencies of hunting, fighting, chasing, etc., which are baulked to a great extent in civilized life.

In order to understand the psychology of games, it is necessary to consider shortly the principal theories which have been advanced to account for the wider phenomenon of play. Of these, the most important are: the *Surplus Energy Theory* of Spencer, which suggests that in the young of the higher animals, stored up surplus energy gives rise to play; the *Practice Theory* held by Groos, which assumes that play is the means by which the young of the species is trained for the later functions of adult life; and the *Recapitulation Theory* of Hall, in which he holds that the plays of children recapitulate the stages through which the race has passed. A combination of these theories is necessary to explain the higher forms of play, such as the game; and it is probable that a really adequate theory for "play" will involve them all. M. J. R.

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GARDEN, THE EDUCATIONAL USE OF THE SCHOOL.—The aim of the school is to assist girls and boys to fit themselves, practically as well as intellectually, for the work of life. The healthy development of the body is to be sought, the hand and eye to be trained, the intelligence to be developed, and habits of observation and clear reasoning to be formed. Above all, industry, foresight, self-control, courage, and generosity are to be made part of the character; and to these virtues are to be added the graces of life, the love of beauty, truth and goodness, the power to live.

A garden, properly used, may be made to contribute to all these ends. The physical value of work in a garden is obvious; and it is simply impossible to run a garden without foresight, patience, and the rest. The aesthetic value of gardening is also indisputable; it is still, as in Bacon's day, "the purest of human pleasures, the greatest refreshment to the spirit of man." It would be strange if this innate love of a garden had not a part to play in education. "Train the children," said Carlyle, "each in its own little garden, to respect fruit trees, honorable profit, industry, beauty, and good order; it is the summary of all Gospels to man."

There are two sides to school gardening: horticulture—the cultivation of crops of fruit and vegetables; and the educational side, in which gardening becomes the outdoor study of Nature. Horticulture itself has an educational value, however—a glance at the above statement of the aims of education shows that. There is no horticultural operation that cannot be made educational, if the reason for things is searched out.

It is, nevertheless, the other side that is most important, although it is often made second. Every part of the curriculum can be vivified by alliance with a garden definitely arranged to this end.

Arrangement. If Nature study be made a garden subject, it at once begins to live. Arrange beds—say 15 ft. square—and in each grow typical plants of a certain natural order. If there be clovers, lucerne, sainfoin, peas, monkey-nuts, etc., in one bed, children can stand around and study them by direct examination. A boy who has tried to pull up lucerne by the roots will understand its value in a land that is subject to droughts. A class with this bed can discover characteristics of the Leguminosae; when leaves, roots, or fruits are being systematically studied, it will be available. In a similar plot will be tomato, potato, tobacco, etc.; in another, the members of the foxglove family; in another, borage, heliotrope, and forget-me-nots. The Labiate bed will have dead-nettles, mint, sage, and others. There will be a dozen small patches, a yard square, sown with useful fodder grasses; and, near by, beds of cereals; the whole grass family can then be studied directly. A bed of biennials is necessary, and somewhere about the garden there should be specimens of the climbing plants like ivy and morning-glory; whilst, if possible, there ought to be a plantation containing a specimen of each of the common forest trees.

Teaching In and Through the Garden. The great advantage of a garden lies in the fact that it offers opportunity for developing the spirit of investigation. If a cabbage be covered with a bell-jar on a bright, hot day, the ground beneath being covered with waterproof cloth, the presence of water streaming down the glass will lead to wonder, inquiry, deduction, and practical application. This is, surely, the proper way of approach to science. (*Cf.* "Report of the Committee on Natural Science," Secs. 88, 91, 117, etc.)

A whole course of chemistry should be taken as part of the instruction in gardening. The Report named says that "the provision of plots showing the specific action of fertilizers containing nitrogen, phosphoric acid, and potash may be considered part of the essential equipment of a chemistry course." The garden might equally well be made the starting point for studies in light and heat, for these are of biological importance.

Abundance of material for expression-work, both in words and in drawings, is provided by even a small garden. For teaching domestic economy, too, a garden is desirable. Girls may be taught to grow potatoes and then to cook them; no cookery centre should be without a garden, especially if it draws its pupils from the slums. Fruit-preserving and the preparation of pickles may form part of the syllabus when a garden is available. The cultivation of a small flower-patch from which supplies are obtained for the classroom or school parlour will teach girls the pleasure of possessing even a little plot.

Work in wood and metal is being more and more directly connected with the garden; things that are actually to be used can then be made and repaired. Labels, fencing-pales, stakes, hooks, boxes, dibbers, and so on, can be made for the garden. Meteorology, as a school-subject, belongs to the garden. Literature also can be connected with it; the poems of Wordsworth and Herrick about daffodils should be

studied when the bulb-bed is ablaze with these flowers. There is, indeed, no limit to the usefulness of the garden in making purposeful and real the instruction given in the various subjects. But its chief educational advantage lies along aesthetic and spiritual lines. By it, and in it, we may cultivate "delight in simple things," and may educate by way of Wonder, which is "the mother of philosophy." J. E. F.

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GARDENING, THE TEACHER OF.—(See RURAL SCHOOL, TEACHER IN A.)

GARDNER'S TRUST.—(See BLIND, EDUCATION OF THE.)

GARRETT-ANDERSON, DR. ELIZABETH.—(See WOMEN IN ENGLAND, HISTORY OF MEDICAL EDUCATION OF.)

GARROD, HERBERT BARING.—Third son of Sir Alfred Garrod, M.D.; born 22nd May, 1849; died 30th July, 1912; was educated at Barford's School (Regent's Park), King's College School (London), and Merton College, Oxford, whither he went as Senior Postmaster in 1868. His many prizes at school and college culminated in the Newdigate Prize for English verse at Oxford, 1869. Graduating with Honours in 1872, he was called to the Bar in 1874, and contributed frequently to the *Academy* and *Spectator*. But his life work began in 1886 with his appointment as General Secretary of the Teachers' Guild of Great Britain and Ireland. He edited the *Teachers' Guild Quarterly*, and helped to found the King Alfred School Society. An account of his life and work will be found in the monograph *Dante, Goethe's Faust, and other Lectures* by H. B. Garrod, with an Introductory Memoir, published by Macmillan. Garrod never taught a class, and yet was an educationist of a high order. He devoted a strong love of humanity and a singular clarity of thought and expression to the profession whose *raison d'être* is the elevation of the human race—education—but not in the narrow spirit of the mere schoolmaster. From such narrowness he was kept by warmth of human kindness, a chivalry which knew no distinction of rank or sex, a passion for truth, and, above all, an unfailing instinct for culture. These characteristics governed all his actitivies. Dante, Shakespeare, Milton, Dickens became his favourite studies, because in them the grandeur of the ancients is combined with the humanitarianism and breadth of the moderns. He avoided party view-points, but stood whole-heartedly for Free Trade, the equality of the sexes, and equality of wage. He gave little time to the elaboration of the pedagogic gymnastic, but made his life-work the corporate elevation of the teaching profession; and he preferred to do this, not as a self-constituted prophet, but as the exponent of the Teachers' Guild, which has consistently refused to advocate sectional pedagogic interests, fighting always for the interests of the profession as a whole. "Classical culture for non-classical pupils," "the registration of teachers," "the ideal for the teacher," "co-education of boys and girls"—such were the subjects which invited his advocacy, not Latin or Greek, security of tenure, school athletics—subjects which had no compelling interest for one who "saw life whole." Though native modesty led him to exert his influence indirectly, his tenacity of truth and accuracy of vision kept him staunch to his convictions. Therefore all who knew him fell under his influence. Sir Michael Sadler thus sums up Garrod's ideal of the educational profession—"a great self-governing teaching profession, a learned profession with pastoral duties, united from top to bottom, knowing nothing of the social distinctions which have hitherto divided it—with a discipline and tradition of its own, and a sensitive insight into material needs." The untiring advocate of such an ideal was surely an educationist of no mean rank. W. K. H.

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GAUDEAMUS IGITUR.—The opening words of a song composed about 200 years ago, and very popular with German university students. There are numerous versions, some of which were so vulgar as to be prohibited by the university authorities. The burden of the song is: "Let us enjoy ourselves in our youth," and the opening lines are usually as follows—

"Gaudeamus igitur juvenes dum sumus,
Post molestam senectutem nos habebit tumulus."

GAUSS, KARL FRIEDRICH.—The work and influence of Gauss (1777–1855) at Göttingen affected the trend of mathematical thought throughout the whole of Europe. He used strictly logical methods, as opposed to those based on experimental induction and undue reliance on the validity of those algebraical processes which are the careless applications of rules, valid for calculations with finite expressions, to expressions concerned with infinity (such as infinite series or the infinitesimal calculus). In this direction some of the most important work of Cauchy (*q.v.*) lay also, yet he does not seem to have been influenced by Gauss, though the latter had been writing for some time before him; both, however, perceived the importance of what are called "existence-theorems" in mathematics—that is to say theorems in which the construction of an actual mathematical entity satisfying given conditions (such as being the root of a given equation) is shown. Gauss treated with great originality and rigour almost all branches of pure and applied mathematics then known (the theory of numbers, algebra, analysis, the theory of errors, astronomy, physics, and geodesy); and some (theories of complex integration and of multicomplex numbers) which were quite new. He differed greatly from Cauchy: all his life he was professor at one university; he meditated long before publishing any discovery, so that almost everything he wrote is perfect in form; he wrote no text-books. His educational influence was thus exerted directly on his pupils, the most eminent of whom were Peter Gustav Lejeune Dirichlet (1805–1859) and Georg Friedrich Bernhard Riemann (1826–1866).

P. E. B. J.

GEBER.—(See CHEMISTRY, HISTORICAL DEVELOPMENT OF.)

GENEALOGICAL RESEARCH.—(See RESEARCH AT THE BRITISH MUSEUM AND PUBLIC RECORD OFFICE, THE APPARATUS OF.)

GENERAL GEOGRAPHY.—(See GEOGRAPHY, THE TEACHING OF GENERAL.)

"GENERAL WILL" AND EDUCATION.—(See ROUSSEAU AS AN EDUCATIONIST.)

GENERALIZATION (in logic) is the process of grouping under a general term a number of objects which have certain attributes in common which the general term serves to indicate. From the point of view of education, generalization represents the psychical process of abstraction and comparison, by which the child becomes conscious of class characters, and is enabled to classify the objects of sense experience. In this process the relative values of the attributes of objects have to be realized, and concepts built up by means of reasoning. Proverbs well illustrate the more or less loose generalizations based upon common experience.

There is little attempt at generalization in young children until language has become familiar, although a tendency to abstract definite qualities and recognize general terms can be observed in children 3 or 4 years old.

There is a marked tendency towards the formation of false generalizations amongst people of limited education. These are based upon insufficient *data*. Many of the superstitions prevalent amongst the peasants of different countries can be traced to this source.

The formation of clear and accurate concepts necessitates training in generalization, and involves a very careful selection of the *data* to be used for the purpose. M. J. R.

GENERIC IMAGE.—This is the name given to a mental image containing a distinct centre corresponding to the common characteristics of a class, together with a vague and inconstant margin corresponding to the variable characteristics of the individuals composing the class. In a complex idea, the repetition of similar impressions strengthens and makes vivid the corresponding elements, while the differing impressions become indistinct or fail to remain. The generic image plays an important part in formation of concepts.

GENETIC PSYCHOLOGY.—(See PSYCHOLOGY, THE RELATIONS OF ANALYTIC AND GENETIC TO GENERAL.)

GENETICS.—(See EVOLUTION AND EDUCATION.

GENEVA, THE UNIVERSITY OF.—In 1559 the University and College of Geneva were founded at the suggestion and under the direction of Calvin (*q.v.*). The higher institution developed independently of the preparatory school (the College), and became famous under the name of *Academia Genevensis*, which at first belonged to both.

The Church, and its ruling assembly—the Company of Pastors—elected the Rector and controlled the institution. Calvin's main object was a seminary in which ministers and tutors could be trained for the service of Reformed Protestantism. He did not exclude courses in law and medicine, but held back their inauguration until sufficient means should be at hand; under his successor, Beza, who was the first Rector, the Law School was organized, and a beginning was made in providing lectures for medical students. Writing to John Knox on 5th June, 1569, the tenth anniversary of the inauguration of the University, Beza said that he believed there were few institutions of the kind in Christendom that were better attended.

The department of theology was taught by Calvin and Beza. Their first publication as professors was the *Nouveau Testament de Genève*, which superseded all other French translations, and became for two centuries the authorized version of the Huguenots. In the same year, 1559, Calvin published for the use of his students the definitive edition of his *Christianae Religionis Institutio;* and Antoine Chevalier, the Professor of Hebrew, who had been Elizabeth's French tutor, printed his *Rudimenta Hebraïcae Linguae*. In 1561, Beza, as Rector of the Genevan Academy and delegate of the Church of Geneva, appeared at the Colloquy of Poissy as the spokesman of the French Protestants; and, in 1571, he presided over the famous Synod of La Rochelle. During his absence, Thomas Cartwright, the deposed Cambridge professor, occupied his chair; Andrew Melville, too, was regent of the second class in the College from 1569 to 1574, and, when he left for Glasgow, his garden in the city grounds was granted to a newcomer, who had just been elected Professor of Arts in the Academy—Joseph Scaliger.

When the Massacre of St. Bartholomew involved French Protestantism and learning in common ruin, Geneva, the city of refuge, was rewarded for the hospitality shown to thousands of destitute fugitives by a magnificent growth of her Academy. Not only theologians, but scholars like Scaliger and, after him, Casaubon, and the first jurists of the time—Hotman, Pacius, and Godefroy—were to be heard from its chairs. Foreign students flocked in from all parts of Protestant Europe. A Calvinistic confession of faith, which was to be signed before matriculation, having been abolished as early as 1576, they came also from Lutheran countries. The influence of Genevan thought may be traced in some of the most important documents of the Dutch Revolution. Hotman's *Franco-Gallia* and Beza's *De Jure Magistratuum*, which contain the first vindication of the rights of the people against the tyranny of princes, appeared almost simultaneously. Ten years later, Denis Godefroy, better known under his Latin name of Gothofredus, published another remarkable Genevan book, the first *Corpus Juris Civilis* (1583), which became the standard edition of Justinian and remained so for more than two centuries. And, in 1588, appeared, under Beza's direction, the *Bible des Pasteurs et Professeurs de Genève*, a book which must be counted among the most important of University publications.

The Champion of Protestantism. Professors and students in the Geneva of the sixteenth century did not work at ease. The city, the extreme outpost of Protestantism in Latin Europe, exposed to the incessant assaults of its powerful neighbour, the Duke of Savoy, was perpetually in a state of siege. Sons of the Alma Mater frequently joined in the struggle. Calvin is said to have led students often after his lectures to the outer walls and done good work with them in the trenches. Thus

foreigners served the little Republic, the first of the Puritan States, side by side with the sons of the city. The siege it had to stand was, above all, a fight for the principles which they heard from their teachers in the lecture-rooms. When back in their own countries, they felt for life the effect of this training, and the influence of Geneva spread through them into distant parts of Europe. The wide sympathy felt for its Church and University is evidenced by the numerous public collections made in England and the United Provinces in aid of the heroic city.

After Beza's death (1606), the most important event in the annals of the Academy is the sending of its two professors of Theology, Jean Diodati and Théodore Tronchin, to the Synod of Dort (1618), where they played a leading part in the decisions of the Assembly. The same side was taken by their young colleague, Benedict Turrettini, at the French National Synod of Alais (1620).

By the end of the first half of the seventeenth century, the great controversy between staunch Calvinism and the liberal tendencies gaining ground in some of the French schools reached Geneva. Friedrich Spanheim, the German successor of Benedict Turrettini, being inclined to moderation, soon accepted a call to Leyden. His eloquent successor, the Scotsman, Alexander Morus, who pleaded for the liberty of the professorial chair, was also transferred to the Low Countries. But a born Genevan professor, Louis Tronchin, son of Théodore, having completed his studies at Saumur, came to Geneva and raised the standard of revolt against restrictive confessions of faith. He was defeated by his colleague, François Turettini, son of Benedict, who was the leader of a strong majority in the Venerable Company of Pastors (1669).

In 1669 Tronchin obtained for his nephew, Jean Robert Chouet, then a young professor at Saumur, the vacant chair of Philosophy, and with him began a new era for Genevan thought. Descartes and Bacon now occupied the place which Calvin and Beza had never dreamt of taking from Aristotle. Observation superseded authority. Inductive methods and experimental research began to be used as the best instruments of knowledge, at least in physics; and Genevan science sprang up.

Triumph of Liberty and Modern Philosophical Conceptions. If Church influences were dominant in the Academy during the first epoch of its life, the Academy, after Chouet's victory over Aristotle, was strong enough to influence the Church and impose toleration. Jean Alphonse Turrettini, the son of François, who succeeded Louis Tronchin in 1705 in Calvin's chair, represented a new, broader conception of Calvinism. In 1706, the signature of the rigid *Helvetic Consensus*, which was obligatory on candidates for ecclesiastical offices, was dispensed with; and, in 1725, every other formula was superseded by a general avowal " of the doctrine of the holy Prophets and Apostles as contained in the books of the Old and New Testaments." Turrettini was a friend of Archbishop Wake, and dedicated to him his principal work, *Nubes Testium* (1719). He took an important share in the Archbishop's plan for the union of all Protestant churches. One of Turrettini's successors in the Academy, Jacob Vernet, with the eloquent and powerful help of his friend, J. J. Rousseau, faced the attacks of Voltaire and the Encyclopaedists on Genevan theologians.

The influence of Chouet and Turrettini in science was first felt in the foundation of a professorship of Mathematics (1703), and then in the establishment of other chairs, which have been honoured by the two Jalaberts, Jean Louis Calandrini, Gabriel Cramer, Louis Bertrand, Théodore Tronchin, and Bénédict de Saussure. The University Library was enlarged and placed under lay supervision, and the Academic Senate grew up. Men like Firmin Abauzit and the two Le Sages, though they were not called to fill university chairs had, outside the professorial ring, together with the brothers Fatio de Duillier and Charles Bonnet, a part in the illustration of Genevan science.

The new methods of philosophical research had also far-reaching consequences in the department of jurisprudence. Tribonianus did not fall at once, but he was touched, and eventually the exclusive authority of the *Digest* was broken for ever. The leading civilian of the seventeenth century was Jacques Godefroy, son of Denis, who taught Roman Law in the Academy. His successor in the following century was Burlamaqui, the foremost expositor of natural law, whose lectures were published under the titles of *Principes du Droit Naturel* (1747) and *Principes du Droit Politique* (1751), and became text-books, not only at Cambridge, but, even farther away, in New England. The French schools, however, would not admit the heretical teaching, to which civilians refused even the name of Law. As Lausanne had failed to retain Barbeyrac, Puffendorf's French translator, who had left after a few years for Groningen, Geneva remained the sole centre in French-speaking countries of philosophical, as opposed to traditional, law. Thus she became the cradle of political ideas which were to give a new impetus to the older Huguenot theory of the rights of the people. The lectures of Burlamaqui, containing the theory of a primitive compact, declaring the rights of man and popular sovereignty, had just been published there, when Rousseau returned to his native city to study its institutions and prepare the *Contrat social.*

When the excesses of the Revolution threatened the existence of the Academy, it is not altogether surprising to hear that the fathers of American Independence offered a new home to its most distinguished members on the shores of the Potomac, and proposed to transplant the college in a body to be the nucleus of a national university for the United States (1794). The offer, which was the subject of interesting letters from Jefferson and Washington, was not accepted because the old Academy weathered the storm, but it remains as a testimonial to its high reputation.

Under the French Republic. The Schola Genevensis had soon to stand a more severe trial, the annexation of Geneva to France in 1798; but in Paris, also, Genevan scholars had powerful friends, and even when all the ancient French schools were merged in the single *Université impériale* of Napoleon Calvin's Academy, though depending upon it, kept its own name, its Rector, and a real autonomy arising from the fact that its funds were still provided through local management. From that time dates its division into Faculties on the French plan, and the men who were to have been the first professors of the American university kept up the glorious name of the ancient institution under French rule. Foremost among them were Marc Auguste Pictet, the successor of de Saussure in the chair of Philosophy, one of the founders of the

Genevan *Bibliothèque britannique* (1796) and Inspector-general of the *Université impériale;* Pierre Prévost, Dean of the Faculty of Science, a discoverer in physics and the translator of Euripides and Adam Smith; and Simon L'Huillier, the mathematician. Among the new men were Pierre Odier, who introduced Jenner's discovery to the Continent and gave it its French name, "vaccination"; Vaucher, the botanist and theologian; and Simonde de Sismondi, the historian and political economist.

In the Nineteenth Century. After the battle of Leipzig, Geneva recovered her independence, and was received as a canton in the Swiss Confederation. An article was inserted in the Constitution of 1814 opening the way to the development of the Academy into a university of the German type. The Faculties of Science and Law received new forces. Augustin Pyramus de Candolle, the great botanist, was called back from Montpellier to be Professor of Natural History (1816), and, with Gaspard de la Rive, the Professor of Chemistry, founded the Botanical Garden and the Academic Museum. In 1824 he began to publish his famous *Prodromus systematis naturalis regni vegetabilis.*

The department of Law was organized by two new men into the modern Faculty. One, a young Italian refugee, became Count Rossi and peer of the realm in France, and, as Prime Minister of Pius IX, fell in Rome in 1848 by the dagger of an assassin. The other, his rival and friend, Bellot, was the best lawyer Geneva had in the nineteenth century. With Sismondi and Etienne Dumont, the friend of Bentham, they started, in 1820, the *Annales de Législation,* which made known the works of Niebuhr and Savigny, as well as English legal institutions and Russian law. This international review was short-lived; Metternich's police took exception to the liberal tendency of some of the contributions and managed to have it suppressed. The *Bibliothèque universelle* escaped a similar fate by keeping a severe watch over its literary output.

After Rossi's call to Paris (1833) and Bellot's death, influence in the Academic Senate passed over entirely to the Faculty of Science. A great change took place in 1835. The university was "laïcized" by a measure which put an end to the ancient *regimen scolarum* of the Church, the Venerable Company of Pastors retaining only the supervision of the Faculty of Theology. The Academic Senate and the Rector became a power in the State. The victors were savants of high intellectual gifts. The leaders were Auguste de la Rive, the famous Professor of Physics, son of Gaspard; Alphonse de Candolle, successor of his father in the chair of Botany; and Rodolphe Töpffer, the novelist, Professor of Rhetoric.

The Revolution of 1846, the first in date of those revolutions which shook the whole Continent in the middle of the past century, hit the Academy hard. The Senate and Rector, in turn, were deprived of all the powers they had inherited from the Church, which were passed on to the Council of State, a popularly elected body, and practically to one of its members, the head of the Board of Public Instruction.

Modern Developments. The Academy, having lost its privileges, and more than one of its most distinguished professors, was saved from ruin by those who, out of a feeling of duty, remained in their threatened chairs round Pictet de la Rive, Emile Plantamour, and Caton Chenevière—a naturalist, an astronomer, and a theologian—who were the Rectors of those dark days. In 1872, Antoine Carteret, head of the Board of Public Instruction, founded the Faculty of Medicine and developed the old Academy into a modern university. Karl Vogt, the great German naturalist, organized the Faculty of Medicine, which began its work in 1876. The Faculty of Science has also been endowed with long-needed laboratories and institutes, the most important being those for zoological research and for physics, the École de Chimie, built in 1879, the Laboratoire de Psychologie (1892), and the Institut botanique (1900).

The Faculty of Letters, of Napoleonic origin, which had suffered some neglect under the restored *régime* of 1814, was endowed with new professorships; among them that of *Littérature comparée,* which was held by Marc Monnier, and, after him, by Edouard Rod. In the chair of Philosophy was to be heard, from 1849 to 1880, Henri Frédéric Amiel, who lectured also for some years on French literature, and whose celebrated *Journal intime* may almost be said to have been written while occupying that chair.

In 1891 the "Seminaire de Français moderne" was established in the Faculty of Letters, in connection with summer courses, which achieved an extensive reputation. Out of the section of Social Science there has lately grown up a sixth Faculty, namely, that of Economical and Social Sciences, with a special Institut des Sciences commerciales. As a result of the eagerness of both Faculties to retain a department which each claims, new degrees have been instituted in both for students in Pedagogy; and an excellent opportunity for developing pedagogical studies was afforded by the founders of the Institut, J. J. Rousseau (1913), where technical and practical tuition is given in all subjects relating to education: this is an independent institution, but it entertains personal, and very probably will have some day official, relations with the University.

The Faculty of Law developed its teaching in the direction most natural to it from the geographical and political situation of Geneva. Roman and German Law, International Law, the comparative study of constitutions and legislations, the study of Swiss federal and cantonal democratic institutions, and the study of the French and German codes, are the chief features of its syllabus.

The ancient Faculty of Theology, in spite of the disestablishment of the Church (1908), has retained the support of the State. It pursues its time-honoured career as a Protestant school of Christian learning and research. The aim of the State authorities is to maintain in their professorial appointments, as far as possible, the balance between orthodox and liberal tendencies. The venerable philosopher, Ernest Naville, one of the evicted professors of 1846, represented the former, as also did the genial, prematurely-departed Gaston Frommel; while his master, Auguste Bouvier, was perhaps the best representative of the modern Faculty in the nineteenth century.

The State University of Geneva, which commemorated in 1909 the 350th anniversary of its foundation, in the presence of more than two hundred delegates from sister universities and scientific bodies in every part of the world, is more international than ever. Of its 2,000 students, two-thirds — sometimes three-quarters — come from foreign parts. They matriculate on showing certificates of secondary studies, which would entitle

them to be admitted to their own universities. Long-standing relations with English science are recalled every year on the 5th of June (*Dies Academicus*) by the award of the Davy prize for Chemistry, a foundation in memory of Sir Humphry Davy, who died at Geneva in 1829.

The teaching staff numbers seventy-one professors and an even greater number of *privat-docents*. The State, which entirely supports the University, controls its administration. In 1886, a Liberal Education Bill restored to the Senate so much of its former privileges as to amount to a partial revival of its old academic autonomy. The Government of 1912 tried to repeal the principal articles of that charter. The Bill was passed by the Legislature, but an appeal was made by way of Referendum to the electorate; and, after a memorable campaign, in which professors opposed politicians, the former won the day. The Genevan Alma Mater now rests under the aegis of the sovereign people of Geneva. CHAS. BORGEAUD.

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GENIUS.—Carlyle described genius as "transcendent capacity of taking trouble"; but this description is thoroughly misleading, for the essence of genius is an inborn power of *insight:* the man of genius perceives truth rather by a kind of inspired intuition than by the laborious collation of data. Doubtless in many cases (*e.g.* that of Darwin), genius is accompanied by a vast capacity for taking trouble, and without this capacity would be ineffective. Darwin, after he had discovered the theory of Natural Selection, spent twenty years of patient work in order to prove its truth to himself and to the world, and without this work the theory would not have been convincing; but the patient observation supplemented genius, and did not constitute it.

Genius, then, is an inborn power of insight into truth; and since truth is many-sided, genius may take many forms. We may classify it under such heads as mathematical, scientific, military, political, artistic, poetic, religious, etc.; each of these may be further sub-divided, so that artistic genius, for example, may express itself through painting, sculpture, architecture, music, drama. The lives of men who have possessed genius of these various kinds at once display the distinction between genius and the power, however great, of careful application; Raphael, for instance, produced the "Madonna di Foligno" when only 28; while a man of moderate ability, after a life of study, never rises above mediocrity.

Genius and Creation. Since genius shows itself in so many aspects, the question arises whether it can be regarded as a single quality, or whether we apply the word to any characteristic which raises a man conspicuously above the average.

Genius, as we have said, involves insight; but it involves also something more, which, however, probably depends upon insight—it involves the power of *creation.* This is seen very clearly in Art, in which the creativeness of genius is its most prominent characteristic; but it is true also in the more purely intellectual forms of genius, such as the mathematical or scientific. For new truth is not merely discovered by genius, as a vein of gold is discovered; the formulation of a great comprehensive theory partakes much more nearly of invention, of the creation of a new idea rather than the discovery of a new fact. Whatever, then, be the branch of activity in which it shows itself, genius always has the character of creative insight, and, as such, may be regarded as one quality—whether it appears in Art, Science, Statesmanship, or Religion. Although genius always has this character, it does not follow that all men of genius have similar endowments, and that the form of their activity depends simply on environment. For, in most cases, the power is limited to some special field; and it is possible for a man to show genius in one direction—for instance, in mathematics—and to have average or even low ability in other fields, such as religion or art. In cases in which the faculties needed for outstanding ability in distinct fields are similar, it is not very unusual for a man of genius to attain high distinction in each: Napoleon, for example, had great genius in both war and statesmanship; Shakespeare in poetry and drama; Aristotle in philosophy and natural science. But the possession of real genius in quite distinct fields by one man—as in the case of Leonardo da Vinci or Michael Angelo—is extremely rare; and this alone would suggest that genius is not a single quality which can be turned into almost any channel by circumstance. The tendency for genius to be one-sided is one of the justifications for Dryden's famous line: "Great wits are sure to madness near allied," since it sometimes leads to an unevenly balanced mind or character. But genius, to be effective, must be balanced by less outstanding, but equally important, qualities in other directions, and a man of real genius is eminently sane. Another, and more fundamental, reason for the apparent alliance between great wit and madness is the almost necessary association of genius with a nervous or sensitive temperament, and with a certain lack of restraint, a disregard for convention and authority; the man of genius lacks an inhibiting or restraining factor present in the minds of ordinary people, and such a lack of restraint may simulate, or lead to, the want of control characteristic of insanity.

Genius cannot be produced by education or environment: it is inborn, and depends on inherited characters. That it "runs in families" was shown by Galton, and the fact that a man of genius rarely has children of such high distinction as himself is probably due to the fact that genius depends on a combination of characters which are not necessarily inherited together. The man of genius thus transmits some of the qualities required to one child, others to another, but rarely all to any one child. In this respect, genius, in its inheritance, resembles most other wide departures from the average of mankind, the rule being that the majority of children are less divergent from the average than their parents. But genius is far more likely to appear among the children of eminent parents or of parents who have eminent ancestors, than

among those of the mediocre; and the probability is greatly increased if both parents have conspicuous ability. L. DONCASTER.

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GENLIS, STÉPHANIE, COMTESSE DE (1746–1830).—A celebrated French writer usually known as Mme. de Genlis. Her early education was neglected, and her attention concentrated on music so much, that, at 13, she could play eight instruments, in addition to the harp, with a skill that no contemporary could equal. After an early marriage, she took up other studies, and in 1770 had qualified herself to become *gouvernante* to the daughter of the Duchess of Orleans. In 1782 she undertook to superintend the education of the young princes, including Louis Philippe, who afterwards became king of France. For her pupils she wrote her most important work, *Adèle et Théodore, ou lettres sur l'éducation*, stating her principles of education suitable for princes, young men, and young women. Her teaching of the princes excited both praise and criticism, and is described as being too narrow and too much devoted to minor matters and to an excess of method. The teacher appears to have lacked all grandeur of character, and to have suffered in consequence of the negligence and frivolity which characterized her early years. In 1787 she wrote an essay on Religion as the only foundation of honour, which was ridiculed by Buffon. She also wrote *Memoirs*, consisting chiefly of praises of herself and her writings.

GENLIS, MME DE.—(See "BLUE-STOCKINGS" AND EDUCATION, THE.)

GENTRY, EDUCATION OF.—(See NOBLES AND GENTRY, EDUCATION OF.)

GEOFFRIN, MME.—(See "BLUE-STOCKINGS" AND EDUCATION, THE.)

GEOGRAPHICAL ASSOCIATION.—Founded in May, 1893, at a meeting of Public School masters. Membership is open to teachers of geography and to other persons interested in the teaching of geography, the purpose of the association being to improve the teaching of this subject. To unite teachers in different parts of the Empire in a common effort to further the right principles of geographical education, local branches have been established in the United Kingdom and the colonies. There is a lending library from which books are sent by post to all members. A journal, *The Geographical Teacher*, published each term, is sent free to members.

GEOGRAPHICAL SOCIETY, THE ROYAL.—After the discovery of the New World, geographical work was at first done without regular organization. One of the earliest geographical works was Eden's *Decades of the New World*, published in 1555. Then followed a succession of collections of Voyages and Travels, of which Hakluyt's is, perhaps, the best known. The Royal Society, founded about 1645, published occasional geographical papers; and in 1788 the African Association was founded to promote exploration in Africa, and led to the discoveries of Mungo Park, Denham, Clapperton, and Lander.

The Royal Geographical Society was founded in 1830 by members of the Raleigh Dining Club, who collectively had visited nearly every part of the known world. The scheme of the Society was planned by Admiral Smyth, who enrolled the first list of members. Among the Fellows in 1830 were the King, the Duke of Wellington, Sir John Franklin, and Sir John Barrow.

The African Association and the Palestine Association were merged into the Society at its foundation. A royal charter was granted in 1859.

From 1830 to 1911 the Society had many meeting-places; but in the latter year, under the presidency of Earl Curzon of Kedleston, Lowther Lodge (Kensington Gore) was purchased from the Speaker of the House of Commons, and has been made the permanent home of the Society.

The object of the Society is the promotion and diffusion of geographical knowledge, and to this end it welcomes to its fellowship all who support this object by interest or by the active work of discovery and exploration.

King William IV granted fifty guineas as an annual donation, and his successors have continued the gift. This has been devoted to providing a "Patron's Medal"; and since 1837 a second medal, the "Founder's Medal," of equal value, has been awarded by the Society. In the list of recipients of one or other of these medals appear the names of many men whose work is well known to all geographical students: Richard Lander (Africa); Sir John Ross (Arctic); Sir R. H. Schomburgh (Guiana); Eyre and Sturt (Australia); McLure (N.-W. Passage); Burton and Speke (Africa); H. M. Stanley, Livingston, and Cameron (Africa); Nansen, Shackleton, Peary, and Lady Scott on behalf of her late husband (Polar discovery).

The Society has spent many thousands of pounds in grants of money to encourage geographical exploration and research. Among the expeditions, many are of historic importance and interest, including Schomburgh's Guiana Expedition, 1834–1839; the relief of Speke, 1861; the Livingstone Expedition and expeditions for his relief, 1865–1874; the Cameron Expedition, 1875–1876; and the Emin Pasha Relief Expedition in 1887. Eight thousand pounds were contributed to Captain Scott's first expedition (1901–1902) and £1,500 to his second; and a thousand pounds were granted to Sir Ernest Shackleton for his expedition in 1914.

About twenty-four meetings of the council are held annually, dealing with correspondence, finance, grants, care of library and map collection, papers to be read or published, and honours awarded.

Library, Museum, and Map Collection. The home of the Society is a spacious building of three floors of equal floor space. On the ground floor are the Museum, Map Room, and Map Store, as well as other rooms; on the first floor are situated the Library and Reading Room.

The Museum contains, in museum cases, the personal relics of famous explorers; and portraits of medallists of the Society are hung on the walls. Among the relics, a number were found by the Franklin Relief Expedition; and others include such things as a candle, a knife, tobacco, and ship-biscuit discovered in Arctic regions, in some cases, fifty years after the end of the expedition by which they were left behind. Only a visit to the Museum can convey to the student an adequate idea of the interest attaching to such a collection.

The Library has grown out of an original gift to the Society of 400 volumes in 1832. The nucleus of the library consists of descriptions of travels and explorations in all parts of the world, and few works of this class are wanting. Collections of works on general geography have grown very rapidly in recent years, and there are numerous books on geology, biography, and ethnography. Among periodical publications and transactions are many official Government publications, geographical journals, transactions and reports of societies and institutions, and reviews in which geographical articles appear. Fifty per cent. of the books are in English, 19 per cent. each in German and French, and 12 per cent. in other languages.

The Society receives a Government grant of £1,250 per annum on condition that its collection of maps shall be open to the public. This privilege is much appreciated, and the maps, which include many valuable manuscript maps and ancient atlases, are frequently consulted by Government departments and the public.

Direct Educational Work. For the last thirty years the Society has made great efforts to improve the geographical education of the country. In 1885 it opened an exhibition of geographical appliances for teaching; and the collection has since been kept at the Teachers' Guild Museum in Gower Street, London W.C.1. From 1871 to 1887, the Society pressed upon the authorities of Oxford and Cambridge Universities the urgent importance of giving geography its proper place as a subject of instruction. In 1888 a Reader in Geography (Mr. H. J. Mackinder) was appointed at Oxford, and for five years the Society paid half the salary. In 1899 a School of Geography was established at Oxford; and after Mr. Mackinder's retirement in 1905, Dr. A. J. Herbertson became Reader and Director of the school.

At Cambridge the story of geographical teaching followed almost precisely the same lines as that at Oxford, and a School of Geography was established in 1903.

Many other contributions in the form of donations and prizes have been made by the Society to promote the teaching of geography in universities, extension societies, and university schools; while its efforts have also been successfully employed in improving the style of geographical text-books used in schools, and the nature of geographical tests in Civil Service and other examinations.

Scientific instruction in practical astronomy and surveying is given in the Society's rooms to intending travellers at a low fee, and diplomas are awarded to students who go through the whole course laid down in the Society's syllabus and pass an examination in the subjects of instruction.

The publications of the Society are: *The Journal*, annual volumes; *The Proceedings*, in parts; *The Geographical Journal*, monthly parts; *The Year Book*, annually.

Fellows of the Society (F.R.G.S.) are elected on the nomination of one or more Fellows, one at least of whom must certify his personal knowledge of the candidate. Each Fellow is entitled, free of expense, to a copy of the monthly publication, and to other publications at reduced rates.

GEOGRAPHY (COMMERCIAL), THE TEACHING OF.—Commercial, Economic, or Applied Geography is concerned with the discovery, production, transport, and exchange of commodities, and the influence thereon exercised by local conditions and place relations. This may be epitomized as follows—

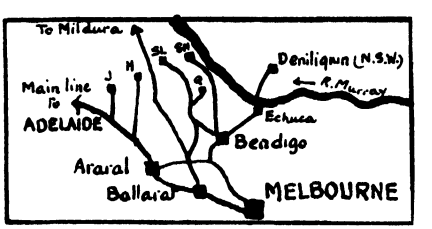
Discovery: New geographical sources of profit, *e.g.* the opening out of a new way to India by Vasco da Gama at the end of the fifteenth century, resulted immediately in cargoes of pepper and other spices from the Malabar Coast reaping a profit of 6,000 per cent.

Production: The whole world of "raw material"—animal, vegetable, and mineral, *e.g.* wool from the back of the sheep to that of the man.

Transport: The collecting, handling, and delivery of goods, *e.g.* the great tow barges for mineral traffic on the Ohio and Mississippi. Tows will come from Pittsburg with coal cargoes of anything from 10,000 to 40,000 tons. There is an instance even of 70,000 tons!

Exchange: Influences, whether natural or artificial, making for easy exchange, *e.g.* the obviously natural transit character of Dutch commerce, or the general question of currencies—the instruments of exchange.

American geographers explain the scope of economic geography as the localization of industries which is subject to three controls: (1) Natural or physical environment, *e.g.* the growth of towns near mineral deposits; (2) human, or characteristics of man, *e.g.* change of conditions brought about by railways [wheat routes of N.W. Victoria (as in Fig. 1);



Scale. 200 miles direct from Melbourne to Salt Lake.
Termini. Jeparit, Hopetown, Salt Lake, Quambatook Swan Hill.

FIG. 1.
The N.W. Railways of Victoria, which have converted barren lands into wheat fields.

trans-Siberian railway]; (3) economic or social forces, *e.g.* quality or type of Government, such as one finds in the backwardness of all development under the rule of the Ottoman Empire.

The Value of Economic Geography. It follows, then, that the main object of Economic Geography is to emphasize causes and consequences—geographical causes and commercial consequences. Therein lies the *educative* value of the subject. One may work forward from cause to consequence, or backward from consequence to cause, with equal advantage. Fig. 2 shows that part of Africa which lies within the Tropics, and has, roughly, an average temperature of about 80° F. (*i.e.* about 66 per cent. of the whole Continent). Fig. 3 expresses this fact in terms of Economic Geography. The 66 per cent. is responsible for but 30 per cent. of the total trade. At the beginning of this century, the percentage was much lower (about 10); but the development of Rhodesia, British East Africa, British West Africa, and the Anglo-Egyptian Sudan has improved the figures. This is working from cause to consequence. The converse is just as effective. The

subject has an *utilitarian* value, too. An effective study of Economic Geography opens out new possibilities of production, which may—who knows ?—pave the way to a fortune, and will at least enable its votary to guard against such mistakes as the export of lace-up boots to Persia, where everyone wears footgear easily adaptable to the social custom of removing shoes on entering a house.

The Teaching of Economic Geography. Premising that there is no royal road to the teaching of the subject other than is compassed by any of the best

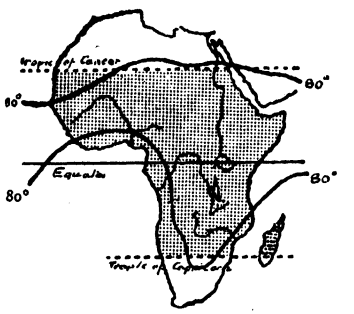


FIG. 2.
Inter-tropical Africa, with annual isotherm, 80° F.

methods of teaching ordinary geography intelligently (*i.e.* ratiocinatively), nevertheless it may be not without advantage to point out certain lines which experience has shown to be worth following, and certain errors which it is as well to avoid.

To begin with, isolated facts are to be tabooed: each is to be demonstrated in relation to other facts

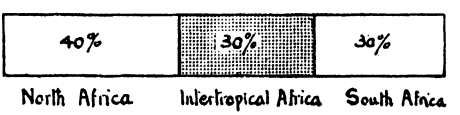


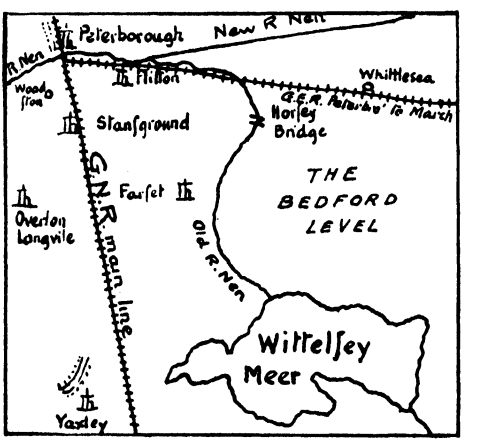
FIG. 3.
Percentages of total foreign trade values (imports and exports) of the continent of Africa.

by way of either cause or consequence. The location of a mountain pass with its height in feet above sea-level, or, better, above the surrounding plains, is interesting, but useless by itself. It opens up the questions: "Why is the pass useful ?" "What trade, or trades, does it serve ?" "What would these trades do if it were non-existent ?" "What rival passes does it contend with ?" and so on. Such teaching may obviously begin anywhere in the school. The preparatory form is learning Economic Geography when it connects a cup of tea with the Island of Ceylon: it strikes the *human* note, which is essential in every kind of geography teaching. However, as a subject pure and simple, it is perhaps better left until the higher middle and upper forms of a school are reached; it is *par excellence* the geography for technical and evening classes. With regard to the instruments of teaching—the usual appendages of the geography class-room are all-sufficient, viz., globe and wall maps, blackboard, lantern-slides, pictures, samples, and—most important—the learner's note-books.

Now, just as it is right to remember that it is geography and not economics we are concerned with, so it is necessary to begin the teaching with the base of all good geography teaching, viz., Physical Geography.

Physical Geography as an Important Factor. The physical map must be in constant use. The walls of the classroom should be hung with physical maps. Their political *confrères* may be safely left to the pupils' atlases. The influence of physical "controls" is never far away. Civilized people are quite as much controlled by environment as are "native" people, as to which the keenness of the modern search after easy road and rail gradients may be cited in witness. Therefore, any chapter on Economic Geography should begin with an elucidation of the physical features, because they are sure to influence the character of man, and the nature and course of trade.

Nor must it be forgotten that Physical Geography is a variable factor conditioned often by human



Scale. Yaxley to Peterboro', 5 miles.

FIG. 4.
Whittlesea and district, as in Queen Elizabeth's time (Camden Brit., I, 500); but the new R. Nen, the Bedford Level, Whittlesea, the G.N. Railway, and the G.E.R. Peterboro' to March, all from modern maps.

agencies. Examples are innumerable. The Blue Mountains furnished an economic obstacle to the early colonists of New South Wales until, first, the zigzag railway from Lithgow to Emu Plains lessened the obstacle and then the tunnel of 1892 abolished it. Physical geography made Boston, in Lincolnshire, the first great English wool port; it was the fall of the Hanseatic League and the increasing size of ships quite as much as the silting up of the River Welland that sealed its fate. The opening of new routes tends to ruin old ones, just as Suez has side-tracked St. Helena. Great dredging enterprises, rather than Nature, have made Tyne and Tees and Clyde the rivers they are. Inventions have often risen superior to geography: the Thomas process of treating phosphoric iron ores, introduced into Germany in 1879, enabled her to utilize her own inferior ores and become one of the greatest iron and steel powers of the world.

This factor, too, of Physical Geography is often

	Lat. about.	*Extremes of Temperature :*			*Rainfall :*		
		Coldest Month.	Hottest Month.	Variation.	Annual Average.	Wettest Half.	
New Westminster	50°	34° F.	61° F.	27°	65″	46″	Oct.–Mar.
Winnipeg		–5° F.	66° F.	71°	21″	18″	Apr.–Sept.
							9″ in May & Jun.

multifarious. It seems a truism to say that a good natural harbour will make a great seaport. It may: it certainly will not unless other favourable conditions are present, and particularly the existence of a hinterland capable of furnishing an export trade. By way of test, compare the magnificent natural harbours of S.W. Chile with the artificial substitutes of S.E. India, and mark the economic contrasts.

Much stress should be laid on an important branch of Physical Geography, viz., climate. Take the case of the importance of wind with all that it involves: variations of temperature, rain, and its seasonable distribution. For be it remembered, the winds are the "purveyors" of climate, and that without wind the influence of the sea or temperature would not penetrate one mile inland. Compare, for example, any places east and west of the Rocky Mountains, and in about the same latitude (*e.g.* New Westminster and Winnipeg), and note the climatic contrasts due to the fact that the barrier ridges trend north and south, while the prevailing winds are south-west to north-east. (See above.)

Several important inferences, or deductions, may be worked out from this table, obvious enough to the adult, but not so to the school boy or girl, who meets with the statistics for the first time. Here are two: (1) The far warmer winter and comparatively cooler summer in New Westminster due to the combination of prevailing wind and opposing ridge; (2) the moist (for Manitoba) *spring* and *summer* in Winnipeg (*i.e.* just the right time for the staple crop, wheat).

It is in this question of climate that the utilitarian *motif* of Economic Geography, already alluded to, makes itself strongly felt. Few, indeed, are the commodities and methods of trade which do not fall under some control or other exercised by climate, from growing dates with profit in Tripoli or loss in Sicily, to mining gold in Queensland or the Klondyke.

Note-books and Exercises. An important point in method of teaching is the right use of his note-book enjoined on the pupil. It must be a *note*-book, not a collection of dictations. In such, the notes should take the form of exercises, sketch maps, diagrams, and statistics—each with explanatory additions where necessary.

As to *exercises*—really an interesting way of taking and making notes—two examples will explain the best type suggested. The first chooses one of the numerous bald statements of facts from the text-book and bids the pupil illustrate it in any way he can. Thus—

Statement. "The Rhine is navigable for small boats up to Schaffhausen, for river-steamers of 100–200 tons to Basel (510 miles from the sea). By means of dredging and other works, Köln, Mannheim, and Strassburg can now be reached respectively by boats of 1,750, 1,500, and 800 tons. One of the many mouths, known as the 'New Waterway,' has been dredged so as to take ocean-going vessels with a draught of 23 ft. as far as Rotterdam, above which the minimum depth, even as high as Mannheim, is seldom below 9 or 10 ft.; beyond Mannheim this shallows down to under 5 ft."

Exercise. Fig. 5 is a facsimile of an actual illustration done by a promising student. We leave it as it is, and readers may make their own criticisms; it is at least as illuminating as the text "statement."

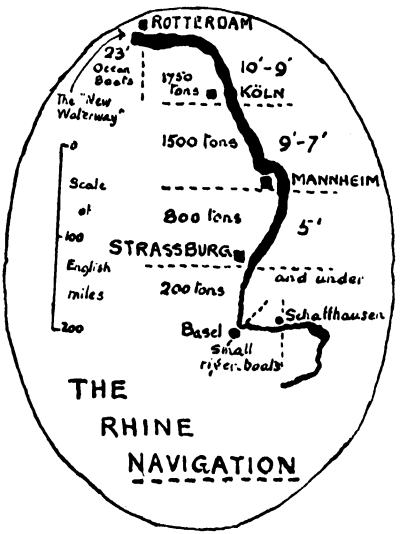


Fig. 5.

In the second example, the teacher dictates a "note," and, after italicizing the "points" and discussing the question orally, asks for an analysis of consequences—

Note. "*Japan* is composed of *igneous* and *sedimentary* rocks; much of it is of *volcanic* origin; 75 per cent. of the surface is *mountainous* (*Fujiyama* rising to over 12,000 ft.); the chief *rivers* are the Tone, Shiuano, and others of a similar type."

Exercise. The analysis might aim at some such substance and form as follows—

Japan:

Igneous. ∴ granite; ∴ kaolin and famous Japanese porcelain.

Sedimentary. ∴ coal and petroleum; ∴ development of railways, machinery, and manufactures.

Volcanic. ∴ sulphur; ∴ blow to the Swedish match trade in the Far East.

Mountainous. ∴ (i) agriculture difficult; and (ii) feudalism of old nobility easy.

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PLATE XLII

Fujiyama (the typical volcanic shape). ∴ low passes between peaks easy for engineering purposes.
Rivers (mountainous and short). ∴ torrential and unnavigable; ∴ all the more need for railways,

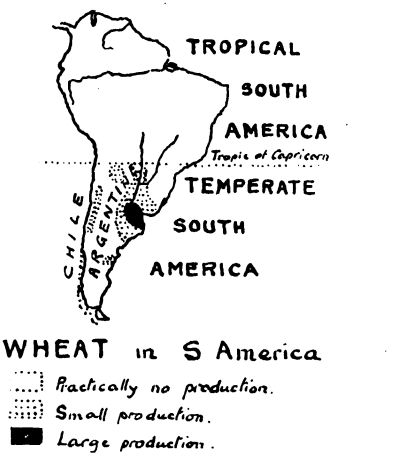

FIG. 6.

without which communication between lowland and lowland would be chiefly by sea.
—an analysis which really makes quite a neat little introduction to the economic geography of Japan.
As to *sketch maps*—avoid "label" maps, *i.e.* outline maps with "gold," "tin," "sugar," etc., peppered

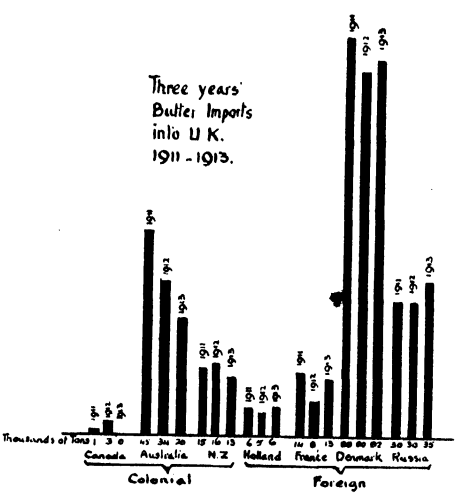

FIG. 7.

over their interiors. They are merely disguised catalogues. Rather encourage the drawing of innumerable small sketch maps, each devoted to the illustration of one, or at most two, ideas, and burdened with as few names as possible. Fig. 6 ("Wheat Production in South America") is the sort of type to encourage. For this purpose, a series of World and Continent outlines should be made by any of the numerous reproducing processes in vogue and stored for distribution by the teacher.

As to *diagrams*, let them also make for simplicity and multiply them indefinitely. Most statistical tables may be rendered palatable in the form of comparative columns or circular percentages, or graphs on squared paper.

Fig. 7 is an example of the familiar "column" type.

As to *statistics* themselves, some well-known geographers would banish them entirely from the economic and all other geography lessons. But, rightly used (*i.e.* for purposes of comparison and deduction rather than for mere figure facts), they must be effective, whether we take averages extending over a number of years, or figures for the latest available year.

The Butter diagram of Fig. 7 is of little value as it stands (*i.e.* as a record of figures, which are, moreover, liable to change from year to year); but it is effective when comparisons are made between one country and another, and deductions attempted as to causes and consequences. It shows, for example, how dependent we are to a great extent for our butter supply upon foreign countries, notably Denmark, and to how small an extent upon our Colonies—an unfortunate state of affairs, which should lead to suggestive ideas as to why it is so, and how, if possible, it may be remedied.

E. R. W.

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GEOGRAPHY (DESCRIPTIVE).—Descriptive geography is rather a loose term. On the one hand, it may be taken to mean the geography which deals with things that may actually be seen with the bodily eyes; and, on the other hand, it may be taken to mean an orderly description of the essential facts of the geography of the world. In practice, it means both: the actual appearances of things are of little account unless they are related to the essential geography. Even at its best, descriptive geography in this sense gives only the globe-trotter's view of the world, and is obviously scrappy. But an orderly description of the geography of a region is dry and uninteresting, and also of little value unless the actual appearance of things is realized.

The teaching of descriptive geography, whichever meaning be taken, is an extremely difficult matter. It is absolutely impossible that any one, even in the course of a long life, and even with all the resources of civilization at his command, should be able merely to glance at all that may be seen on the surface of the world that is really of importance. The vast majority of men see only a very small fraction. School children see scarcely anything. Indeed, those who see even a comparatively minute amount of the surface phenomena, scarcely require to be considered. They learn of the actual appearance of things in a vastly better way than can be done by any school teaching. But in addition to the impossibility of being able to look at all the surface phenomena, there is the difficulty of seeing what one is looking at, and there is the difficulty of realizing the relationships of things which cannot be seen at the same time. It requires a lifetime of training in order to see all that may be seen even

in a comparatively small area. One man may go to a highland glen and see merely rugged mountains, pine woods, heather moors, and streams; another might see possibilities of utilizing water-power; while another might see all these things, and see also the morainic débris, the iceworn slopes, the interrupted drainage, and all the evidences of an Ice Age. Or again, with different temperaments, men might go to the little fishing town of Deal and each see only a portion of what is patent to the seeing eye. To one, Deal is a restful place where one may lounge on the front and listen to the band, or lie on the beach and throw pebbles into the sea. To another, it is a place to which to go in order to get fine sea fishing. To a third, the golf links are the attraction. Another sees the colours on the ever-changing water and the clouds racing across the sky: the beauty and the motion are a joy to him. One may look across at the breakers that mark the Goodwins, or at the white cliffs of Calais, or see the liners go past at night lit up like a grand hotel, or wander through the quaint straggling old town and think of far-off lands and times of the distant past. All those things and many more are there; but it requires long training to see them all, and to see that they are not isolated facts, but that they all fit together. The steep pebble beach and the sands of the golf course and Goodwins have all been worn from the coastlands to the westward, and especially from the chalky downlands jutting into the sea. Hither, under the influence of the set of the tide and waves driven by westerly winds, pebbles and sands travel; and here they collect, forming an apron to the land and blocking ancient channels. The straggling streets of the old town naturally follow the line of the storm beach, and leave the lower lands behind for market gardens and newer villas. There, in the sheltered Downs, sailing ships bound down Channel or up Thames must lie at anchor while west winds blow, so that not only are the fishermen of Deal known the world over, but those who manned the wooden walls of England waited there the commands of My Lords in Whitehall. Now the Fleet lies there no longer, but Admiralty House remains; and great liners and cargo "tramps" still use the ancient channel, and vessels still gather as of old till an easterly breeze sweeps the anchorage clear. Descriptive geography gives accounts of living organisms, not of isolated facts.

Again, as compared with all other school subjects, except perhaps history, geography is at a tremendous disadvantage, in that one is not able to study at first hand the actual things supposed to be studied. Whether in the natural sciences or in the humane studies, the things studied are themselves before the children. Chemical changes and physical reactions may actually be observed; language is spoken or analysed; wood is sawn; flowers are painted. But the things dealt with in geography cannot be brought into the classroom. The difficulties are increased when one deals with gigantic land forms or great expanses of sea. One can understand how a girl could write: "Just as Britain is close to the Continent of Europe, so is New Zealand close to Australia"; but that does not alter the fact that she was making a very great mistake.

Study of the Home Region. With all these difficulties, it may seem almost impossible to teach geography at all; and yet, if our pupils are to take their places as citizens, it is imperative that they should have some knowledge and understanding of the world they live in. What is to be done?

Well, for one thing it is obvious that children (and adults) should be trained to understand their home region. Geography begins at home. They should be able to see all that is to be seen in it. Before any further geographical work can be attempted with success, something of the home region must be known, and, as a simple matter of fact, *is* known before boys and girls come to school at all. The way to school is in itself one important matter of geography, and the position of the home is another. This forms a beginning, but much more may be done with the home region, not only as a subject of preliminary study, but during the progress of the course. Reference must constantly be made to the facts that may be observed in the neighbourhood of the school. Few districts supply examples of all that teachers feel that they require, but that is no reason why they should not use all that they can. Even the most unlikely districts may be used to give meaning to what would otherwise be of little value. The study of the home district indeed supplies the pupils with the only possible scales by which to measure the rest of the world. It is only by experience of what they have seen that they can really measure what they have not seen.

Description, Pictures, and Maps. But there are other means of learning what distant lands look like. Perhaps the most obvious are: (1) Verbal descriptions; (2) pictures; (3) maps. There are advantages and disadvantages in employing each of the three. The advantage of the first is shown in the popularity of geography readers of all kinds. By the use of them, the class can be "kept together," and, when first-hand information is given, they are valuable; but the common geography reader tends to be a hack production, and somehow does not carry conviction, though there are brilliant exceptions. Teachers would do well to use only those which have accredited names as authors or editors. The great disadvantage of the reader, however, is that extremely little is done in the course of a lesson. Verbal descriptions read aloud slowly, word by word, require to be very good indeed, if they are to give anything like the effect which a picture or series of pictures gives in a very much shorter time. Some speeding up may be obtained by allowing the children to read portions silently, and this has the additional advantage of accustoming them to getting for themselves the essentials of a subject from printed matter; but, even so, the use of readers as the sole means of teaching geography has grave defects.

Pictures, then, have the advantage of showing things as they are, quickly. Readers generally have a few, more or less satisfactory. But, apart from the difficulty of obtaining these in sufficient numbers and of suitable size, there is the disadvantage, met with in verbal descriptions also, that, after a certain stage has been reached, there is an indefiniteness which is fatal to a real understanding of the subject. When the aim is merely to give a qualitative impression of the kind of land that Switzerland is, or Norway, or Egypt, pictures and verbal descriptions are all that is required; but when it becomes necessary to show the relationships of areas—when, in fact, one is dealing quantitatively with geographical facts—then one finds how inadequate are pictures.

We are then forced to use maps in order to make

descriptive geography precise. Here the difficulty is of a totally different kind. If the disadvantage of verbal descriptions is that they take many words and much time to get a real effect, one disadvantage of the map is that it shows so much that it is difficult to take it all in, even after much study. Even a simple sketch map is not really simple, and most apparently simple maps have the simplicity of a book in which nearly all the words are omitted, and that does not make for easy reading. A map of a hill with only one contour line shown is not really as simple as one in which many are drawn. Another serious difficulty is that there is a very strong tendency to think in terms of maps, to think of maps instead of the real facts. We recognize maps only if they are looked at in a conventional way. It is a universal experience to think that the map of France does not " look right " with South at the top of the page. This, of course, means that we are not really thinking of France at all, but of a particular map. It was an unfortunate inability to think apart from the map that allowed youngsters to say " New Zealand is right down in the South-East corner of the World," and " Southern Scotland is the part below the Forth and the Clyde." It was the careless use of the atlas also which probably induced a girl of 17 to say: " Britain consists of three islands—England, Scotland, and Ireland." It is obvious that those who made such statements were not describing real things.

It is not possible here to do more than point out that the solution of the problem, as far as it has a solution, lies in combining all the aids to teaching. In particular, more maps must be used, and careful attention be given from the first to training in map-reading, beginning with maps of the home region, using them to realize what a map is by a comparison of the one with the other. Further, it must be emphasized that, for the exhibition both of maps and of pictures, the lantern is invaluable. Wherever possible, the lantern should be in daily use, not as a show, but just as any other piece of school apparatus is used, because it gives the best results.

J. F.

GEOGRAPHY (ECONOMIC), THE STUDY OF.—Economic Geography treats of the influence exercised upon the economic activities of man by his environment, and more especially by the form and structure of the land in which he lives, the climatic conditions which prevail upon it, and the place relations in which its different parts stand to one another. It is not a mere description, as has often been erroneously thought, of the products of various countries, their exports and imports, and their trade with one another; but a study of the control exerted by geographical factors upon the economic life of man, and of man's response to that control. The subject is one which for long received too little attention in this country; partly because of the backward state of geographical education generally, and partly, perhaps, because many geographical factors of fundamental importance are obscured to a greater extent than in other parts of the world by considerations of an economic nature. Within recent years, however, its value has been recognized, and in commercial education generally it now occupies an important place.

But if general agreement has been reached upon the educational value of Economic Geography, and even upon the subject-matter with which it deals, differences of opinion (and healthy differences of opinion, be it said) still exist as to the best methods of treatment. About the preliminary matter, indeed, there is comparatively little dispute. The student of Economic Geography must have a general knowledge of geographical principles. He must know something of the chief rocks and soils found upon the surface of the earth, the causes which determine the distribution of climate, and the influence of soil and climate upon vegetation, and more especially upon the growth of plants of economic importance. Beyond this point, however, the methods of treatment vary. Regional study in one form or other is generally adopted; but in one important work at least the writer has frankly set this method on one side, and has devoted himself to a more general survey of various aspects of his subject. Thus the agriculture, minerals, manufactures, trade-routes, etc., of the world are all successively examined in the light of the control exercised by geographical conditions. For the advanced student who already has some considerable knowledge of regional geography, this method has much to recommend it. It enables him to take a wide survey of all the factors involved, and encourages him to apply the detailed knowledge which he has acquired to the solution of particular problems. But it is not the method by which the subject should, in the first instance, be approached. The various geographical factors involved in the solution of any particular problem vary so much both quantitatively and qualitatively in different parts of the world, that any attempt at generalization before all the facts have been ascertained is bound to end in failure. The basis of all sound work in Economic Geography must be a systematic regional study of the interaction between man and his environment. The processes and not merely the results of such a study ought to be presented to the student. Not until he fully realizes the varying nature of the geographical control, and of the human response thereto, in different parts of the world, can he himself safely undertake to make generalizations involving more than a single region.

The regional treatment of Economic Geography is, however, capable of various interpretations. The most attractive, perhaps, at a first glance is that which disregards all political boundaries and considers the various divisions of the world from a purely geographical point of view. National frontiers, it is argued, have generally been determined by factors other than geographical, and to neglect them in no way interferes with the geographical argument. This would no doubt be true if we were merely considering the potentialities of any given region. But Economic Geography is concerned not only with environment, but also with the reaction of man to that environment. This reaction is determined to no small extent by historical and political conditions, which may vary greatly in different political units within the same natural region; nor can the direct influence by the State be ignored. When, as is frequently the case, these historical and political contrasts are the reflection of racial divergences, the necessity for the individual consideration of national units becomes obvious.

Hitherto the most generally accepted method of treatment, both in this country and abroad, has been to adopt the national unit as the basis for investigation. A survey is made of the economic activities of the country in relation to its geographical conditions. Agriculture, minerals,

manufactures, communications, and commerce are treated one after the other, and usually in the order given. A general view of the economic position of each country is thus obtained, and in such a way that comparison with other countries may be easily instituted. But it may be questioned whether this method does not sometimes tend to lead to a divorce between the geographical and the economic aspects of the subject, and a divorce to the disadvantage of the geographical aspect. A general rather than a regional account of the agriculture of a country, for example, tends to lose touch with the actual conditions under which it is carried on. The geographical factors which are treated, moreover, are positive rather than negative. Much may be said about the suitability of certain lands for certain crops, but little about the unsuitability of other lands. Nor is this a matter which can be safely neglected in these days, when various schemes for the extension and more intensive cultivation of the agricultural domain are under consideration.

Lastly, we come to the purely regional method. For reasons already given, the country is again the unit; but, instead of being considered as a whole, it is divided into natural regions, and each of these regions is treated separately. In this way, and perhaps only in this way, can a systematic survey be made of all the geographical factors involved, and the method offers exceptional facilities for keeping constantly in view the interaction which takes place between man and his environment. But it is a method which is by no means free from difficulty. In the first place, there is no generally accepted definition of the natural region nor of the principles upon which it ought to be delimited. The present writer believes that geographical form and structure, climate, vegetation, and place relations must all be taken into consideration before a country can be divided into units, each of which will exercise its own distinctive control upon human activities within it, and each of which will provoke its own distinctive response to that control. But whether this view be accepted or not, the fact remains that no systematic division of political units into natural regions has yet been generally accepted.

At a first glance, it might seem that the study of natural regions forms the best basis for quantitative work in Economic Geography; but, unfortunately, the statistical information given by Government departments is seldom in a form in which it can be conveniently used. In almost every country, the political sub-division and not the natural region affords the basis upon which statistics are compiled. Where the major natural regions are large, relatively to the statistical units, and contain a considerable number of them, as in the United States, a little ingenuity will serve to get over most difficulties arising in this way; but where they are small, as in the United Kingdom, the difficulties are almost insurmountable (*i.e.* without special help from Government departments). No published statistics, for example, will enable us to obtain an idea of the relative importance in agriculture of the Scottish Highlands and of the narrow coastal plain by which they are bordered on the east. On the other hand, it may well be that the natural region will be adopted as the statistical unit when its advantages as such have come to be more generally recognized.

It has also been said that the purely regional method tends towards a narrowness of view and prevents the study of general principles. It is no doubt true that the economic geography of a country is more than the sum of the economic geography of its different parts, but it does not follow that all the work of the regional geographer must be purely analytical. When he has concluded his survey of the natural regions of a country, he is still able, and, indeed, better able, to observe how they react upon one another. This leads to a study of the country as a whole, and to a consideration of the influence exercised by its economic development and place relations upon its international position.

General Principles. But whether the unit chosen for treatment be the country or the natural region within the country, the methods which must be adopted are, to a certain extent, the same. A knowledge of the physical features of the area must form the basis of all further study of it. But to understand the topography of any region, some attention must be paid to its geological structure and the morphological processes by which it has assumed its present form. The distinction between folded mountains and dissected plateaus, plains of accumulation and plains of denudation, longitudinal and transverse valleys, young and mature river systems, may all be of importance and none can be safely ignored. The study of climate, which is probably the most important of all the geographical controls, must be based upon the physical features and place relations of the country under consideration. In a country such as our own, where agriculture holds but a secondary place, the influence of climate is frequently too much neglected by those who are not geographers; but it directly affects the economic activities of the greater part of the human race. The distribution of vegetation within the country, and the conditions affecting the growth of plants of economic value, must be studied in relation to the soil and climate upon which they depend. On the other hand, it must always be borne in mind that the human response to these geographical controls varies with the racial origin of the people and the standard of civilization to which they have attained. Ethnic divisions and racial characteristics must, therefore, be considered by the student, even though neither, properly speaking, falls within the scope of his subject. No less important is it to realize that the influence exercised by geographical controls does not remain constant. It varies with the progress of science, as well as with changes in the historical and economic position of a country. History and economics must, therefore, supply part of the material required for the study of the dynamic aspects of the subject.

In view of the demands which it makes upon subjects other than its own, it is desirable to reiterate that the function of Economic Geography is to study the influence which terrestrial conditions and place relations exercise upon the economic life of man. So long as he keeps this end in view, the student is justified in drawing what he requires from other branches of learning. The essential condition is that he should add something of his own. What he endeavours to add is the study of the interaction which always and everywhere takes place between man and his environment.

J. McF.

GEOGRAPHY, HANDWORK IN RELATION TO. —A vivid imagination is of primary importance in

geographical work. It is this ability to see with the mind's eye which enables us to picture scenes, modes of life, and forces remote from our experience.

If reality is to mark our geographical knowledge, we must follow the explorer and scientist and adopt their methods, observing, recording, and drawing conclusions from the phenomena of that part of the world that lies within our ken.

Handwork may be employed as a factor in the training of the powers of observation, imagination, and reasoning. The restless fingers of small people can profitably be occupied with the concrete representation of stories (*e.g.* of Hiawatha, or of Shackleton's voyages), which combine vivid personal interest with a geographical background. A series of scenes should be arranged, illustrating all the chief incidents of the story; thus the children unconsciously acquire the habit of picturing a succession of complex scenes (*i.e.* they gain the power of mental roaming). The greater the variety of media—sand, wood, etc.—available, and the simpler and more spontaneous the work, the better. The teacher's influence should be as a spur to speed and ingenuity; unnatural attempts at "finish" hinder thought, though a practical training in the idea of scale and of true spacial relations may be afforded by judicious suggestions as to the relative proportions of the different parts. Handwork of this kind is not only an important aid to visualization, but frequently reveals a surprising depth of general knowledge and thought on the part of the children, which speech alone would not have brought to light. At the earliest possible moment, by suitable transition stages, concrete story illustration should give place entirely to pictorial representations, and to rough plan-making, on which scenes are expressed in appropriate symbols, invented by the children themselves.

Intermediate Stage. Older children readily co-operate in the collection of specimens of important natural products and of information referring to them. The most ingenious will convert old packing-cases into suitable cabinets; while others prepare stiff paper trays, neatly labelled, besides albums for the reception of information concerning the exhibits and about products such as gold, specimens of which are unobtainable for school use.

Abundant scope will be found for plastic modelling and for drawing, the best work occupying a place among the exhibits. Concrete representation of a large British commercial seaport fits in well with this work. The model should be based on information obtained from a large plan, prepared by the teacher from ordnance maps. Subsequently each of the children should draw plans of the model and illustrative drawings. If fairly large outline maps of the British Isles be now used, an important impression will be made when the children see the whole model they have just made represented by a small dot.

Pupils of 10½ years should be ready for a more formal, but chiefly descriptive, treatment of the continents. Distinctive forms of architecture and pottery may be modelled, baskets made, etc., all in connection with the part of the world which is being studied. With trained imagination and increased skill in drawing, sketches will become a ready means of expression. A selection of these drawings and printed pictures of native peoples, animals, striking scenery, etc., should be arranged in albums of the children's own manufacture. Seeking the facts in their atlases, the children may make rough plasticine models, on a slightly curved surface, of whole continents, showing the chief water-partings, rivers, and lowland plains. Frequent practice in expression of facts in map form is advisable; and the children should draw with ease large maps of small districts, or small maps of large ones, as occasion requires, having an eye to relative proportions, but troubling little about definite scale.

Senior Stage. With pupils of about 12 years of age and upwards, causal relations become increasingly prominent. Many links will be forged between well-known facts, hitherto but slightly related, *e.g.* the construction of simple models, demonstrating the movements of the earth and its relation to the sun at different seasons, serves to co-ordinate and amplify the results of earlier observation and information obtained from books.

Examination and discussion of various rock specimens will be followed by the making of models and vertical sections, illustrating the formation of springs, river phenomena, the structure of volcanoes, etc. The more precise knowledge of scale and of differences in altitude, which will now be gained through a course of surveying, should be applied to the study of an easily accessible portion of the homeland. Relief models of this district, to definite vertical scale, should be made from contoured ordnance maps. Excursions to the district, productive of sketches of typical land-forms, of the flora characteristic of contrasting subsoils, etc., will constitute a practical introduction to the later study of land-forms and distribution of vegetation. By means of separate tracings, illustrating various distributions—of human settlements, roads and railways, surface drainage, geological formations, etc.—studied in conjunction with the model and contoured map, a line of geographical reasoning may be visualized as a standard for future work.

The above examples briefly illustrate the application of handwork to geography, suitable for pupils at different stages. Many points of correlation have, of necessity, been omitted. It is hoped, however, that enough has been said to show that all handwork must be carefully graded to serve definite purposes; and it should be borne in mind that concrete treatment, however admirable, if persisted in too long, tends to clog rather than to stimulate the imagination; and, as the mind's outlook gains in elasticity, such aids should constantly undergo reduction to a minimum, till at last a veritable shorthand in the form of maps and diagrams is sufficient to call up the most complex concepts.

M. HOCKLEY.

GEOGRAPHY IN ENGLAND, THE EARLY TEACHING OF.—It is said that Giraldus Cambrensis recited his *Topographia Hiberniae* in the University of Oxford at the close of the twelfth century (Wordsworth, *Scholae Academicae*, p. 147). Though Higdon (*d.* 1364) stated the results of geographical study in England in his *Polychronicon*, it may be said that travels (mainly in the Crusades, or pilgrimages) such as those of individuals like Sir John Mandeville, were the main occasions for recording geographical facts. The Hereford *Mappa Mundi* was also an outstanding geographical production of the Middle Ages. Geography as a separate study, or as a special subject of the curriculum, was impossible. Even when Erasmus, writing in 1511, pointed out the value of geography, he was only thinking of it as throwing light on reading the

ancient Greek and Roman historians and poets, or as providing material for illustrative details in Latin composition. The first educational writer to advocate definitely the study of modern geography was J. L. Vives (*q.v.*), who advised that pupils should study "the discoveries of our (Spanish) countrymen on the borders of the East and West" (*de Tradendis Disciplinis*, 1531, Book IV, Chap. 1). In the same year, 1531, Sir Thomas Elyot drew the attention of the young "Gouvernour" to the delight of illustrated books of travel, where, "in a warm study or parlour, without peril of the sea . . . in his own house, a gentle wit can see everything that within the world is contained." Erasmus, Vives, and Elyot all saw that geography should be associated with the study of history. Vives and Elyot advocated the use of maps, though it was not till 1570 that Ortelius supplied the first general atlas of modern Europe. Mercator followed in 1598, John Speed in 1611 and 1627, Blaew in 1648. De Lisle (1675–1726), in Hallam's opinion the founder of geographical science, did not flourish till the end of the seventeenth century.

Geographical Text-books. Nevertheless, what may be called geographical text-books appeared at an earlier date in England. In 1559, William Cunningham, a physician, wrote the *Cosmographical Glass*, "containing the pleasant principles of Cosmography, Geography, Hydrography, and Navigation." In 1579, Christopher Saxton published thirty-five coloured maps of England and Wales, though Laurence Nowell had stated his design of constructing such maps in 1563, and had drawn thirteen maps for England, three for Scotland, and three for Ireland (Sir Henry Ellis: *Letters of Literary Men*, Camden Society, 1843, p. 21). In 1589, Thomas Blundeville issued his *Universal Maps and Cards, and their Use*. In 1617, Abbot, Archbishop of Canterbury, wrote his *Geography*. It was followed, in 1625, by Nathaniel Carpenter's (Fellow of Exeter College) *Geography*, published at Oxford—an excellent work divided into two parts, mathematical and descriptive. Carpenter became a schoolmaster, at Dublin, of the King's Wards in Ireland. The first considerable commercial geography was Lewis Robert's *Merchants' Maps of Commerce*, 1638.

Richard Hakluyt. The first definitely geographical teacher in England was Richard Hakluyt. Whilst at Oxford (*c.* 1577) he gave, voluntarily, lectures which he claimed were the first to show "the new lately reformed maps, globes, spheres, and other instruments for demonstration in the common schools." Hakluyt pleads for the establishment in or about Ratcliff of a lectureship of £50 a year in navigation, in a letter to Sir Francis Walsingham in 1584, citing the case of a lectureship in mathematics, secured at Paris by Peter Ramus. In his *Divers Voyages* (1582) he again suggests a lectureship in Navigation at Ratcliff, on the model of the lectureship at Seville, in Spain. The suggestion shows how the idea of teaching mathematical geography or navigation came entirely for practical reasons of its usefulness for sailors. Though Hakluyt, at Oxford, was the first teacher of geography, Sir Humphrey Gilbert was earlier than Hakluyt in his suggestion of a lecturer on cosmography and astronomy, with navigation.' This proposal appears in connection with the projected Queen Elizabeth's Academy (*c.* 1572).

Seventeenth and Eighteenth Century Teachers. Gilbert and Hakluyt were followed by Sir Francis Kynaston in 1635, who planned the *Museum Minervan* to include a Professor of Astronomy, who should teach astronomy, optics, navigation, cosmography. Similarly, in 1648, in his academy at Bethnal Green, Sir Balthasar Gerbier included geography and cosmography in his prospectus, and actually delivered a lecture in the subject. Geography teaching in schools was advocated by Comenius (*q.v.*) 1592–1670, and by John Dury, in his *Reformed School*, 1650. In 1647, Sir William Petty would have the "fairest globes and geographical maps" in his *Gymnasium mechanicum;* and, in 1660, Charles Hook (in the *New Discovery of the Old Art of Teaching School*) suggests that the school should have a "fair pleasant gallery wherein to hang maps and set globes." In the private schools of the latter part of the seventeenth and the eighteenth centuries, especially in private navigation schools of the seaport towns, geography was taught. In 1744, Joseph Randall, a private schoolmaster near Wakefield, and afterwards at York, wrote his *System of Geography*, consisting of 676 large octavo pages, in which geography is most comprehensively considered. Randall included the subject in the ordinary curriculum of the school. The girls' private schools of the eighteenth century also studied geography and the use of the globes. Geography formed part of the course in the Dissenting Academies—at Newington Green; in 1728, at Northampton, where Doddridge used Gordon's *Geography;* and, in 1761–1767, at Warrington, with Joseph Priestley who was a sturdy friend of geography-teaching, as teacher. The first English University Readership in Geography was established at Oxford in 1887. The Royal Geographical Society (*q.v.*) has been the chief promoter of the extension and intension of geography-teaching in England since that date in schools, colleges, and universities. F. W.

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GEOGRAPHY, LOCAL.—Local geography is the groundwork upon which all geographical knowledge is founded. When once that has been mastered, the geography of distant countries can be grasped easily. A child reared in the Fenland or on the Welsh Hills will, of course, hardly be able to compare the essential features of both mountain and plain; yet he will learn various principles which will be of great help towards understanding other districts and other ways of life. He will learn to visualize and to think for himself; to ask and to give reasons.

As a particular case of visualization, reproduction of maps and of hill-outlines from memory is of great importance. If Cromer is mentioned, the swelling curve of the Norfolk coast should immediately fill the mind's eye. Conversely, in describing the position of Cromer, one may make from memory a sketch-map of the coast upon which it stands. Those to whom geography makes no appeal are

usually unable to reproduce maps or simple outlines. There has been of late a regrettable tendency to refrain from asking candidates in examinations to draw outline maps, even when these outlines represent natural boundaries.

Manner of Teaching. Local geography should be learned both indoors and out-of-doors—as much one as the other—and invariably with map to hand. Every student should be able to make maps, and to read maps like open books. It is more difficult to teach a boy to draw a map well than to read a map well.

The pupil should first be shown how to find the points of the compass—not only from his school, but from any other spot at which he may happen to be; not only by day, but by night also. He should know some of the constellations and their apparent movements; and thus be able to find their bearings at night whenever the Pole Star is hidden by the clouds. He must be taught the apparent movements and different altitudes of the sun and the changing seasons by the use of the globe. Simple experiments with lamps and balls, aided by diagrams, will suffice to explain the movements and phases of the moon.

The use of the globe has been too much neglected by modern teachers. Illustrations drawn to explain the phenomena often show in themselves that the teaching has been from diagrams alone.

Every boy should be furnished with an up-to-date Ordnance map (1-inch scale) embracing the locality; and he should learn the meanings of the symbols and conventions employed to express relief and the nature of the ground, and the works of man (or "culture," as it is styled by American geographers). The meaning of hill-shading and contours must be clearly grasped by the pupils, who should pick out the neighbouring valleys and hill-tops, with their names and heights (if given), and work out their bearings from the classroom.

Outdoor Work. In the field they should ascend these hills, and, map in hand, identify and take the bearings of the other hills in sight. They should observe every detail of hill or valley-slope, and notice how the curvatures are expressed on the map by contour-lines, which make V-shaped bends up the valleys and swing in smooth convex curves round the hill-spurs. They must notice how the appearance of a hill changes when it is looked at from a second point of view, just as a street may seem strange if we return along it without having previously looked behind us. The sites of farm-houses and isolated buildings should be noted, and their elevations determined as nearly as possible.

The railways and canals—their names, relative importance, destinations and commerce, their cuttings, embankments, and tunnels—should all be studied, and reasons for their existence discovered. The quality and the destinations of main roads, and the distances from neighbouring chief towns and villages, must be learned, and some idea gained as to the reasons for high or low gradients. If navigable rivers traverse the district, the students ought to discover the size and character of the boats plying on the waters, and the nature, source, and destination of their cargoes. The directions of flow and points of confluence of all the streams in the locality should be known, and some of the smaller ones should be traced to their sources, the rise of the springs being noted on the map.

The chief industries of the district must be studied and their sites fixed, the causes of their localization being investigated. Matters like water-supply, and municipal or historical buildings and antiquities, may also receive attention. Local points of Physiography (*q.v.*) should be studied whenever time and opportunity permit.

The sketching of hill and valley outlines would be a feature of outdoor work; many other parts of the map may be drawn from memory indoors. The map of one's own district well repays all the attention given to it: the country itself must be closely scrutinized from every possible point of view and compared with the map.

To more advanced students, the maps drawn on the 6-inch scale are invaluable for the insertion of their own notes and observations, first in pencil and then neatly in indelible ink. If they are interested in Botany, History, Archaeology, Physiography, Geology, etc., they should be encouraged in their holidays to put down sites, boundaries, and other notes on 6-inch maps of their own, making the records as complete as possible, and converting them into Botanical, Geographical, Industrial, or other maps.

This takes time. It is impossible to teach all of it in the course of the ordinary school-work, and so those parts of the subject most suitable for the particular centre would be chosen first. It might be possible to deal with some of the outdoor work in classes arranged on Boy Scout lines. In the classroom, questions about the map may be answered best by students putting down their lines and observations on tracing-paper spread over the map.

B. SMITH.

GEOGRAPHY (PRACTICAL).—The term "practical" as applied to geography has not yet settled down to a precise signification. In the early days of the use of the word, practical geography was intended to imply much the same sort of training as is given in schools under the title "practical science"; the pupils were expected to work individually (or, less often, in small groups) and to perform various exercises with a geographical content. They were thus able to work at varying speeds and, to some degree, they taught themselves the facts of geography, and they became familiar with both geographical terminology and geographical apparatus. In some quarters, however, the term "practical" was applied solely to work performed out of school; and, as a result, was limited to exercises in map-making, and in Nature-study with a geographical bias. Certain teachers went so far as to deny the justification of the use of the word "practical" in connection with any work performed in school. Probably, the term will survive in its larger connotation, and will be held to include both indoor and outdoor work.

Outdoor Work. Obviously, the quantity and type of outdoor work which is possible in a school will depend almost entirely upon, first, the situation of the school; and, secondly, the devotion of the teacher. Very little outdoor work can be completed within the limits of the ordinary time-table lesson; and the teacher who desires to carry on any extensive scheme of such work will find that it makes inroads upon half-holidays, Saturdays, and evenings. He will need the sanction of the head master for occasional half-day or whole-day excursions, and he will depend upon the cordial co-operation of the Games Master upon other occasions. At a recent conference upon outdoor work, it was concluded that one full-day excursion per term was

a reasonable maximum, with the possible exception of the Summer Term, when certain days might fall vacant for such work. Granted such facilities, the work to be performed out of school will be governed by the neighbourhood. Provided that the school is situated in the country, or within easy reach of rural scenes, the pupils may be set to the first-hand study of such land forms as are available; a first acquaintance with field geology may be made. A school near the hills will find greater opportunities of this kind than one situated in the eastern counties. In all cases, the relationship of the local houses, especially those which have been built at least fifty years ago, to the local supplies of building material can be investigated. In farming districts, the relationship between the rocks and the surface soil, and the effect of both upon farming operations, may be resolved from first-hand observation; and the teacher will find it useful to make the acquaintance of the local official crop-reporter to the Board of Agriculture, and to glean from him information which is hidden among the averages and county totals of the annual returns of that body. In small towns, the school may very well become a sub-station in the " Meteorological " service; the pupils may be trained to read and record the elements of the weather, and they may render a service to the community by working out the weather facts for the immediate locality. The teacher will find it useful to get into touch with the Meteorological Office, and to obtain therefrom guidance and valuable information. He should establish a meteorological record in the local paper; and, although the training which he gives may pass beyond the strict limits of geography, yet his pupils will be wiser men and better farmers as a result of his work. In any event, the data which are collected will provide an efficient and thorough introduction to the climatic studies which form an essential part of school geography. Many schools include cadets or scouts among their pupils, even in those cases where there is neither a school cadet corps nor a school scout troop. Herein lies an incentive for the pupils towards outdoor work in surveying and map-making. The teacher should make himself acquainted with the official requirements for cadets and scouts in this connection, and should plan his scheme so that the pupils have little need for further study to become efficient map-makers and map-readers. Outdoor observational work in Nature-study should be continued, in some form or other, by a co-operative scheme due to the teachers of geography and nature-study, long after the set lessons in Nature-study have disappeared from the pupils' curriculum. Where botany becomes the complement of Nature-study, the teacher of geography should co-operate in the outdoor work in botany, in order to secure adequate attention to the geographical distribution of plant and animal life in the locality.

Indoor Work with Apparatus. Indoor practical work is advocated from a totally different point of view from that which governs work out of school. In the first place, indoor work is an attempt to secure for the teaching of geography the best elements which are associated with the term " heuristic " as applied to the teaching of science. The pupil is allotted a definite problem for investigation; the problem being suited to his years and ability. He is thrown, as far as possible, upon his own resources, and grows wise by experience. The teacher observes his efforts, suggests and guides his methods (as needs be), and leads him to a statement of his results; and then inaugurates a class conference so that the final result may be satisfactory. Secondly, indoor work depends upon the age and stage of development of the pupils. First lessons in geography are descriptive; but, when the descriptive stage ends, the pupil is set to learn (1) the apparatus, (2) the nomenclature, and (3) the methods of investigation, which are associated with the development of geography as a science.

The apparatus of geography centres round the globe and maps; and there is no way of learning to appreciate maps other than by using and making them personally. An adult geographer after years of experience will learn a great deal if he set himself the task of compiling a map of a definite area from official sources. He will learn much solely as a result of the attempt to use for his maps the conventional symbols; and, consequently, in a smaller way, the pupil will also learn by making maps. Geography, like all subjects of study, has a definite nomenclature and a definite manner of expressing its share of the world's knowledge. The best method of learning the use of terms is to experience the need for them; to find that certain facts occur under certain conditions, and to find the necessity for precise words to describe these facts and conditions. Children are apt to use terms, which are solely descriptive of ideas, as if they were concrete; for example, " the winter gulf of warmth " is a picturesque and definite geographical term: it summarizes our idea of a combination of circumstances in the North-east Atlantic Ocean; yet a child is liable to say that the winter gulf of warmth causes the British harbours to be ice-free in winter. Now, the word *causes* used in such a connection indicates a difficulty in the use of technical language which is by no means uncommon, and such a difficulty can best be met by being ignored: for the child who uses the term " winter gulf of warmth," because he needs that or a similar term to describe something which he knows and yet finds a difficulty in describing succinctly, will not be conscious that the term is technical and of special significance, and will not, therefore, experience the difficulty of endeavouring to appreciate the precise significance of the term itself.

Within the limits of school studies the methods of geographical investigation are confined to that subject, and, as a result, it follows that the best method of learning these methods is by using them, so that the teacher should compile a set of practical exercises which force the child to use the commoner methods of investigation which are special to geographical studies.

Consequently, during those years of school life—the Middle Forms, for example—when the child is learning how to do things, rather than learning about things from books or lectures, indoor practical work should occupy most of the time devoted to the teaching of geography. School geography is intended to enable the child to describe the life of man as it is passed in the several portions of the world, so as to emphasize (1) the principal elements in that life, and (2) the main causes for these elements; the child should know man in the world, " man and his work "; and he should be able to distinguish the important from the unimportant, the essential from the accidental. It thus happens that the outlook of the child is a matter of prime importance; his habits of thought are of greater value than his knowledge of facts; so that,

in the Middle Forms, the "transition" stage of geography requires more careful attention than either the descriptive stage which precedes, or the "scientific" stage which succeeds, it. Hence, the importance of indoor practical geography as an attempt to inculcate correct habits of thought and a sane outlook on the world as a result of individual experience.

Practical Difficulties. Having disposed of the more theoretical aspect of the subject, it is time to attend to certain difficulties which may present themselves during actual school practice. The first of these may arise in connection with the allocation of time for geography in the crowded curriculum. Practical work is generally associated with the idea of long lessons, and it is an advantage in practical geography to be able to devote two consecutive periods to a lesson. By experience, it has been found that three periods in school, and one home-work period per week, are advisable for practical geography in the "transition" stage; two periods are the minimum for effective work; and, when three periods are allotted, two should be consecutive. Consequently, the weekly allowance for geography should be roughly as follows: Descriptive stage, two periods; transition stage, three periods; scientific stage, two periods, at least; and one homework period throughout. (These three stages roughly correspond to the stages sometimes called preliminary, junior, and senior.)

Closely connected with the question of time is the need for time-saving arrangements. The chief of these arrangements is the geography room. No modern school should be without a special room for geography. The apparatus for the pupils, the lantern for the teacher, the provision of suitable drawing desks, the geographical library, museum, and store present, as a whole, so great an individuality, that they should be grouped in one room, and this room should be twice the size of an ordinary class-room. The teacher who has experienced the loss of time which ensues in consequence of migrating from class-room to class-room with maps, etc., will endorse every word of this claim for a separate and an adequate room. A second time-saving arrangement consists in working the pupils in groups. Frequently a geographical exercise requires considerable time for its completion—time for calculation, time for drawing, for measurements, etc.—and it usually happens that a judicious grouping of the pupils and a division of the work to be done will complete the preliminary work more quickly. In the case of group work, the difficulty chiefly lies in regard to the final product—the solution of the exercise: for it is intended that each pupil shall achieve the final result for himself. Therefore, formulate this regulation for group work. "Each boy of a group is to communicate his data to the other members of the group, but the result of the exercise is to be worked out as a homework exercise by each boy. Consultations and comparisons of these homework results may take place during a subsequent lesson; all modifications of results which follow from these consultations are to be entered in the record book in pencil only."

A third difficulty may arise in regard to apparatus, since much geographical apparatus is expensive. The remedy, here, lies in the use of home-made substitutes. It is possible, where there is a course of manual instruction, to make many useful pieces of apparatus in the school workshop; in other cases, the parents of the pupils may be relied upon to assist in the construction of necessary apparatus at home. Home-made apparatus has one excellence which is unique to itself. Few children have the ability to use delicate apparatus or to appreciate the precautions necessary to secure results of great accuracy; therefore, the results obtained from the use of home-made apparatus are usually quite as accurate as the pupils are capable of obtaining with any apparatus. With young pupils, the personal error is so great that it is a waste of time and money to use delicate apparatus: stated mathematically, if the error due to the pupil who manipulates the apparatus is expressed as a 5 per cent. error, it is a waste to bother with apparatus which gives an error less than 5 per cent.

Finally, practical geography provides a training of rather a severe kind; the verbal work of the pupils is limited and involves a strict use of words. It will, therefore, be found that the pupils' records are brief and somewhat uninspiring summaries of results achieved. Following the somewhat elaborate language of the descriptive stage, such a definite use of words is useful; yet the teacher should be watchful to prevent the pupils from entirely divorcing geography from language. Some teachers dictate the form which the results should take, yet this practice is not desirable, since it tends to the destruction of the appeal to individual effort which practical geography should entail. The better plan is to have frequent summary lessons, to enlarge with an adult's command of language upon the results so far achieved, to illustrate and enliven these precise records, to broaden the outlook of the pupils. A thorough oral conference or conversation lesson of such a kind will serve not only the linguistic purpose here indicated, but will stimulate the pupils towards fresh ideas and will prepare the way for future work. The completion of this linguistic training lies in causing the pupils to reproduce, as a homework exercise, the main points of the summary lesson as an exercise in composition. At first it may be well to permit note-taking during the lesson, but later such a practice should be discouraged, as the pupil's record book should provide all the assistance needed for this essay.

Practical geography, therefore, serves two purposes: by means of outdoor work it brings the pupil into touch with the real world, which is, after all, the main subject of geographical study; and by means of indoor work it trains him in the methods by which that study is accomplished. Contact with the world is in place throughout the school course; training in habits falls naturally into place for its fullest treatment in the Middle Forms. B. C. W.

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WALLIS, B. C. *Teaching of Geography. Essentials of Practical Geography.*

GEOGRAPHY ROOM, A.—The most important feature of a geography room is spaciousness. Ample passage-way should be provided between the desks, and not less than one-fifth of the floor area is required for the entrance door and the teacher's part of the room. At least, one window should face south; and all windows must be fitted with black blinds.

The desks should be terraced, but the rise in height from tier to tier should not exceed 4 in. The best kind of desk has a flat portion, with a slot holding a T-square to support an atlas or book; next the pupil is a sloping portion which can be propped up flush with the other part, so as to form a flat, steady surface at least 5 sq. ft. in area;

under the flap is a locker, containing atlas, ruler, compass, and "unspillable" ink-bottle; at one side is a pull-out ring holding a metal cup of water for colour-work.

The teacher's desk should be of the demonstrator type, with every inch of space underneath devoted to cupboards and drawers large enough for O.S. maps. Gas or electricity should be laid on for teaching the "use of the globes." At one side stands the lantern (on the mirror principle), with a roll-up screen on the wall behind. On the other side is the globe; the library pattern, diameter 30 in., is best, its surface black with continents and islands outlined in white, and parallels and meridians incised or marked in red. Alongside the globe is an easel for maps. Immediately behind this, against the wall, is the map cupboard. If each map is hung from a hook by a ring at one end of a roller, a hundred can be accommodated in a very small space; inside the door may be pasted a map-index. Between the map-cupboard and the lantern screen is space for the blackboard, which should be of cloth on rollers, and as large as possible, with one surface marked in squares.

At a convenient height on the wall extending from the door, there should be a notice-board, say, 15 ft. long and 2½ ft. high. On it may be displayed weather-reports, barograph and other instrumental records, pictures, and pictorial post cards. At the back of the classroom should be a museum-case and a book-case, the two occupying the whole wall space. The pupils will readily bring objects as gifts or loans. Wall brackets should be placed wherever possible for the barograph and for relief models. Minor articles of equipment are scholars' globes, steel measuring tape, aneroid, and prismatic compass.

Two separate adjoining rooms are advisable—one for clay and cardboard modelling, the other for photographic and slide-making work. (See also GEOGRAPHY, THE TEACHING OF GENERAL.)

T. S. M.

GEOGRAPHY, THE TEACHING OF GENERAL.—The aim of all geographical teaching is to arouse interest in man's life and work in the world. There are so many varieties of peoples, and they live under such diverse conditions, and work at such numerous occupations, that even a proportion of the facts which may be held to fall within the scope of geography can be remembered only by adults with exceptional memories. It follows, therefore, that a teacher of geography must scrupulously and critically select the facts which he will teach, and must present these facts in so ordered and coherent a fashion that the quantum of geography absorbed by his pupils becomes vital and suggestive food for a vigorous and growing mind.

For these reasons it has become a fashion which is, on the whole, to be deprecated to add labels to the geography we teach. From the point of view of methods of teaching, we refer to descriptive, or practical, geography; from the point of view of content of the course, we deal with commercial, which includes economic, regional, local, mathematical, physical, humanistic, or historical geography. Provided it be remembered that there is really only one geography, and that the labels are nothing but conveniently descriptive terms of varied aspects of the one subject, the labels may be admissible, but under any other usage they should be condemned.

Granted that there is but one geography as there is one mathematics, the teacher is limited almost entirely by his own personal ability, and by the ages within which his pupils study the subject, this last circumstance being largely conditioned by the type of school or college they attend. For the sake of clarity and for ease of reference, additional labels are here employed: primary, secondary, and college geography to cover the special circumstances of these types of educational institutions.

Primary Geography. Geography should be taught continuously throughout primary schools; but the age range and, therefore, the ability range of the pupils is so short, that the teacher is handicapped, and the situation becomes more difficult whenever the time allotted in the curriculum becomes exiguous. Assuming an experienced and capable teacher with a fair grasp of the content of geography, and assuming, further, that the school course, as a whole, aims at imparting a coherent, organic body of knowledge which shall be stimulative to further inquiry and suggestive of later thoughtful applications, it may be laid down that the method of presentation may be left to the interaction between the individuality of the teacher and the class-consciousness of the pupils. Geography gains so greatly from the wealth and variety of the illustrations used by the teacher, and from the imaginative outlook of the pupils gained as a mental reaction to the teacher's stimulus, that it would be fatal to good teaching to stereotype the teacher's methods; the situation may be summarized thus: the teacher must feel a personal enthusiasm for arousing the interest of his pupils in the stuff—the warp and weft of thought—which he presents them. It follows from this consideration that the teacher of primary geography requires little more as a minimum qualification than a "passion for teaching"—this must come first—and an interest in geography. The scheme of study for primary geography must begin at home, on the basis of a geographical outlook over the next street, the next parish, town and county—an outlook which is dominant in the early lessons, but which is ever-present and insistent throughout the course. The teacher builds a superstructure of a knowledge of the world. The home country, the rest of Britain, the British Empire as an epitome of the world, the neighbouring countries, will naturally fall into place as the pupils grow older in accordance with the locality and environment of the school: to a Dover child, France comes closer than Scotland or Ireland; to a Bolton child, the United States, Egypt, and India, and the places where cotton garments are worn come closer than Australia or Russia.

Secondary Geography. Secondary schools allot such different periods to geography, that it is impossible here to treat of more than two broad types. The first type is that where, for all practical purposes, the geography is limited to that of the primary school; in such cases, there is little to be added to what has already been stated, except that, in accordance with the age of the pupils, the fullest advantage should be taken of the wider curriculum of the secondary school to bring the geography into the closest touch and complete harmony with the subject-matter of the other school courses (*e.g.* in a science school where the geography is limited to a lesson a week for a few terms, it would be advisable to make the greatest possible use of the science work in order both to save time and to fit the school outlook). The second type is

probably more normal; in such cases, geography is carried throughout the school to what may, for convenience, be called the matriculation standard. In this case, the personality of the teacher recedes somewhat into the background: geography now becomes rather more than an intelligent outlook over, and interest in, man's life and work in the world; it becomes, to some degree, a subject of learning, a typical branch of thought. The pupil is required to think not only about what his teacher presents to his mind, but beyond, and in advance of, the point to which the class has at the moment attained. In primary geography, the wonder element of the childish mental equipment is relied upon as a stimulus for the acquisition of knowledge. In the case under consideration, we add to this stimulus another childish desire—the wish to know what other folk think about it, and to see things as other people see them; and if we attain our aim, our training becomes synthetic. For all these reasons, it is essential that the child should be introduced to the mental economy of an adult mind in dealing with the geographical subject-matter. Previous thinkers have elaborated a series of terms, methods of classification, habits of thought, and methods of survey over the vast geographical field which all tend to economy of personal effort and ease of discussion and presentation: all these things form the framework of geography—they tend to develop a scheme into which individual facts fit, and the pupil must be introduced to this scheme. It follows, therefore, that the pupils must master a certain amount of technique, and to do this they must "learn by doing"; they must tread familiarly, though with some haste, the main avenues of attack upon geographical facts, in order that they can learn geography for themselves. And here we come to the map.

In primary geography, the map is pictorial; it is, first, a pictorial record of what the child may observe or may know; it is, later, a picture to be read and from which the child may learn what other people have observed; but in secondary geography, the map becomes a diagram, a piece of geographical shorthand similar to the statement of a geometrical problem by means of a figure. The map is now a convention to which other conventions are added for several purposes: (i) As a record of ideas; (ii) as a convenient summary of facts; (iii) as a basis of, or illustration for, an argument. At both stages the map serves a dual purpose: (*a*) As a record which can, and should, take the place of a verbal description; and (*b*) as a statement of a geographical problem which should be elucidated in words. But there is a striking difference—the conventions admissible on a primary map are few; while those suitable for a secondary map may cover the whole range of geography, provided the school course allows a sufficient number of hours to the subject.

In secondary geography, therefore, the child acquires the wonder outlook over the world essential to all geographers, and an acquaintance with geographical methods and symbolism which should leave him, at the end of the course, fit to teach himself, should he so desire, all the geography he may need or wish to learn. The teacher, therefore, will exercise his function best in the selection of those limited portions of the geographical field in which the pupils try their budding abilities. The conventions must be taught as, and because, they are needed; and that course will be best designed which serves the dual purpose of utilizing most of the conventions and of enlarging, but not destroying, the pupil's interested enthusiasm in the life and work of man in other countries.

Isohyets, for example, are mental gymnastics or stultifying symbols, unless they bring before the imaginative mind the umbrella of the city dweller, the brown stony waste of the desert, the thundering rush of the mountain torrent, the wind wheel working a pump to give water to the parched plants, the floods out over the meadows, or the golden ears of the ripened grain. Parallels and meridians are mere map lines until they are interpreted in terms of the compass used by the sailor or the airman; of the clocks, whereby our daily life is regulated; of the sun, whose altitude means penury or plenty to the tiller of the soil.

Finally, the course should aim, and finish, at as comprehensive a view of the world as time allows; it should not delve into details of this, that, or the other special area; it should imply a knowledge of the world as a unit into which all else fits.

It may well be that the emphasis should be greatest at home and least in the most distant areas, although, possibly, a more rational scheme might graduate the emphasis to the density of population; but, in any event, it should leave the pupil with ability in two specific directions. Given the name of a place he has never heard of, he should be able (i) to use an ordinary atlas to find its location, and to infer therefrom a brief and accurate general description of the place and its inhabitants; and (ii) to use a complete set of maps and a geographical library from which to fill out the details regarding the place. For example, many people heard of Nauru for the first time a few months ago; a pupil at the close of the secondary stage should be able to find out, and describe in logical fashion, all there is to be stated about this interesting island. If he had not access to the necessary authorities, he should, as a minimum, know how to proceed to compile such a description.

College Geography. It is to be assumed that the student at college has already attained the ability just described; further progress implies the development of a critical power to unravel difficult problems and to deal with conflicting streams of evidence; the main function of college geography is co-ordination. At this stage, the teacher combines the two situations of the two more elementary courses; on the one hand, he becomes a lecturer whose brilliant syntheses or compendia of geographical facts ever stimulate the student to obtain his mental range and grip over geographical subject-matter. It is the lecturer's function to go beyond the knowledge of the students and marshall new facts so brilliantly that they command attention; and his lectures should be model statements of the result of geographical research. On the other hand, the teacher develops into a director of research, a guide, counsellor, and friend to the student groping in masses of *data* for a solution to specific problems. The lecturer may develop, for example, in a few lectures, a broad regional survey of the world; the director of research requires that each student should examine the material concerning a given area to see whether it fits, or does not fit, into the place allotted in the general scheme; and, finally, when the researches are completed, the teacher, as "chairman of committee," hears the main conclusions reached by each student, and completes the work by a lecture which harmonizes all the results thus obtained.

The student at the secondary stage learns the symbolism of geography by a study of selected samples; at the college stage, he investigates the accuracy, or otherwise, with which the samples have been collected.

Equipment. The three grades of geographical teaching just outlined demand three kinds of equipment. In the primary stage, the work can be done anywhere; and the great necessity is a supply of pictures, models, and actual objects. In the secondary stage, there should be a geography room equivalent to a science laboratory; the pupils will need atlases, loose maps, the tools of a cartographer's office; plenty of working space, pictures, models, instruments for surveying and meteorology; a reference library; a geographical lending library; and all the time-saving facilities and inventions which can possibly be contrived. In the college stage, the equipment will be similar in character, but of better quality and of wider scope; the libraries will contain the current geographical magazines, as well as the standard authorities in French and German at least, as well as in English. It is impossible to imagine an upper limit to the equipment, for the entire resources of several learned societies, added to a considerable portion of the stores of the British Museum, would only provide a fraction of the raw material which could conceivably be utilized.

In conclusion, the teacher should have a passion for teaching and a passion for geography; with the less mature minds, the passion for teaching is the chief essential, and this mental equipment of the teacher tends to be subordinate to the passion for geography as the age of the pupils increases.

B. C. W.

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GEOGRAPHY, THE TEACHING OF REGIONAL. —The term Regional Geography is often used for any geography which proceeds to deal with the world piecemeal, whatever the principle on which the pieces are marked out; but, in strictness, it applies only to a method which requires a division of the world into *natural regions*.

The claim that natural regions are the best units for study and teaching must meet the objection that the world has long been divided in accordance with certain marked distinctions among its human inhabitants, particularly their political divisions. The average man knows the world as consisting of countries in the occupation of peoples and under the direct control of states. The continents are the only natural regions of which he is aware. Why make any departure from this familiar and time-honoured classification ?

General Considerations. It is quite true, as Professor Lyde has pointed out, that we cannot afford to disregard the political units, for the name of a country, as Germany or Japan, has definite associations even in the minds of pupils, to say nothing of teachers; it calls up such knowledge of the people and their history as we possess. To ignore these familiar units in our teaching of geography, if it were at all possible to do so, would be to neglect valuable associations ready to our hand. More seriously even, it would isolate school geography from popular geography, that of the newspaper and magazine—the kind of error to which schoolmasters have always been too prone. What we have to do is to combine these points of view, to base our teaching on the true geographical units, and yet give full consideration to those human aspects—matters of industry and trade, for example—which are most clearly envisaged as affairs of the nation and country, at any rate wherever stable governments have been established. This double aim is recognized in most modern text-books, including those of the late Professor Herbertson, who first offered teachers a systematic division of the land surface into its "Major Natural Regions" as furnishing "a rational basis of classification and comparison in place of the ordinary irrational system" (*i.e.* the use of the political divisions only).

Herbertson's "Major Natural Regions" are, of necessity, the main *climate regions* of the world, for climate is "the middle term" of the geographical argument; it is the result of such other physical conditions as position, relief, and structure, and it is itself the main condition of the life of the region —life vegetable, animal, and human. But in teaching the essential facts of the geography of a great region, subdivision is necessary. Here the political divisions may be employed, as convenient. But these, in turn, will need to be further divided, and into smaller natural regions rather than into administrative units. For example, England should be subdivided, not into counties or groups of counties, but into such regions as the scarplands, the south-western peninsula, the midlands, the northern moorlands and their coastal plains. It is scarcely necessary to point out that Regional Geography, as here defined, is not adapted to young children. The expression "geographical argument" suggests continuous reasoning, and this is a mental exercise unsuited to scholars of tender years, say, children under 12 or 13. Knowledge of many of the facts that are necessary to the argument, and the intelligent grouping of those facts in imagination and description, must naturally precede the power to use them freely in making inferences. Stories of life in other lands and stories of geographical discovery will supply not only many important *data* for later use, but also many connections along with the *data*. Some knowledge, too, of the notation of geography (*i.e.* the use and meaning of maps and the use of the globe) must accompany and give order to this accumulation of information on the extent and variety of the world and its peoples.

Granted that the earlier stages have been successfully passed, what are the best methods of dealing with the stage in which reasoning and generalization come more largely into play ? Child psychology and the experience of teachers agree in advising that geography, like most other subjects, is best learned by means of "doing." Expression of his own energies is much more to the taste of the average schoolboy, than listening to the exposition of a geographical or any other argument. A boy may be easily interested in a strange occupation or a novel process of manufacture, but he will not spontaneously desire to find geographical explanations for the general occupations of a country region. But if he is required to record in crisp form the chief facts with regard to the occupations of the people of England, or France, or Germany, his interest in his work will arouse mental activity sufficient for the asking and answering of questions by both teacher and pupil.

The Use of Maps. Maps, then, are the means of study, rather than oral lessons or the conning of text-books. Maps are the first essential; and the actual drawing of maps the indispensable instrument for setting minds working at the one comprehensive problem of regional geography—the understanding of the relation between a region and its inhabitants, a people and its country. The maps must be as diverse as are the general aspects of the region from a geographer's standpoint. Position, relief, structure, seasonal temperatures, seasonal rainfalls, natural vegetations: these are the chief physical aspects, everywhere and always, to be considered. On the other side, that to be explained are the distribution of the producing districts in the great classes of industry—agriculture, mining, manufacture. There are also the form of the systems of communication by river, and canal, and railway, and the relations of these systems both to the producing districts and to the general land-relief. With these lines of transportation, the centres of collection and distribution must be recorded. The work of explanation should be attempted by the pupils themselves; that is to say, it should be detailed as a series of problems. These should not, of course, be reserved till all the map work is finished, but should be linked closely to that work of recording the facts. Record and interpretation should go hand in hand, or at least only a step apart.

The Teacher's Procedure. Although the geographical argument begins with the natural conditions and proceeds to the human activities, it is very doubtful whether the better plan in teaching would not be to present at first the human facts, as those more likely to arouse an immediate interest; and then to supply the physical *data* as material to be used in explaining the other, thus reasoning from effects back to causes instead of arguing from causes to effects. The search for causes of a given fact or facts is certainly a commoner form of problem in ordinary life, and therefore the exercise is one of greater value to the pupil. After satisfactory attempts at solution, successful or not, along this backward path, the teacher could then develop the forward-looking argument from natural resources and possibilities to the actual economic positions of the country and people. But there is no reason why the pupils should not work at these problems from either end.

Exercises suitable for the teacher's purpose may be culled from some recently published school-books, if he distrusts his ability to devise a satisfactory series. Or he may employ one of the several geographical exercise books now on the market, in which case he will find both maps and questions arranged in order of working. If the teacher relies on himself, the hektograph or other duplicator will have to be pressed into his service and not for test maps only; for no atlases at present in use supply a sufficient number or variety of maps for the complete study of *all* the regions or countries ordinarily set for school work. But it is scarcely wise to distribute too many maps *to be copied*. As far as possible, the pupils should be required to record in map form facts which the teacher has supplied in tabular or statistical form (*e.g.* statistics of production, such as the numbers of sheep or cattle per county).

Obviously, working along these lines implies the expenditure of a considerable amount of time on each region studied; but the value of the work done is so much greater, that the time is well spent. It is better to study fewer regions and do them thoroughly, for in so doing the method of study is clearly revealed to the pupils, and their minds are disciplined by the efforts they have to make. The things to be remembered are very largely spatial and distributive in their character, for these qualities are of the essence of geography. Therefore the method must be akin to the subject. If the time allowed for the subject is not sufficient to deal satisfactorily with a minimum syllabus of work, then the fault is with the time-table or the school curriculum. Geography has not yet come into its own. A. A. D.

GEOLOGICAL SOCIETY OF LONDON, THE.—This was established in 1807. Previous to that date the members of the Royal Society had from time to time produced papers on subjects now included under the term "Geology," which appears to have been first introduced towards the close of the eighteenth century. The Geological Society was formed by members of the Askesian Society, a number of young men who, from 1796, met for scientific discussions. This society combined with the British Mineralogical Society, and out of the union arose the Geological Society of thirteen members, all of whom were men of culture, though not all were geologists. Honorary members were elected, and the regulations of the Society were drawn up in 1808. The original object was thus stated: "This Society is instituted for the purpose of making geologists acquainted with each other, of stimulating their zeal, of inducing them to adopt one nomenclature, of facilitating the communication of new facts, and of contributing to the advancement of Geological Science, more particularly as connected with the Mineral History of the British Isles."

It is interesting to note in the list of the original members the name of Humphry Davy, then secretary of the Royal Society.

At an early date a committee was formed to "examine papers previously to their being read to the Society, and to take charge of all presents that may be received."

Maps, Library, and Museum. In 1809 the subject of the construction of mineralogical maps was considered, and a "Committee of Maps" was appointed. In 1815, Mr. William Smith published a large geological coloured map of England and Wales; and in 1819 a more perfect physical and geological map of England was published at the cost, and by the gratuitous work, of members of the Society, chiefly those of Mr. Greenough. Mr. Smith's map was the first "true geological map of England and Wales."

Soon after its foundation, the Society began to accumulate a collection of minerals, rocks, and fossils; and a museum was commenced with the gift by Dr. Babington of a cabinet for the reception of specimens. The museum grew very rapidly, and in 1809 the specimens had to be arranged geographically. Mr. Horner commenced a catalogue, and for fifty years worked with earnest devotion to the museum.

Among the early gifts to the Society were books, and a library began to be formed in 1809. By 1828 it contained more than a thousand books, besides pamphlets; and, in 1835, Mr. Lonsdale prepared a catalogue of books, papers, and memoirs. The growth of the library led to the compilation of further catalogues in 1846 and 1856. From 1895

an annual work has been issued, entitled *Geological Literature added to the Geological Society's Library.* The work of the Geological Society was from the first recorded in the *Memoirs,* published at irregular periods until 1811, from which time the *Transactions* were published in annual volumes.

From 1858 to 1864 was published the *Geologist,* a popular monthly magazine, superseded at the latter date by *The Geologists' Magazine;* and from 1874 to 1884 the *Geological Record* was issued.

Centenary. The centenary of the Society was celebrated in 1907 by a gathering of scientific gentlemen and ladies from all parts of the world, under the presidency of Sir Archibald Geikie, upon whom the King conferred the dignity of K.C.B. in honour of the occasion. Many of the visitors were delegates from other learned societies. As part of the proceedings, excursions were arranged to the Lake District, South Wales, the Dorset Coast, and the North-West Highlands of Scotland as far as Sutherlandshire. Those who took part in the excursions were usually foreign visitors, who thus obtained an opportunity of studying British Geology under the guidance of members of the Society. Shorter excursions were also made to the Forest of Dean, Derbyshire, and the Crag District of the Eastern Coast.

The present record of the Society's work is published in the *Proceedings,* which gives accounts of the fortnightly meetings, abstracts of papers read and the discussions which followed, gifts to the library, and other matters of interest.

Fellows are entitled to use the letters F.G.S.

The present home of the Geological Society is at Burlington House, Piccadilly, London, W.1.

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GEOLOGISTS' ASSOCIATION, THE.—This was founded in 1858 to facilitate the study of Geology and of sciences allied to Geology. The methods of the Association are adapted to the needs of experienced geologists, and also to those of persons who are interested in geology but not well acquainted with it.

The monthly meetings of the members are held at the University College, Gower Street, London, from November to July. Papers are then read on geological or similar subjects, and followed by discussions. Lectures and demonstrations are also given on subjects of geological interest or importance.

Visits to museums and collections are made on Saturday afternoons for the purpose of studying geological specimens. In these visits the members are under the guidance of competent directors, who give explanations of points of interest; and demonstrations are given by the officers of the department visited. Among the museums visited in the course of a session are the British Museum (Natural History Section), the Imperial Institute, the Meteorological Office, the Jermyn Street Museum, and the Imperial College of Science and Technology.

Excursions to places of geological interest and the study of geology in the open country form an important part of the Association's yearly programme. Under the guidance, usually, of a Fellow of the Geological Society, visits are made to cliffs, quarries, railway cuttings, and other places which afford convenient opportunities for studying the geological structure of the district, and the relation between scenery and geological structure.

The excursions are usually commenced early in March, and extend into September. They take place on Saturdays and, in some cases where a distant area is visited, they last all day. Almost every place of geological interest within 40 miles of London has been visited by the Association.

Special excursions lasting several days are organized at Easter, Whitsun, and in August. Localities more remote from London are then visited, such as the Lake District, North Wales, the Malvern Hills, Aberdeen, Sligo, and the Western Highlands of Scotland.

Publications. For the use of members who attend the short excursions, special descriptive monthly programmes are provided, giving a general outline of the features of geological interest to be seen, and sometimes illustrated by sketch maps. They also contain lists of books and maps relating to the districts to be visited, and often form excellent geological guides to such districts. Longer descriptive pamphlets, illustrated by maps, plates, and figures, are issued in advance of the long excursions.

The *Proceedings* of the Association, published five times a year, contains papers read at the evening meetings, and full reports of all the excursions and visits to museums.

The library of the Association has been incorporated with the Science Library of University College, and is open to members for consultation and loan of books.

The Association has also at University College a collection of geological photographs, taken chiefly by members of the Association. These also are kept in the Science Library of the College.

The Association consists of members, ordinary or honorary; and all its officials are honorary. Ordinary members are elected on the recommendation and personal knowledge of existing members, and pay an admission fee and an annual subscription. Both ladies and gentlemen are eligible for membership. Honorary members, limited to twenty in number, consist of persons eminent in geological science, or of persons who have rendered special service to the Association.

GEOLOGY.—Since geology is a subject of great complexity, it may, perhaps, be well to begin with a consideration of the different branches into which it may be divided, especially as some of these branches are suited for teaching in schools even of an elementary character, whereas others are far more exacting in their requirements, and are only suited for the later and more advanced educational stages.

Geology, in the broadest sense of the term, is the study of the Earth, in relation to its past history and the processes now taking place on it, together with the evolution of its living inhabitants, both animal and vegetable. The fundamental idea underlying modern conceptions of geology is that so ably expounded by Lyell, namely, that "the present is the key to the past." This is the simplest expression of what is commonly known as the doctrine of uniformity, or Uniformitarianism. In conformity with this principle, one of the most important branches of geology is the study of the present condition of the earth and of the changes now taking place on and below its surface. This is known as Physical Geology, and in its scope it is essentially similar to physical geography, or, as some

writers prefer to call it, physiography, the chief difference being that in physical geology less stress is laid on meteorological and climatic phenomena, these being dealt with only in so far as they are actually concerned in geological processes. Two other important branches of geology are Petrology, dealing with the origin and composition of rocks, especially from the chemical and physical standpoint; and Palaeontology, which is concerned with the characters, classification, and relationships of the animals and plants that inhabited the earth in past times, together with their bearing on modern zoological and botanical studies. The last and, in some ways, most important branch of geology is known as Stratigraphy: this may be defined as the past history of the earth as revealed by the study of the characters and disposition of the various rocks now composing its surface. This is, in some ways, the most difficult branch of all, though also the most interesting.

Physical Geology. Of these four sub-divisions, physical geology is the one that lends itself most readily to teaching in schools, since little or no expensive material is required. Physical geology, above all, is best studied in the field. Its specimens are found in the hills and valleys, the rivers and lakes, the quarry and the seashore. There is scarcely any district so flat and so uninteresting that it is not possible to discover there illustrations of some geological fact or process. The most valuable means of instruction for the teacher of physical geology is, beyond doubt, the outdoor excursion. Nevertheless, extraneous help is not to be despised; and most valuable assistance can be obtained from pictures, especially photographs, from diagrams, and from maps. The importance of the study and proper comprehension of maps cannot be overestimated, and all students should become familiar as early as possible with the meaning of a contour map. For this purpose, the most valuable of all are the coloured contour maps constructed on the "layer" system. These bring before the eye, by means of varying shades of colour, the actual form of the ground; and it should be the business of the teacher to point out as clearly as possible the dependence of this form on the geological structure of the district, pointing out how hard rocks tend to form hills, while soft ones are scooped out into valleys, etc. From these simple conceptions, it is easy to pass on to others of a more complex character: at first on the maps and afterwards in the field. Here, also, most valuable aid can be obtained from relief models, though, unfortunately, these can only be obtained for a few districts.

However, valuable as all such indoor assistance may be, it is impossible to lay too much stress on the importance of outdoor work; the geological excursion is by far the most valuable weapon possessed by the teacher; and if it tends to become somewhat similar to a picnic, so much the better. Science has never yet gained by being made dull, easy though this is to achieve. So far as possible, technicalities should be avoided and explanations given in the simplest language. Of late years, physical geology has become overloaded with a burden of unnecessary technical terms of the most forbidding kind, mostly of American origin, though some have been gathered from nearly all the languages of the world. This cosmopolitan jargon should be reserved for the most advanced students, if it is necessary to use it at all. It is quite possible, in nearly all instances, to give the clearest explanations in plain English.

It is impossible in the space here available to enter into any further details of the methods to be employed in the teaching of physical geology. These will readily suggest themselves to the teacher in the form best adapted to the particular district. Full information of what is to be seen can always be obtained from books descriptive of local geology, or, in most places, from the Memoirs of the Geological Survey.

Petrology. Turning now to Petrology and Palaeontology, we are at once confronted by a new factor, namely, the necessity for collections of specimens gathered from a wide field. No one district can provide examples of the whole of even the commonest types of rocks and fossils. In order to gain an elementary acquaintance with these subjects, we need carefully selected specimens from many parts of the world. Fortunately, it so happens that within the limits of the British Isles most of the really important types of both rocks and fossils are to be found, and the collections should consist, so far as is possible, of specimens of local interest. But it is essential to have others as well. A purely local collection must always give a partial and one-sided view. It is advisable to obtain expert advice in the formation of such a collection; otherwise, much money may be uselessly expended. For this purpose rocks may be conveniently divided into three groups: the igneous, the sedimentary, and the metamorphic rocks; in each of these groups the number of varieties is infinite; it is impossible to obtain all of them, and a certain number of representative types should be chosen, illustrative, so far as possible, of the principles of classification and of the more important modes of origin.

Palaeontology. With respect to the teaching of Palaeontology, very similar considerations apply. An enormous number of fossil animals and plants have been discovered, many of them of the strangest forms. Many fossil animals are of enormous size, far larger than modern animals; and it is obviously impossible to have specimens of these in any collections but in those of museums on the largest scale. Such forms, as a rule, can only be studied in pictures and published descriptions. The study of these gigantic forms is a highly specialized science in itself, necessitating a considerable knowledge of anatomy; and, as a matter of fact, this branch of the subject is by common consent omitted from most geological teaching, owing to its impracticable character. Fortunately, however, most of the more important fossils are of more convenient size, and of more simple structure, so that it is possible to collect and examine them under more ordinary circumstances. What has been said above as to rock-specimens applies with equal force to fossils. The number of forms known is so vast, that it is only possible to deal with a few well-selected representative forms. The specimens should be studied with the aid of a good text-book, the descriptions being compared with the actual fossil: when any doubt occurs, then it is well to refer to figures; but fossils cannot be learnt satisfactorily from books alone.

Stratigraphical Geology. With regard to stratigraphical geology, it is difficult to lay down any precise line of work, since circumstances vary so widely and the method to be pursued must necessarily depend on the facilities available in each case. While it is absolutely essential for the student to

obtain a good grasp of the principles of the subject from some general text-book, nevertheless the teaching can often be built up on the basis of the formations to be seen in the neighbourhood. The study of rocks in the field is, in all cases, the best foundation, since it brings home clearly to the mind of the student the meaning of the terms employed in general descriptions. Every effort should be made to discover local examples of the more usual rock-types and structures, both sedimentary and igneous; and there are few localities where something cannot be found, even if it is only a gravel pit or a railway cutting.

Even in the course of a few hours it is generally possible to visit some place or places where geological principles can be illustrated on the spot, and instructive specimens collected for future work in the classroom and laboratory. Of course, on all such occasions, maps—both physical and geological—should be freely employed. It is well to give to the class beforehand a short general account of what will be seen by means of a large scale map; this can, in general, be more thoroughly carried out in the classroom: then, when the ground is reached, the time can be most profitably devoted to the collection of specimens, and the making of sketches and notes. The great importance of sketching and photography as aids to geology have been insisted on by many teachers and writers: on the whole, good sketches are to be preferred to photographs, since in a drawing it is possible to accentuate the really important features, while leaving out the multiplicity of detail, much of which is really unnecessary.

Undoubtedly the most valuable and efficient means of teaching geology as a whole is afforded by the vacation excursion; a week or ten days in a well-selected district, under a good teacher, will do more to give a general knowledge of the subject than years of reading and laboratory work. This fact was well understood by the earlier geologists; but, in these days of cramming and examinations, far too much reliance is apt to be placed on books, to the neglect of the outdoor aspect of the science, in which lies the greater part of its true educational value—as the study of the world in which we live. R. H. R.

GEOMETRY, NON-EUCLIDIAN.—The aim of geometry is not only to discover the properties of figures, but also to exhibit them as logical consequences of a fundamental group of independent properties—expressed in the "axioms" or "postulates" of the science. Every theorem does not involve all the postulates; many can be proved if we assume, in addition to certain simple characters of points and lines, merely that space has the uniformity Euclid ascribed to it when he assumed that a figure could be moved from one place to another without change. But to prove others, *e.g.* Pythagoras's theorem and the theorems about similar triangles, Euclid found the need of a further postulate: namely one about "parallel" lines. Now the question was early raised as to whether the parallel-postulate really expresses a new fundamental property or is only a subtle consequence of the uniformity of space. Until the nineteenth century opinion leaned strongly towards the latter alternative, and many attempts were made to "prove" the parallel-postulate.

Passing over the pioneer work of the Greeks, the Arabs and the earlier moderns, we note that the Italian Saccheri (1667–1733) put the problem in the following suggestive form. At the points A, B, on the line AB erect two equal perpendiculars AP and BQ, and join PQ. Then the uniformity of space assures us that the angles at P and Q are equal; the question is whether it also allows us to deduce that they are right angles instead of being obtuse or acute. By patient ratiocination Saccheri disposed of the "hypothesis of the obtuse angle," but his argument against the "hypothesis of the acute angle" was unsuccessful. Similar failure attended subsequent attempts down to those of Legendre, whose widely read works (1794–1823) did much to initiate the new era in which efforts to prove the parallel-postulate were abandoned, and it became recognized as expressing a property entirely distinct from the uniformity of space.

During the years 1820–1830 this revolutionary idea was working in the minds of several geometers, including the great Gauss; but the Russian Lobatschevsky and the Hungarian Bolyai have the credit of first adopting it whole-heartedly, and of developing its consequences systematically. In effect they showed, working independently, that a self-consistent geometry may be based upon the postulate of uniformity taken together with Saccheri's hypothesis of the acute angle, and that Euclid's geometry may be regarded as merely the special form it takes when the acute angle becomes a right angle. At a later date (1854) Riemann showed that the hypothesis of the obtuse angle is ruled out not by inconsistency with the uniformity of space, but by the assumption that a straight line is necessarily infinite in length, and that if this assumption is given up a second type of non-Euclidian geometry becomes possible.

The nature of these geometries is best understood by means of diagrams drawn on suitably chosen surfaces. To imitate the "uniformity" of the plane, a surface must be such that any part of it, cut out, can be fitted anywhere else on the surface without stretching—though it may need to be bent. Taking any limited portion of a surface of this nature we may imitate Euclid's "plane rectilinear figures" by selecting suitable points on it and joining them by geodesics.[1] Excluding developable surfaces (*e.g.* the cylinder), which merely repeat the geometry of the plane, the properties of the figures thus obtained will exemplify one or other of the non-Euclidian geometries. If the curvature of the surface is positive,[2] it will be Riemann's, if negative that of Lobatschevsky-Bolyai.

A portion of a sphere is the simplest instance of a "uniform" positive surface. On such a surface there are no parallel geodesics; like meridians on the globe they always meet if produced far enough. Again, it is well known that the angle-sum of a triangle composed of three great circular arcs always exceeds two right angles by an amount depending on its area. These, then, are properties that would characterize ordinary plane geometry if the hypothesis of the obtuse angle were adopted.

The pseudosphere of Beltrami (1835–1900) is a

[1] The geodesic joining two points A and B is the shortest path between them along the surface. On a sphere it is the arc of a "great circle."

[2] If along the (rectangular) directions of greatest and least curvature at any point the surface is convex or concave, its curvature is positive; if it is convex along one direction and concave along the other, its curvature is negative.

beautiful instance of a uniform " negative " surface.[1] Given a geodesic AB and a point O outside it, one can draw through O any number of geodesics that will not meet AB if produced in either direction. And the angle-sum of a geodesic triangle always falls short of two right angles by an amount depending on its area. These properties, antithetical to those of the positive surface, would belong to a plane if its geometry involved the hypothesis of the acute angle.

Non-Euclidian geometry, long regarded as mere mathematical speculation, has recently become a subject of acute interest to physicists in connection with the theory of relativity. In particular, Einstein has given reasons for believing that in the actual universe Riemann's rather than Euclid's geometry holds. T. P. N.

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GEOMETRY, THE TEACHING OF.—The two initial difficulties in the study of geometry—the acquisition of new ideas and the understanding of new methods of proof—should be separated by the introduction of preliminary courses of practical and experimental geometry. The former may be begun at an early age, say, in the lower classes of preparatory schools. It should consist of a training in the use of instruments, and an introduction to simple geometrical conceptions. At the outset, it will be advisable to draw circles with narrow strips of thick paper, a pin, and pencil-point. As a rule, theoretical geometry should be deferred until 11 or 12. It should be preceded, and in part accompanied, by a course of experimental geometry, the main object of which is the discovery of geometrical facts. This course need not be exclusively experimental. Even during the first term, a few theorems (*e.g. Eucl. I*, 13, 15, 4, 26*a*, 5, 6) may be proved, so as to be available for working simple exercises, and so that the pupil may realize that the experimental verification of a theorem does not constitute a general proof. Graphical methods, though occasionally useful later, should not, however, be unduly prolonged, as they tend to become wearisome to intelligent pupils.

Order of Treatment. In most modern text-books, the first book consists mainly of propositions on triangles and parallelograms. While agreeing in the close grouping of allied theorems, they differ principally in the treatment of the test of parallelism (*Eucl.* I, 27), some books giving the difficult proof by superposition, others Euclid's much simpler proof. In the latter case, however, the second part of *Euclid* I, 26, interposes an early difficulty, which can only be avoided by separating the theorems on the congruence of triangles. But, whichever course is adopted, it would seem desirable to recognize that it is permissible to assume temporarily the truth of a theorem which it is difficult to render intelligible to a class; though such postponement should be resorted to as rarely as possible.

The later books—on areas, the circle and proportion—may be taken in any order. A few points may be noted with regard to them: (i) The early study of proportion simplifies several proofs on areas (*e.g. Eucl.* I, 47; and III, 35, 36), and is useful as an introduction to map-drawing; (ii) Euclid's definition of tangency is simpler than that depending on the " limit " definition of a tangent; (iii) *Euclid* II, 1, 4–7, should be considered as geometrical proofs of important algebraical theorems rather than as geometrical illustrations of theorems which are rarely proved when beginning the study of algebra.

The chief difficulty in the study of solid geometry arises from the representation of solid figures in diagrams of two dimensions. This difficulty may be met by the provision of stereoscopic diagrams or by models or photographs of models, and by the solution of simple exercises involving the theorems on congruent triangles and Pythagoras's theorem. The course should include the substance of *Euclid* XI with the addition of the theorem on the common normal to two non-planar lines, and the principal properties of the polyhedron and sphere. Theorems on the surfaces and volumes of the principal solids belong to mensuration, but may also be considered in this connection. Pupils should be shown how to make cardboard models of the five regular polyhedra, etc.

In teaching a new proposition or solving an exercise, the following suggestions may be of service: (i) The hypothesis and conclusion should be clearly stated; (ii) the pupils should usually be led from the conclusion backwards: they should be asked what step in the proof should precede the conclusion, what is required to prove the penultimate step, and so on until they reach the hypothesis; (iii) the process should then be reversed and the proof given in logical form.

The diagrams in the book should be plain, and need not be repeated if the proposition should overlap the page. Indeed, every encouragement should be given to the pupil to re-draw the diagram whenever he reads the text, inserting every line as the construction requires it. In this way, he will realize precisely what is given, and remember the construction without effort.

Examples and Exercises. Numerical exercises should be given whenever possible, as verifications of some theorems (*e.g. Eucl.* II, 1, 4–10), as exercises in mensuration (*Eucl.* I, 35–48), or as direct examples on certain theorems (*Eucl.* I, 32 and corollaries).

Geometrical exercises are of the greatest use in impressing the knowledge of geometrical properties and in encouraging originality of thought. They should, therefore, be arranged in two classes: (i) A series of easy exercises on the result or method contained in each proposition, some being worked orally by the class as a whole, and others independently by the pupils; (ii) sets of miscellaneous exercises in which the theorem to be used is not implied.

During the first term's work on theoretical geometry, exercises of the first kind alone will be set. After two or three terms, however, a special weekly lesson should, if possible, be allotted to miscellaneous exercises. The pupils' unsuccessful attempts should be given up, for they show whether a real effort has been made, or they may be worth completion, or the mode of failure may be useful to the teacher.

The following principles may be useful as guides in the selection of exercises: (i) A few of the

[1] It is produced by revolving a tractrix about its asymptote.

exercises should be within the range of every pupil; (ii) exercises should, as a rule, admit of more than one solution, for there is then more chance of their discovery, and it may be well to show a second solution by one of the pupils; (iii) exercises should occasionally be given on special subjects such as the congruence of triangles, the tests of parallelism, perpendicularity, concurrence or collinearity.

The study of errors is of value to the teacher in showing him the lines on which his own explanations may have been deficient, and it is interesting to observe the ways in which the same difficulties affect different minds. The errors are usually that unnecessary steps are given, terms are misunderstood, theorems are misapplied or misunderstood, or the conclusion to be proved is assumed in a more or less veiled manner. C. DAVISON.

GEOMETRY, THE TEACHING OF CARTESIAN.—Cartesian geometry in its widest sense includes all the geometrical developments that have sprung from the idea—first conceived by Descartes—of defining the position of a point by reference to fixed axes. Herein lies the first attempt on any wide and systematic basis to connect Algebra with Geometry. That Descartes was conscious of the far-reaching consequences of his conception is manifested by the fact that he immediately applied his method to the solution of the Quartic Equation, pointing out that its solution is virtually the same problem as that of finding the intersections of two suitably chosen conics. Maclaurin was also fully alive to the importance of the method, and deals with it in his Algebra. In this way, Geometry is made to fertilize Algebra and *vice versâ*, it being a common experience that results which would have involved complicated Algebra become intuitive if thrown into geometrical form. We need only instance the graphical method of treating equations; the fact that every Quadratic Complex can be expressed as the sum of six squares (which result proceeds from the fact that every pair of super-surfaces of the second degree in space of five dimensions possesses a common self-conjugate system of six super-planes); the fact that the interconnections of the periods of Algebraic Integrals are identical-analogues with the geometrical connectivities of what have been facetiously called "Riemann's Balloons."

Because teachers still to a large extent persist in treating the various branches of Mathematics in watertight compartments, the full extent and marvel of Descartes's discovery has been lost to the student. He leaves his course of Cartesian geometry with an intimate knowledge of analytical tricks, but with few or no general ideas. This could undoubtedly be rectified to a large extent. By throwing overboard a great deal of useless lumber, the requisite time could then be obtained for pushing further into the subject and gaining acquaintance with its more general aspects.

Three Aspects. Descartes' conception of combining algebra and geometry by referring the position of a point to fixed axes leads to three main issues—

1. GRAPHICAL METHODS.
2. THE APPLICATIONS OF THE CALCULUS.
3. THE FORMAL THEORY OF ALGEBRAIC CURVES AND SURFACES.

Of these, graphical methods have been of late sufficiently and worthily studied in their more elementary applications; but, as far as their higher applications are concerned, students usually leave the secondary schools and universities almost entirely ignorant of them. Thus Fourier's Theorem as a study in abstract theory is intensely hard; but Fourier's Theorem regarded as a practical weapon for analysing the motions of the tides and stars, and having its periodic properties represented graphically on squared paper, is comparatively easy and extremely useful. Again, to cite another example, Differential Equations are usually presented to the student as an incoherent collection of more or less elegant tricks. But the Differential Equations that present themselves in practice in dealing with (for example) Aeroplane Motion are of that exasperating class that do not "come out." Usually they are found quite intractable by formal methods, but they yield their secrets readily to the gentler persuasiveness of Arithmetic and Squared Paper—in fact, to Descartes' methods.

The applications of the Calculus to Analytical Geometry come for the most part under the headings of either Graphical Methods or formal Analytical Geometry, and hence do not require separate treatment.

The formal analytical theory of algebraic curves and surfaces is, for the most part, really the geometrical way of looking at algebraic Invariant Theory, but it is rarely taught as such. The result is that the comprehensiveness and coherence of the various theorems in the subject are not fully realized by the student. Furthermore, a great deal of the indiscriminate solving of isolated problems could well be dispensed with, thus leaving time and room for pushing further into the subject. "Drill" is necessary to inculcate the various processes and methods of attack, but much of the "drill" could be obtained equally well by doing something useful in the more advanced branches of the subject, and not wasting the time in irrelevant and unimportant puzzles.

If these isolated problems were eradicated and the invariant theory which binds most of the properties of the curves and surfaces of analytical geometry were brought to the fore-front, a great and essential step forward in the pedagogy of the subject would have been achieved. At present, the importance of pencils of lines and conics, coefficients entering linearly into formulae, parametric representation leading to the beautiful theory of systems of points on conics, the overwhelming potency of the principle of Apolarity in geometrical investigations, the utility of such invariants as I and J in the theory of quartic equations, and the connection of these with Apolarity and the Invariants Δ, Θ, Θ', Δ', are practically never driven home.

In conclusion, then, we would advocate a much more extended course, penetrating further into the subject—a course in which the more comprehensive theorems and principles of the subject should be taught, and in which the inter-relations of the various parts of the science should not be lost sight of. W. P. M.

GEORGE JUNIOR REPUBLIC, THE.—The George Junior Republic is an educational experiment of great originality, which has aroused intense interest among social reformers and educationists. It was founded by Mr. George, in 1895, at Freeville, in the upland district of the central part of the State of New York. Its object was to reform boys who had broken the laws of their country.

It has been well described as "a manufactory of citizens."

Its success is largely due to the fact that Mr. George has used a new educational method singularly appropriate for the reform of young criminals, but also suitable for boys and girls of a non-criminal type. He has thus thrown much light on the general principles of education.

Mr. George rightly emphasizes the importance of the *conditions* under which education is carried out. The following are some of those which he considers essential for his particular work—

(*a*) The age of admission is of considerable importance. At first, children were admitted under 12 years of age; but, later, the age was raised to 16. "At that time they are just budding into manhood and womanhood; they have ideas: they would like to try their wings in the world, and the Republic affords them this opportunity, even the opportunity of making mistakes, in which case they learn some very valuable lessons."

(*b*) There should be a distinct break in the children's lives. They should be placed in a totally different environment. The majority come from crowded cities, and their new surroundings are those of a thinly populated country district. A sponge is drawn across their past, and they begin afresh. Non-criminal children are admitted, so that George Junior citizens in the future cannot be looked upon as necessarily once criminal.

(*c*) As the time required for a successful development is likely to vary considerably, no member should leave the Junior Republic until the man in charge considers that he is fit for the transition.

(*d*) Freedom is essential, and the boys and girls are delightfully free. They largely make their own rules and regulations, and there are no high walls to fence them in. Real freedom necessarily means responsibility. The Junior Republic is largely self-sufficing. It has its own president, judge, prison, police, shops, bank, money, etc.; and all are managed by the young citizens themselves. During their first week they are guests, but during that week they must find work for themselves, and from that time they must earn their own living and manage their own affairs.

(*e*) There is a strong religious atmosphere of a particularly manly, broad, and practical nature.

The Influence of Work. After much thought, Mr. George decided that the only possible instrument for the reformation of his young citizens was *work*. The difficulty facing him was the fact that they were quite unaccustomed to work, and had a strong objection to it. He felt that the only spur sharp enough under these circumstances was to make their dress, amusements, and even lodging and food, depend entirely on their own exertions. Soon after the Republic was started, Mr. George decided that, as the young citizens had to earn their own living, it was only fair that they should also have the freedom and stimulation of governing themselves. This self-government is a most dramatic element, but it is "the stern necessity to work under carefully arranged conditions" that is the essential point of the scheme. On the other hand, the excellent plan of self-government is of great value, preparing the young citizen for the wider life of the senior Republic.

Herbert Spencer's doctrine of consequences is carried out faithfully. If a member will not work, he cannot afford to pay for a bed at the Hotel, and so has to sleep out; and is duly "run in" by the Republic Police, tried in Court, and usually given a week's imprisonment. This includes working each day for a certain number of hours, under strict police supervision, which means hard work and only prison fare as a reward. At the end of the week, as a rule, the prisoner is willing to work for himself. When the young judge of the Republic was once asked how the laws of the Junior Republic were made, he replied: "We took the laws of the United States as a basis, and improved upon them." The laws are somewhat severe, but tend to get milder.

General Conditions of Life. The admission of girl citizens has increased the difficulties of management, but it makes life more natural and a better preparation for life in the great Republic. Nothing is more striking in the social life of the community than the chivalrous treatment of the girls by the boys, and the refined gentleness of the girls. Woman's suffrage became law in 1901!

At first, each member was bound to attend school for a certain number of hours each school-day during certain years, and he was paid wages for these hours. Now that citizens are not admitted until 16, they are not paid for going to school. "In order to gain this boon, they must either have their tuition paid for by some friend or relation, or guardian, or else they must do some work so valuable to the Republic that there is no economic loss if they go to school for half the day."

The openings for work are many: every kind of agricultural occupation—grain, cattle, dairy, market gardening, etc.; several branches of manufacture—bakeries, carpentry, smiths' work, printing, house-building, etc.; shops of all kinds, mending of every sort; dressmaking and millinery, hotel-keeping, cooking, etc.; carriage to and from the station, a bank, public officials, etc. In that genial air of freedom the special talents and activities of each member have every chance to develop. Visitors are astonished at their alertness and capacity for business. Other valuable qualities are no less obvious—a spirit of good comradeship and a readiness to help, a sense of the responsibility of citizenship, high ideals of justice, and a determination that law and order shall prevail. These will make the citizens a valuable asset to any community in which they may be enrolled.

There are usually about 160 members—60 girls and 100 boys. About 1,000 boys and 500 girls have passed through the Republic, and over two-thirds of these are now thoroughly successful citizens of the United States. The diversity of the after life of the members can be realized by inspecting a list of former citizens, which includes ministers, doctors, lawyers, dentists, engineers, contractors, teachers, social workers and heads of institutions and boys' clubs, nurses, merchants, carpenters, farmers, plumbers, bakers, secretaries, architects, musicians, and librarians.

Development of the Idea. The ideas of Mr. George have spread, and in 1913 there were eight Junior Republics in America, and one somewhat similar community in England.

It is easy to raise the funds to start a Republic, and easy to find boys and girls capable of governing themselves, but it is exceedingly difficult to find the right kind of person to direct the work. "The art of running a Junior Republic is not to run it at all, and this is a difficult art to learn. Much faith and breadth of vision are necessary if the citizens are to be allowed to govern themselves in

fact as well as in name." Mr. George has added the training of adult helpers to his other work, and this is likely to be of great value.

No problem is more difficult than how Society can save the boys and girls whom she has damaged. The rule: "He that does not work shall not eat, but he that works shall obtain many good things, and shall be free and enjoy self-government," appears to be the most hopeful solution. But it is essential that a community so organized shall have an atmosphere of wisdom gathered from experience and knowledge of human nature, and of love based on religion.

All scientific experimenters are particular about the conditions of their experiments, and Mr. George has emphasized once more the importance of a carefully-arranged environment for education. His ancestors were Britons who carried with them across the Atlantic a firm belief in freedom. The Junior Republic deals, not with adults, but with boys and girls, not with the employment of citizens but with the making of citizens. Mr. George wisely kept in his own hands a power of veto on all laws, regulations, and judicial sentences; but, apparently, he has never had occasion to use this veto. Still, the lives of the young citizens are adjusted and affected in innumerable ways that visitors possibly do not always discover. "*Carefully supervised freedom*" prevents many failures and much waste of time and energy.

Some day we must have no slums and no children breaking the laws of their country; but, until that day arrives, we hope that the George Junior Republic will continue to inspire us to believe in the rapid moral recovery of boys and girls, in the immense power of the educative process direct and indirect, in the great value of real democracy, and in the profound influence of religion. E. P. H.

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GEORGE TRAPEZUNTIUS.—(See RENAISSANCE, THE.)

GEORGE WATSON'S COLLEGES, EDINBURGH.—(See MERCHANT COMPANY SCHOOLS [EDINBURGH], THE.)

GERALDUS CAMBRENSIS. — (See BARRI, GERALD DE.)

GERBIER, SIR BALTHAZAR (*d.* 1667).—A Dutchman employed by the Duke of Buckingham and Charles I, and knighted by the king in 1628. In 1641 he made proposals to Charles for the establishment of banks; and in 1648 brought out a scheme and prospectus for an academy to give instruction in many subjects from philosophy, language, and mathematics to dancing, riding, and fencing. The academy was opened at Gerbier's house at Bethnal Green in 1649; and during 1649 and 1650 many of his lectures on such subjects as Cosmographie, Geography, Navigation, and Elocution were printed. Walpole describes Gerbier's tracts as "most trifling and superficial," and the many unfavourable reports of his work led to the downfall of his academy. In 1652 he received a grant of money from the Committee of Trade and Foreign Affairs to enable him to proceed abroad on an inquiry into foreign trade. He was engaged in many schemes in connection with affairs in the Netherlands and, after the Restoration, presented Charles II with plans for increasing the revenue and for beautifying London. He died in London after acquiring some fame as a painter and architect. Gerbier's Academy was an attempt to set up in England a counterpart of the numerous French academies to which English parents sent their children, and he hoped that foreigners might be induced to resort to the academies of London if his plan were successful. His pamphlet announcing the proposed establishment of his academy was addressed to the Lord Mayor and Aldermen of London, and appealed not only to fathers, but also to mothers, interested in the education of their sons.

GERMAN (COMMERCIAL), THE TEACHING OF.—Commercial German being a language in itself, those who teach it must make a detailed study of it. Its vocabulary is highly technical and contains a great many foreign words; and some of its familiar constructions are direct violations of rule. For a teacher to take the view that foreign words should be superseded by German equivalents, and ungrammatical constructions corrected would be unpractical: the foreign elements and solecisms are too deeply embedded in the commercial jargon to be eradicated by purists. It is easy to say that *annullieren* and *stornieren* are unnecessary substitutes for *abbestellen*, but the words remain, notwithstanding the objection.

Vocabulary and Idiom. Many of these foreign words seem mysterious to the student, who will want to know their origin. If, in studying expressions of weight, a class is told that *sporko* means "gross," some one possibly will ask for the root-meaning of *sporko*; a little knowledge of Italian will enable the teacher to answer that *sporco* means "unclean." Many teachers have at least a smattering of Italian, and the numerous words borrowed from Italian will be clear to them; but it can hardly be expected that they should know all the other languages from which words have been drawn. It will be enough to know, for instance, that *Kux* ("mining share") is Bohemian. The required information can be obtained from a little sixpenny book: Köhler's *Fremdwörterbuch* (in the "Reclamsammlung"). Kleinpaul's *Das Fremdwort im Deutschen* ("Sammlung Göschen") is also serviceable.

The main difficulties of Commercial German are: first, that it varies in vocabulary and idiom according to locality; second, that each branch of trade or manufacture has its own technical terms. Austrian, Polish, and South American merchants have strongly marked peculiarities of diction; specialists in Commercial German should know, for instance, that the abbreviation *Tit!* (for "Titel") is sometimes used in Austria at the head of circulars instead of the more usual *P.P.* (*praemissis praemittendis, i.e.* "Sir or Madam"); and that *passato* is a favourite South American expression for *vorigen Monats* ("ultimo"). Manuals and dictionaries are rarely complete as far as local expressions are concerned: the best way to acquire the knowledge is to read actual business letters. Perhaps the best teachers are those who have had experience as correspondents. Often, however, one who has only book knowledge can persuade his students to show him letters or copies of letters which they or their principals have received; and he will find it helpful to interpret them, using them for dictation or oral practice. In this way, especially

if the members of the class are engaged in different branches of trade, a variety of vocabulary is acquired, and the students are satisfied that they are learning actual business German.

Variety is essential. The standard manuals of Commercial German are sufficiently varied in matter, but for advanced classes extra material will usually be found necessary. It is a good thing if students can be persuaded to practise composing letters of their own: they will then naturally write letters dealing with their own branch. These, when corrected by the teacher, may be used for class practice. In what is probably the most difficult section of Commercial German—market and trade reports—variety of matter is easily obtained: the reports in the German newspapers should be used. If the teacher is himself a subscriber to a German newspaper, he will be sure to find the students grateful if he lends his copies to them. The *Berliner Tageblatt* or the *Frankfurter Zeitung* cost only a few shillings a month; and the teacher of advanced, or even intermediate, classes would find the results pay for the outlay.

Difficulties of Script. The growing use of the typewriter is rapidly doing away with the difficulty of having to decipher manuscript letters in German handwriting; but a German correspondent must be able to read any manuscript letter that may come in. Nothing affords such good practice as actual letters; but it may be difficult to accumulate a stock of them, unless the teacher can persuade his business friends to let him ransack their files. But letters in the teacher's own handwriting may be used; and the teacher's friends, especially his German friends, or even his students, could provide him with material. The practice may begin with letters carefully written, and pass on to scrawls and scribble. If, however, a text-book is preferred (and this will be the case where there is no facility for taking a sufficient number of copies of a letter to go round a class), Lévy's *Recueil de Lettres allemandes* (Hachette) will be found suitable.

Technical Information. But more is required to complete the student's course than practice in letters and market reports. If he is to qualify himself to pass the usual examinations, he must have practice in reading technical matter referring to commercial transactions, banking operations, commercial law, etc. A comprehensive manual is Pitman's *German Commercial Reader*. Preisinger's *German Commercial Reader* (Rivington's) contains good texts, but is in some respects out of date.

If a teacher of languages had merely to render, automatically, the words he teaches, his task would not be particularly onerous. But intelligent students will demand not merely the equivalent of a *word*, but the actual meaning of the *thing*. It will not satisfy an ambitious junior to be told that *Dispache* or *Havarieberechnung* means "adjustment": he will want to know what an "adjustment" is. A good teacher will, of course, have sufficient interest in what he teaches to provide himself with the necessary information; but in difficult cases he might consult Pitman's *Business Terms, Phrases and Abbreviations*.

The teacher should encourage his students to talk in German about what they have read. There are excellent models of such conversations in Pitman's *German Business Interviews*, and in Whitfield and Kaiser.

If elementary classes are taught, and it is desired to concentrate on the commercial terminology from the very beginning, there are two good books available: Pitman's *Commercial German Grammar* and Coverley Smith's *Introduction to Commercial German* (Macmillan). J. BITHELL.

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GERMAN IN ENGLAND, HISTORY OF THE TEACHING OF.—Though, historically, English and German are cognate languages, and though there are many points of connection between England and Germany, the teaching of German in England was late in development. Professor William Cunningham has traced the earlier commercial and industrial relations, and Professor C. H. Herford the literary relations; whilst Professor H. E. Jacobs has shown that, in the sixteenth century, no less than sixty-five Lutheran books were translated either from German or Latin into English. But the Anglican Church did not ally itself finally to Luther, but rather to the Swiss theologians. The Lutheran Commission to England in 1538, to secure *rapprochement*, was a failure. Cranmer was the English ecclesiastic most distinctively in touch with Germany and Germans, having married, as his second wife, Margaret, the niece of the German theologian, Osiander. But he had not lived in Germany like Miles Coverdale, who taught church and school at Bergzabern. William Tyndale, too, must have been a scholar in German. Some of the English exiles from the Marian Persecution married Germans, and others also spoke German, but on their return to England, the correspondence with foreign friends was mainly in Latin; and, of the 650 letters of and to the English exiles, after their return to England, not one is in German. In England, there had, in the Middle Ages, been German workmen, particularly miners. It was not till 1550, however, that there were sufficient foreigners to establish a foreign church, called the Dutch Church, over which John à Lasco presided. It is to be noted that both Germans and Netherlanders were called Dutch, but when so, the language of the former was properly termed High Dutch, the latter was Low Dutch. Of foreigners in England as religious refugees, there were far more Hollanders and Flemish people than German. In Queen Elizabeth's time, Bishops Hooper and Parkhurst spoke German; so also Robert Sidney, and his brother, the renowned Philip—though the latter less perfectly.

Text-books. In spite of all these influences, there was no German grammar in England till 1680, when the *High-Dutch Minerva à la Mode*, written by Martin Aedler, was published. There were, however, a number of colloquies of travel-talk, polyglot compilations, including both Low and High German. Comenius's (*q.v.*) *Janua Linguarum* sometimes included a German version. Earlier than the High Dutch Grammar was a *Netherdutch Dictionarie and Grammar* by Henry Hexham in 1660. In the *Polyglot Dictionary* of John Minsheu (1627), Low German and High German words had been included. In 1687, following Aedler's book, was a "double

grammar" for Germans to learn English and Englishmen to learn German, by Henry Offelin. In 1706, John King, a physician at Stamford, wrote an *English and High German Grammar*. In 1758 was issued anonymously, *The True Guide to the German Language*, in which the author deals with German spelling, reading, and writing; with origin and nature of German words; and provides a vocabulary, phrases, dialogues, letters, and a description of London. But most significant, pedagogically, is a section on the right construction of words in a German sentence. In 1775, the minister of a German church in London compiled the *Elements of the German Language;* and afterwards, in 1790, an *Introduction to German Grammar*. The only mention of learning of German in an educational institution in the eighteenth century appears to be in a dissenting academy.

The first teacher interesting himself in German teaching appears to be George Crabb, "teacher of the Classics at Carlisle House School," whose *English Synonyms* (1816) is still published. He wrote *A Complete Introduction to the Knowledge of the German Language*, containing the substance of the most approved German Grammars, particularly that of J. C. Adelung, and arranged on an "easy and new plan." Crabb was an educationist, writing on *The Order and Method of Instructing Children*, 1802. In 1811–1812 he published a book of *German Extracts from the Best German Authors*. He also wrote on German composition and on German conversation. He is further stated to have written a *Practische Englische Grammatik für Deutsche*.

Modern Influences. In the nineteenth century, the influence of Coleridge and Thomas Carlyle brought English people to realize the importance of German literature, and German was eventually received into university studies. A Professor of German was appointed in Oxford in 1907, and at Cambridge in 1909—though a Taylorian lecturer had been teaching German at Oxford from 1868 onwards. German, however, is one of those subjects for the advancement of which, on the whole, the modern universities and the secondary schools in the large towns have hitherto done the most.

F. W.

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GERMAN INFLUENCE ON ENGLISH EDUCATION.—Public interest in the aims and organization of education in Germany is due mainly to the political rise and commercial expansion of modern Germany; but, from the time of the Reformation, at least, the theories and practice of many German thinkers and teachers have been praised by Englishmen.

Care must be taken to define exactly what is meant by "German" influence. Much that has been attributed solely to German influence can be ascribed with equal or greater truth to the investigation of educational conditions in France, Switzerland, Holland, Sweden, or some other country. On the other hand, the study of some particular German institution or method not adaptable to English conditions may occasionally have been the direct cause of the adoption in England of something entirely different.

Luther, Melanchthon, Sturm, and Ratke. Since the Reformation, Germany has produced a succession of writers on education whose views have given the whole civilized world food for thought. Luther's letter to the municipalities (1524), urging upon them the duty of providing schools, and upon parents the duty of sending their children to school, is one of the earliest expressions of the German faith in the value of education. But it is to the school-reforms of Melanchthon (*q.v.*), Sturm (*q.v.*), and Ratke (*q.v.*) that we must look for influence on England, rather than to Luther himself. Under Melanchthon's able guidance, an improved German school system arose, and in sympathy with it, English schools developed under Edward VI and Elizabeth. Sturm's Latin Gymnasium in Strassburg (founded 1538) became a model for the Protestant schools of Europe. His books and methods were adopted wholesale by Ascham. Ratke entirely reversed Sturm's methods by insisting on a sound knowledge of the mother-tongue as the first step towards the learning of other languages.

Comenius, Pestalozzi, and Basedow. The Czech, Comenius, who had studied under Alstedt at Herborn, conceived the ideal of a good education for all children of all classes, both boys and girls, and devised a graduated scheme of instruction, laying emphasis on the correct use of the mother-tongue. He came to England by invitation in 1641, at the suggestion mainly of Samuel Hartlib, to establish a college in conformity with his views, but the disturbed condition of the country caused him to leave before a start could be made. His theories had nevertheless gained general currency and influenced English schoolmasters. After Comenius, the next great educationist was Pestalozzi, who laid down the principle of the general education of the poor by the State, a principle at once accepted and applied by Prussia, whose example England made no attempt to imitate for two generations, and even then (1870) only partially. Though Pestalozzi was Swiss by nationality, the knowledge of his work has been disseminated in England mainly as the result of the study of education in Germany. Bernhard Basedow, the founder of the short-lived Philanthropinum at Dessau (1774), has attracted the attention of most English writers. He deprecated the silence usually imposed on children in the classroom, and encouraged vivacity. Moreover, he was the first to take the bold step of familiarizing children with the elementary facts of birth, one of the thorniest of educational problems.

Froebel and Herbart. For the kindergarten, perhaps the most obvious importation from Germany, England is indebted to Friedrich Froebel (*q.v.*), who sat at the feet of Pestalozzi at Yverdun (1807–1809). Froebel's view of the teacher as a human gardener was opposed by J. F. Herbart (*q.v.*) on the ground that the child's mind does not develop like a plant. He insisted on pedagogy being supplemented by ethics and psychology. His influence is now apparent in British training colleges, in which the study of psychology, not necessarily Herbartian, occupies an important place. His popularity with English writers on education dates from about 1892, in which year

the pioneer work of translation into English was done by H. M. and E. Felkin. Until 1914, many English and American students were attracted to the University of Jena by the teaching of Herbart's pupil, W. Rein.

Modern Influences. The superiority of German provision for the training of teachers was discussed at length by Joseph Payne in a lecture to the College of Preceptors in 1869, and by Matthew Arnold on various occasions. The former noted that educational journals and books were numerous and successful in Germany, but not in England. Such books as Von Raumer's *Geschichte der Pädagogik* and Hergang's *Pädagogische Real-Encyclopädie* have been indispensable works of reference to the English student of educational science.

The bulk of the pioneer work which led to the Education Act of 1870 was done by Matthew Arnold, whose reports are full of information with regard to Continental systems. For the State control of education in Prussia he had nothing but praise, though he may have under-estimated the influence of politics. On the whole, the example of Prussia in educational matters, as reported on by Arnold, was one of the main causes of the passing of the Act of 1870.

With regard to actual organization and curriculum, English schools owe little to Germany, except in the kindergarten and, in secondary schools, in respect of new methods of teaching modern languages (Viëtor). Certain schools have benefited by German example in hygiene, and in such points as the decoration of classrooms with pictures and other objects of interest.

Much greater is the debt of English universities, the more modern of which resemble those of Germany, except that they are not controlled by the State. The influence of German scholars on practically every branch of university instruction has been profound (*e.g.* Böckh, Bopp, Brugmann, Bunsen, Diez, J. Grimm, Mommsen, Niebuhr, Sievers, Wilamovitz-Moellendorff, and F. A. Wolf). The great progress made by the study of organic chemistry at English universities is largely due to the activity of English pupils of Bunsen. Next to natural science, the study of modern languages has benefited most by the adoption of German methods. Moreover, it has been the custom in recent years for young graduates in all subjects to add to their knowledge by a course at some German university, and England has benefited by their experience.

The working of German Continuation Schools (*Fortbildungsschulen*) has been investigated and explained to the British public by T. C. Horsfall, M. E. Sadler, and others, and has influenced the organization of technical and evening schools in England. German commercial schools were discussed in a report by J. B. Paton to the London Chamber of Commerce, and again by S. Morley, Dr. Percival, H. M. Felkin, and W. Summers in a report presented in 1887 to a meeting at Exeter of the Associated Chambers of Commerce. Their recommendations, which were based on a study of conditions in eight foreign countries, were taken up at once by the Nottingham Chamber of Commerce, and commercial classes were started in connection with the evening schools and the high school. In technical education, England's debt to Germany is very great. A Royal Commission was appointed in 1881 to report on the superiority of France, Germany, and Switzerland in technical education. The Commissioners were much impressed by the technical schools at Zürich and Crefeld. The same year, H. M. Felkin presented a report on technical education in Chemnitz to the City and Guilds of London Institute. The report (1884) of the Royal Commission attracted unusual interest, and provided material for propaganda for the next ten years. The great technical schools of Manchester, Salford, Leeds, etc., grew out of this discussion. These developments were assisted by the National Association for the Promotion of Technical Education (1887–1907), and by the Technical Instruction Act of 1889, both of which were the direct results of the Report of the Royal Commission. Later progress has been influenced by the Polytechnikum (Zürich) and the Technische Hochschule (Charlottenburg). England has not, however, adopted the German plan of completely separating technical subjects from the ordinary university studies, but has, on the contrary, grafted certain technical faculties (*e.g.* engineering) on to the universities. G. W.

GERMAN LANGUAGE, HOW TO TEACH THE. —The method of teaching any subject must be chosen with a view to the type of pupil with whom the teacher is confronted, and the aim and object with which the pupil is, consciously or unconsciously, working. No method is capable of universal application. The same holds good of the teaching of languages, whether dead or living; consequently, also, of the teaching of the German language. Any useful rule or practical suggestion laid down for the teaching of German would, with slight adaptations, be applicable to the method of teaching any other language, certainly any other living language. The principles involved are, of necessity, the same in all cases. The absolute goal, which is naturally not always attainable, is to fit the student not only to read the foreign language easily and intelligently (*i.e.* without the help of a dictionary), and to understand it perfectly when read or spoken to him by a native, but also to express himself correctly, fluently, and idiomatically in that language—both in writing and by word of mouth. Needless to say, this degree of perfection is difficult of attainment, and can hardly be acquired except by very prolonged residence abroad. But there are varying degrees of approximation to this ideal which may serve a learner's purpose and possess real educational value.

The subject under discussion may be most profitably approached (*a*) from the point of the pupil; (*b*) from the point of view of the teacher.

The pupils will belong probably to one or other of the following classes: (1) Boys and girls at school; (2) serious students, say candidates for university degrees and other qualifications in Art, Science, or Music; (3) cultivated amateurs who are taking up German for some definite practical purpose, say foreign travel, or because of literary interest. (The case of students learning German for purely commercial reasons does not fall within the scope of this paper.)

The method employed will, or should, vary in all these cases, though all methods must have some features in common. Let us consider them in order—

Boys or Girls at School. Boys and girls at school are, as a rule, though not invariably, learning German as an alternative to Latin, the choice

having been made for them by their parents, who prefer the study of a living language to that of a so-called dead one, being swayed often by utilitarian motives. The standard attainable will depend not only on the child's linguistic ability, which varies enormously in individual cases, nor solely on the teacher's linguistic ability and his power to teach, which, again, vary enormously, but on the amount of time available for this particular subject in the school time-table and on the length of time the child can remain at school. This factor of time is one which neither teacher nor taught can effectively control. Further, in the majority of cases, the pupils are not consciously following any definite aim. They "do" German as they "do" arithmetic or English, or any other subject. Both these factors influence adversely the intensity of the work and, consequently, the achievement. Though both affect in a similar manner other subjects taught at school, they seem to require special emphasis in connection with the teaching of a foreign language, for they practically determine the method to be chosen. If any real progress is to be made in language-work at school—apart from so-called mental training—the teacher must be content to have recourse to some time-saving devices, and he must also, at all costs, avoid dullness. The former necessity compels his adherence to some of the time-honoured methods of the Public School Latin Grammar—parrot-like repetitions of declensions, conjugations, strings of prepositions, etc.; the latter demands the creation and stimulation of an interest, not generally spontaneous in school boys and girls, and thus forces upon them some of the best features of the so-called "direct" method: conversation; songs; the use of the gramophone; the illustration of modern, interesting texts by means of picture post cards, maps, photographs, etc. We thus arrive almost inevitably at the conclusion that, for school purposes, a combination of habits sanctified by use in the teaching of Latin and Greek with the practices inculcated by adherents of the "direct" method will yield the best results. Were unlimited time at the teacher's command, and did the pupils begin German at a very early age (say 6 or 7), which they rarely do, the direct method pure and simple would have much to recommend it.

For Beginners. For quite young children, Dent's method of teaching by means of wall-pictures can hardly be improved upon. The pictures are large and clearly coloured; in the accompanying text-books there are explanations of the scenes which have been carefully thought out and graduated in difficulty; and in the course of the lessons many grammatical rules are cleverly introduced and formulated. By the use of these pictures, children can soon be led to use little sentences quite correctly; and if there is some judicious skipping when the repetitions in the text-book tend to become wearisome, the general interest can be well maintained. Even in the case of older pupils, Dent's *First German Book*, in conjunction with the wall-pictures, can be used with great advantage, though the grammatical teaching may require to be supplemented here and there.

For Older Scholars. As regards the grammar books which are most suitable for pupils at a later stage, their name is legion, and every teacher had best choose for himself. It is only by experiments with different books that one can arrive at any definite conclusion. Even the best book will profit by a good teacher's powers of selection and adoption.

A regular reading-book should always be used side by side with a grammar. Of such there is abundant choice. Blackie, Heath, the University Presses both at Oxford and Cambridge—to mention only a few of the publishing houses—vie with one another in bringing out reading-books which pass gradually from the simplest little stories to the plays of Goethe, Schiller, and Lessing, and selections from the more modern German novelists. Many of these are provided with a vocabulary and a number of easy exercises based on the text, and may thus serve also as guides to attempts in German prose composition.

Tales containing a good deal of easy dialogues are very valuable for younger pupils, as dialogues can readily be learned by heart, even by beginners; and young pupils are generally eager to learn little pieces by heart for preparation, and to act them together in the form-room by way of a lesson. The repetition of short pieces of good prose is a valuable exercise even for older pupils. It impresses constructions and idioms upon the mind, and supplies useful training in accurate pronunciation and unfaltering delivery. The hesitation which mars so much of the reading aloud practised in school becomes impossible if the piece has been thoroughly memorized.

As soon as it is at all feasible, even boys and girls at school should be introduced to the study of the original works of the great poets and prose writers of Germany. At a very early stage indeed, simple lyrics and ballads, such as are available in good anthologies, should be impressed upon the child's mind and memory. *Heidenröslein, Erlkönig, Lorelei, Ich hatt ein 'n Kameraden*, and a dozen others, are not beyond the grasp of even a mere beginner. Most of them are set to music, and can be sung. With even a very moderate knowledge of German, it is possible for a class interested in its German lesson, and keen on work, to attempt to read one of the dramatic masterpieces of German literature, say *Wilhelm Tell*. It is a mistake to suppose that pupils always prefer to have easy work set. The all-important point is that the work should be interesting. A desire to learn something of the authors can be satisfied in conversation lessons, supplemented and illustrated by cheap photographs, picture post cards, etc. The pupil is thus gradually led to a systematic study of German literature, which should, from the very beginning, be given in German in the form of very simple lectures. The notes will, at first, be hardly more than a taking down of a piece of dictation; but, by degrees, the pupils will learn to write more freely, and to reproduce what they have written in the form of very tolerable essays. A very fair knowledge of German literary history, and some first-hand acquaintance with a few of the greatest masterpieces of German literature, may thus be acquired even at school; and, even if the serious and systematic study of German should have to cease when the boys or girls leave school, it is to be hoped that they may have acquired a sufficient love for the subject to continue to read for themselves at home. "As long as the acquisition of knowledge is rendered habitually repugnant," says Herbert Spencer, "so long will there be a prevailing tendency to discontinue it when free from the coercion of parents and masters. And when the acquisition of knowledge has been rendered

habitually gratifying, then there will be a prevailing tendency to continue, without superintendence, that self-culture previously carried on under superintendence."

The question of the teaching of German prose (*i.e.* the translation of English into German) should perhaps be touched upon here. It is pre-eminently a *school-exercise*. Translation in the true sense is one of the fine arts, and an elusive one to boot. Few have the courage to essay it, and yet fewer practise it successfully. But, since we must aim at some ability to write even in a foreign language, shall we best teach to do so by practice in deliberate rendering of passages from English into German, or by free (*i.e.* original) composition. From the ideal point of view, the latter method seems the more desirable. From the construction of very simple sentences, the child can, by degrees, proceed to the writing of short stories, little letters, and simple essays. The chief drawback is the opportunity offered to a shirker to avoid habitually all constructions with which he is not familiar, and thus of evading pitfalls and difficulties. From the point of view of *mark-earning* in an examination, practice in prose-translation is necessary at school; it is a far severer test of conscientious toil, and perhaps a not inferior test of linguistic talent and power to think. A book like Sonnenschein's *Third German Reader and Writer* may be very useful at a very fairly advanced stage of prose writing in school. It provides just that continuity of method which is so essential, and which is apt to be lacking if the choice of suitable passages for translation devolves entirely on the teacher. The proses in this collection are all based on German stories given in the first part of the book, and are stories practically equivalent to re-translations into German of passages previously read or heard in German. A useful method of self-help in German composition may be based on the system followed in this book. The learner may translate a piece of German prose into good English, lay the translation aside for a few days, and then re-translate it into German, comparing his version with the original. Though this plan does not take the possibility of variant renderings into account, it has its merits.

Students for Degrees, Etc. The case of students preparing for professional qualifications, whether in Arts, Science, or Music, etc., differs from that of children or young people at school. Whilst, speaking generally, the methods indicated above may be profitably employed by and with adult students, though at an accelerated speed, the following considerations will affect the type of work and the result attainable. The general education of students of this class has already reached a standard which makes further education along any given line relatively easy. Further, they are free agents, and know presumably why they are deliberately undertaking the study of a difficult language, and they have deliberately counted the cost of doing so. The teacher is, therefore, in this case free to devote himself exclusively to the instruction of his pupil in German, without having to dissipate his energies on the simultaneous inculcation of manners and morals. Attention, which is the *sine qud non* of all successful study, is to be assumed with this class of student.

The course of work to be followed by a student who wishes to graduate in German or other modern languages, is sufficiently prescribed by the various university authorities; and though, as a nation, we cannot yet claim to be good linguists, there is no doubt that the study of modern languages has made good progress in our country during the last twenty years, largely owing to the fostering care of our universities.

German as a subsidiary subject is of very real use to all students of Science, including Medicine, and of Music and Technology. For these students, ability to read German with ease is probably the main point to keep in view. As a rule, a reading acquaintance with German is easily acquired by such students, because they have perforce already learned either one or more (probably two or three) other languages; and every language learned is a stepping-stone to the next. The hints given below as to the most rapid method of acquiring a certain facility in reading German will hold good here also, with this difference: that students training for the higher grades of professional life will, as a rule, be more intent on making rapid progress, and be educationally better qualified to do so, than the amateur aspiring to a knowledge of foreign tongues and letters. The value of a "crib" should not be ignored by students of this class anxious to cover ground.

The Cultivated Amateur. We come to the case of the amateur, who takes up German for personal reasons, whether love of *belles lettres*, or love of travel, or convenience of residence abroad. Students who are taking up the subject because they are fond of languages and interested in literature generally, will, above all, want to read with ease, because without real facility in reading no profound knowledge of a foreign language can be acquired. For such, the best method seems to be (after a very cursory, and even superficial, acquaintance with the rudiments of the grammar) to plunge boldly, with or without guidance, relying on a dictionary and grammar, into the study of a text—preferably a modern novel, a newspaper, or a periodical of good standing. After a few weeks of intense labour, the student will find his toil rewarded by a grasp of at least the general sense of a passage; and, in the majority of cases, a power to read with due appreciation even of shades of meaning will develop rapidly. If a good teacher is available, his office will consist largely in the elucidation of difficult syntactical constructions and of the peculiarities of German word-formation—two stumbling-blocks in the path of English readers. It is hardly too much to say, however, that once the difficulties in the use of separable and inseparable verbs has been grasped, and once the position of the verb in principal and subordinate clauses has been realized, German syntax in its main outlines has become tolerably clear. Moreover, modern German authors tend to write more simply than those of the classical period, and there appears to be a distinct effort on their part to aim at something of the precision and clarity of French prose writers. German compounds are, indeed, puzzling to the novice. In English, we have almost lost the power of creating compounds by the mere syntactical juxtaposition of simple words. In German, the word-stock of which is limited in comparison with that of English, the wealth of vocabulary is greatly enhanced by the formation of compounds. At first sight, these compounds appear formidable (*cf.* such words as *Armenversorgungs verein, Kleinkinder bewahranstalt*). All the reader has to do is to dissect the monster into its component parts, the meaning of which is

generally plain, and the inference as to the meaning of the whole is frequently irresistible.

For this class of student, ability to use the spoken language is of greater value than ability to write German. Nothing but prolonged conversational intercourse with Germans, or with teachers whose German is as their native tongue, will produce sufficient effect to be of real use. The conversation should turn, in the first instance, on the subject-matter of some book or paper that has been read, since the words—the material for connected speech —are therein provided; but, as soon as maybe, the conversation should deal with general topics, even if the speaker's meaning has now and again to be eked out by eyes and gesture. Very short periods of conversation are of comparatively little use. The small amount a beginner can intelligently hear cannot be absorbed and assimilated without constant repetition to impress it upon the mind. Daily prolonged intercourse, or continuous residence (say, for 4–6 weeks), with a clear and interesting speaker would produce astonishingly good results. For students of this class, *intensive* study is both possible and desirable.

The Teacher. We have, so far, considered primarily the pupil. Let us turn now to the consideration of the teacher. What qualifications must he possess, if he is to be educationally efficient and practically successful ?

1. He must himself have a complete command of German, both of the literary and of the spoken tongue. It is a mistake to suppose that some knowledge of the subject will suffice for the instruction of beginners. The best teacher only is good enough for a beginner. He is a better judge of his pupil's powers, he makes more reasonable demands on him, because he has a saner appreciation of the difficulties involved; above all, he does not waste his pupil's time.

2. He must, by a prolonged residence in Germany, have acquired a sympathetic interest in, and appreciation of, German habits of thought and points of view, or he will be a very indifferent interpreter of German literature, which is, like every other literature, the expression of the mind of the people. He must also be familiar with the social and political conditions of the present day, as well as with the past history of Germany, for the history of a nation is the incarnation of its thought and ideals.

3. He should, if possible, be an Englishman, for otherwise he may fail to understand and appreciate his pupils' point of view. The comparative failure of foreign teachers in English schools is, as a rule, due not to ignorance of their subject—they possess, for the most part, high academic qualifications—but to their lack of intellectual sympathy with, and intelligent appreciation of, a pupil's idiosyncrasies. But of whatever nationality the teacher be, he must know more languages than the one he professes to teach, otherwise he can make no use of comparison —a method fruitful in results.

4. He must possess a cultivated accent, a good delivery, and a clear enunciation—both in his own language and the foreign language he wishes to teach. For imitation is the most natural means of acquiring the faculty of speech; and as a young child learns his own speech, in the first instance, by imitation of his elders, so do older pupils learn a foreign tongue by imitating their master. The scientific study of Phonetics is, at bottom, an elaboration of this principle of imitation. The pupil is taught the deliberate imitation of certain positions of the vocal organs, and the muscles of the face and throat, it being a recognized fact that the exact reproduction of certain positions will reproduce certain sounds which have been heard by the ear. But the ear remains the arbiter of the correctness of the imitation.

The use of the gramophone is a valuable supplement to this side of the work. It can never entirely replace the cultivated human voice; but where a well-trained oral teacher is not available, it may serve as a temporary expedient, and at all times it will help to relieve the physical strain inseparable from *vivâ-voce* teaching. The records procurable are, for the most part, admirable examples of standard German.

Given even the most ideal conditions, it must be remembered that German is a difficult language. English has lost the elaborate inflexional system which once linked it with the common Teutonic stock. The syntactical constructions of English are simple compared with those of German. The continued use of German characters is something of an obstacle; our vowel-sounds and intonation are a handicap to us in our attempts to grapple with the difficulties of German pronunciation. Given even the best teachers, the study of German requires, though it also repays, a strenuous intellectual effort.

M. B. S.

GERMANY, THE EDUCATIONAL SYSTEM OF. — In view of the fact that Germany owes so much of its strength to the wise and tactful centralization of its forces, it is something of a surprise to find that so little has been done in the direction of centralized organization with respect to education. The control of education in Germany is not an imperial matter; each State manages its own education independently of its neighbours and of the central government. " In its modern form, German education is a federal unity, comprising great differences of tone and temper in various parts of the Empire. But the whole is skilfully bound together by arrangements which secure a sufficient unity of administration without imposing a mechanical uniformity upon different traditions of culture and of social life " (M. E. Sadler, *The History of Education in Germany in the Nineteenth Century:* Five Lectures, Manchester, 1912, p. 106). Thus, although the tendency of Prussia to establish the norm has become increasingly evident since Prussia assumed the hegemony in the German State-system, German educational systems still show considerable variety, not merely in details, but also in type. At present there is no question of a legally imposed uniformity, nor does there seem to be any generally expressed desire for such uniformity. Even within the States themselves, the provincial governments have great latitude in organizing and regulating education in accordance with local requirements. No doubt Germany has shown wisdom in not allowing herself to succumb to the allurements of that uniform systematization which was imposed on France by Napoleon. The absence of governmental legislation, or a uniform educational code, has acted beneficially in so far as it has stimulated initiative and experiment, and led to the precise needs of a district, as defined by its activities and industries, being met more exactly.

On the other hand, there have also been forces which, in default of legislation, have worked indirectly for uniformity. Of these, the ideal of

ntellectual achievement and culture prescribed by the universities—which, as will be seen, are more "imperially" uniform in character and organization than any other branch of the educational system—has exercised a steady and equal pressure on the educational standards of the individual German States. The universities, for instance, have the chief say in framing the final school examination (*Abiturientenexamen*) which leads to a university career, to the various avenues of higher State service, and the professions; while an even more immediate effect on the schools was produced by the equalization of standard of the examination which carried with it partial exemption from military service (*Einjährigenexamen*). Uniformity, too, has been furthered by the acceptance of similar organization and standards for the education of school teachers throughout Germany, by the fact that they receive their certificate from the State acting through the universities, and also by the strongly marked *esprit de corps* among the teachers themselves. Finally, the general principle of reciprocal recognition, which pervades all branches of German education from the universities downwards, tends necessarily to unity of aims and standards.

The general organization of the educational machinery of a German State may be illustrated by that of Prussia. The highest authority is vested in a Ministry of Education, which has also within its purview religion and medicine (*Ministerium für geistliche, Unterrichts- und Medizinalangelegenheiten*). The Minister of Education has the assistance of three directors (*Referenten*), presiding respectively over primary education, secondary education, and the universities. The education of each province is placed under the authority of a permanent Provincial School Board (*Provinzialschulkollegium*), the chairman of which is the *Oberpräsident* or highest Government official of the province. The members, four or five, who are, as a rule, directors of gymnasia or training colleges for teachers, bear the title of *Provinzialschulrat*, and act as inspectors of the secondary schools of the province. The primary schools of each province are administered not directly by this Board, but by the District Government Boards (*Bezirksregierungen*); while beneath these are local school committees (*Lokalschulbehörde*), municipal bodies, or (in country districts), elective bodies, presided over by the local clergyman, who also acts as local school inspector. The inspection of the primary schools is thus still in the hands of the clergy, Protestant or Catholic, according to the prevailing creed of the district. This is the last remnant of the once universal control of education by the Church, and the last effective hindrance to secularization and complete State control towards which things have been irresistibly moving in recent years in Germany.

Primary Schools. The public elementary schools, or *Volksschulen*, are wholly free, no fees of any kind being charged. The attendance at these schools is, of course, compulsory, unless in so far as parents elect to give their children an education, privately or otherwise, of a different kind: but even education by private tutors is now rigorously controlled by the State. The compulsory system provides for at least seven years' schooling, and, in many cases, eight. The number of children who succeed in evading this compulsory education—children, for example, of parents with no fixed place of abode—is surprisingly small: some five or six hundred. In 1914 the number of pupils in primary and higher primary schools throughout the German Empire was estimated at about 11,100,000, that is to say something over 16 per cent. of the population. [*Report of the U.S. Commissioner of Education for the Year ending June*, 1914: Vol. I (Washington, 1915.)]

School begins at 7 or 8 in summer, and at 8 or 9 in winter; and the subjects of instruction are: religion (which is obligatory in all German schools up to the age of 16), reading, writing, German, arithmetic, singing, elementary geometry, geography, natural history, nature study, and history, with physical training for boys and domestic instruction for girls. Separate schools for boys and girls only exist in very large communities. In recent years there have been developments, on English or American lines, in the direction of manual training in school workshops. To meet the difficulty, which, in view of the strenuousness of German educational methods, would appear to be a serious one, of backward pupils, auxiliary classes (*Hülfsklassen*) are organized: the number of these is increasing rapidly, and the latest statistics speak of no less than 1,800, with an aggregate of 40,000 pupils distributed over 300 towns.

There has been little or no change in the system of German primary schools in recent years, either by legislation or ordinance; in fact, the regulations drawn up by Schneider in 1872 still regulate German elementary education. The new regulations of 1901 deal, as far as the *Volksschulen* were concerned, not with the schools themselves, but only with the training and examination of the teachers. According to the latest pre-war statistics, the number of teachers in German primary schools was about 150,000 males and 25,000 females, the proportion of men to women being thus about six to one The salaries which these teachers received ranged from 1,400 marks to 3,300 marks after thirty-one years of service, together with an allowance for house-rent. The highest inclusive salary paid to an elementary school teacher might not exceed 5,000 marks. The preparation which these teachers have to undergo extends over six years, the first two or three being general or preparatory. At the average age of 17, the student enters the Normal Training College (*Lehrerseminar*), where the three years' training includes instruction in logic and psychology, as well as in the theory and practice of education; there is also plenty of opportunity for learning the practical handling of a class. At the end of this course he receives his certificate, and is appointed to a minor post. After a few years of practical experience, he may offer himself for a second examination, which opens up the way to higher positions in the *Volksschule*, or in the higher grade primary school (the so-called *Mittelschule*). The gulf that formerly separated the *Volksschullehrer* from the teacher of the secondary school is thus no longer so wide as it used to be, and the improvement in the training of the former has raised his status both socially and educationally. There is, indeed, some prospect that a certain amount of university training may ultimately be included in the primary teacher's course, or at least in that of teachers destined for the higher grade schools.

Middle Schools. The system of middle or intermediate schools (*Mittelschulen* or *Bürgerschulen*) is much more developed in South Germany and in Saxony than in Prussia; or, rather, there is a certain

difference in the use of the designation *Mittelschule* in the different States. In Prussia, the middle school is a higher grade primary school, which has a number of classes in common with the ordinary primary school: it provides a nine years' course of education, and thus serves as a preparatory school for the *Gymnasium* and *Realschule*. It differs from the *Volksschule*—and this is probably the main justification for its existence—in that fees are charged; but there are also opportunities for free education in needful cases. The necessity for this connecting link between the primary and secondary systems is not, however, felt as a very pressing one in North Germany, and it seems likely that this type of school will ultimately disappear. In Bavaria, as well as in Austria, the term *Mittelschule* is used to denote what is practically a secondary school.

German legislation has left the primary schools to develop on the old lines of more than forty years ago, and there would appear to be considerable dissatisfaction with the present state of affairs. The Social Democratic Party has, in recent years, been particularly insistent on a reform of the primary school system to meet the needs of the twentieth century. They complain that the schools have not kept pace with the population, and that those in the large towns are frequently overcrowded —how large the classes may be is to be inferred from a recent report of the Leipzig educational authorities, in which it was stated that the average size of the classes in its primary schools had been *reduced* to forty pupils. Another demand being voiced with increasing insistence before the war was that boys educated at the *Volksschulen* should be entitled to offer themselves for the examination which reduces the period of active military training to a single year. Now, as always, the question of religious instruction is a subject of acrimonious discussion; and the German educational authorities seem no nearer a practical solution of this trouble than they were in the early days of the German Empire, when the *Kulturkampf* provided the battle-cries. The so-called *Simultanschulen* (that is, schools providing "simultaneous" religious instruction in the different creeds) are carried on with a good deal of undesirable friction, and afford a solution of the difficulty which is far from satisfactory; while the movement in the direction of a purely undenominational religious instruction has, so far, not made much progress.

There is a general feeling in Germany that the goal to be aimed at is a kind of universal primary school which will minister to all classes and meet all needs, religious as well as secular. This has found expression in the establishment of so-called "Uniform Schools" (*Einheitsschulen*); but here, again, the ideal has come seriously into conflict with the realities of the problem: more particularly with the very marked social divisions and distinctions of German life, especially in the large towns. The *Einheitsschule* has not met with encouraging success, schools of this type being still few. And by the very nature of the problem, anything short of universal acceptance of the principle must be regarded as failure.

Continuation Schools. The most important developments in German primary education during recent years have taken place in the system of continuation schools (*Fortbildungsschulen*). Attendance at such schools has now been made compulsory by ordinance; and this has naturally given them an entirely new significance for the education of the people. In Hamburg, for instance, all boys who have "absolved" the *Volksschule*, must attend such continuation schools until they are 18. The most recent Bavarian regulations enjoin compulsory education on all children from their sixth to their sixteenth year; and of this period, seven years must be spent in the elementary school and three in the continuation school. Girls who are not, at the age of 10, sent to a higher grade elementary school, or at the age of 13 to a preparatory school leading to a teachers' seminary, must attend the elementary school until they are 14. If they do not then enter a voluntary school for training in commercial, industrial, or household subjects, they must attend a continuation school until they are 16. The continuation schools are naturally held, as a rule, in the evening; and two types are distinguished: Continuation schools for general education (*Volksfortbildungsschulen*), and continuation schools in preparation for a trade or vocation (*Fach-* or *Berufsfortbildungsschulen*). The fees charged are extremely low, only amounting to a few marks per month.

It is recorded that in 1912 Berlin maintained ten continuation schools, comprising 978 classes and attended by 34,319 pupils, more than a third of the classes, with about the same proportion of pupils, being for general education; and the annual cost to the city was about £40,000. In 1914 the city of Munich had no less than fifty-four special "Trade" schools for boys, each representing a separate trade or industry; and eleven continuation schools for general education, which also provide training in manual work. The number of pupils was 10,916, divided over 428 classes; and the cost about £80,000. For the whole of Germany, the latest available statistics place the number of continuation schools at 26,621, with 1,342,825 pupils, 16,535 of these (with 591,516 pupils) being for general education. (*Report of the U.S. Commissioner of Education for* 1914, Vol. I, p. 742.)

In connection with these continuation schools, mention might also be made of a development of popular education initiated by the universities on the model of the English University Extension Courses (*Volkshochschulkurse*). These, however, do not seem to have met with much favour or success in Germany; and German educators attach more weight to a form of popular university education similar to the People's High Schools of Scandinavia, which are somewhat analogous to the Ruskin College at Oxford. These *Volkshochschulen* in Germany are framed on lines which appeal to the broad masses of the rural population, and aim at affording not merely intellectual, but also moral, education.

The Secondary Schools. German secondary education shows a much greater divergence from the system with which we are familiar in England than is to be seen in primary education. To begin with, the German higher schools are, with very few exceptions, State schools, the number maintained by private endowment being exceedingly small; and all are subject to Government supervision: they are also, with few exceptions, day schools. These exceptions, and as such the nearest German analogues to the English public schools, are the famous *Fürstenschulen* of Saxony, at Schulpforta, Meissen, and Grimma, endowed in 1543 out of the abolished monasteries; and a few monastery schools (*Klosterschulen*) in South Germany.

The German secondary schools are of three types: *Gymnasium*, *Realgymnasium*, and *Oberrealschule*. The co-ordination of these schools, which alike lead

to the university, dates from Regulations issued in Prussia in 1901. The distinguishing characteristic of the *Gymnasium*, or classical school, is the predominance of the classical languages: the *Gymnasium* is the direct heir of the old *Lateinschule*, or grammar school. The *Realgymnasium* is a first-grade semi-classical school, which does not include Greek in its curriculum. Its main subjects are Latin, modern languages, and natural science, Latin being regarded as the educational basis. Lastly, the *Oberrealschule* is a purely modern or non-classical school of the highest grade, which teaches neither Latin nor Greek, and makes a special feature of modern languages, mathematics, and natural science: here French is regarded as forming the educational basis. German language and literature, history and religion, are common to all three types of schools; and in respect of religious instruction, they are strictly undenominational or *simultan*.

Curriculums. The school day begins at 7 or 7.30 in summer, an hour later in winter. The average number of pupils in each school is 400 to 500, and fees are charged. Each school is divided into three stages of three classes or forms each. The First or Lower Stage includes the Sixth, Fifth, and Fourth forms [*Sexta*, *Quinta*, *Quarta* (the names of the classes bear the traces of the old six-class organization of the German *Gymnasium*)], the average age of the pupils in these forms being respectively 9, 10, and 11. The Second or Intermediate Stage embraces the Lower Third (*Untertertia*), Upper Third (*Obertertia*), and Lower Second (*Untersekunda*), the ages being, as a rule, 12 to 14. The Third or Upper Stage includes the Upper Second (*Obersekunda*), Lower First (*Unterprima*), and Upper First (*Oberprima*); ages, 15 to 17. The syllabuses and time-tables of these schools are fixed by the State; but not in detail. Considerable latitude is left to the teacher to develop the work of his form on his own lines, and to choose his own class-books. The general apportionment of time in the *Gymnasium* is per week: religion, two hours; German, for the most part, three; Latin, eight in the lower, seven in the higher forms, while six hours are devoted to Greek from the *Untertertia* onwards; French, begun in the *Quarta*, receives in the higher classes, three hours; history, from two to three; geography, which begins with two hours, is reduced in the *Tertia* to one; arithmetic and mathematics have, as a rule, four hours; natural science, two; writing and drawing, two, in the lower classes only. The *Realgymnasium* differs from the *Gymnasium* in so far as there is no Greek, and Latin is reduced, from *Sexta* to *Tertia*, from eight hours to five, and in the highest classes to four; French receives four hours throughout; English, three, from the *Untertertia* onwards; mathematics, five hours instead of four, from the *Untertertia* onwards; while natural science is increased to four and five hours from the *Untersekunda* onwards. Drawing has two hours a week in all classes. Finally, the *Oberrealschule* devotes an extra hour to German; French is begun in the *Sexta*, and receives six hours to the *Untertertia*; in the highest classes it is reduced to four; English, begun in the *Untertertia*, gets four hours. Mathematics has slightly more time than in the *Realgymnasium*), and natural science an extra hour in the four highest classes.

After the completion of a six-years' course of study (that is to say, on his promotion from *Unter-* to *Obertertia*) the pupil obtains his *Einjährigfreiwilliges Zeugnis*, or *Einjährigenschein*, which entitled him to serve, at his own expense, in the army for a period of only one year. The culmination of the school career is the passing of the Leaving Examination (*Abiturientenexamen*, or *Reifeprüfungszeugnis*), usually in the pupil's eighteenth year. This examination, which was due to Wilhelm von Humboldt in the first instance, is the sole passport admitting to a university career, and, consequently, to the professions and the higher branches of State-service.

In addition to these three main types of secondary schools, there are supplementary *Progymnasia* and *Realprogymnasia*, which offer a six-years' course up to and including the *Untersekunda*; but such schools are not very numerous. On the other hand, a very common type of secondary school of lower grade than these is the *Realschule*. The *Realschule* differs from the *Oberrealschule* in so far as it lacks the three—in some cases, only two—highest classes. It corresponds to the old Second Grade *Realschule* (*Realschule zweiter Ordnung*); or to what was, from 1859 to 1882, called, in Prussia, the *Höhere Bürgerschule*, or Higher Grade Middle Class School; while the modern *Oberrealschule* is the development of the *Realschule erster Ordnung*.

General Organization. There are separate secondary schools for boys and girls, except in certain South German States, such as Baden, Hesse, and Württemberg, where girls are admitted to the *Gymnasia* in towns if the population does not justify the establishment of separate schools for girls. But the corresponding girls' schools (*Höhere Töchterschulen*, *Lyzeen*, *Oberlyzeen*) do not stand on the same level as the boys' schools; and it is a matter of justified complaint that a girl cannot obtain the final certificate entitling her to enter the university in less than thirteen years from the beginning of her schooling, whereas a boy obtains it in twelve. According to the statistics of 1911, there were in that year 605 *Gymnasia* and *Progymnasia* in the German Empire; and 1,082 *Realschulen* and *Realgymnasia*, these figures also including the "Reform" schools to be mentioned immediately. The number of pupils in the three types of schools equipped with a nine-years' course was 306,426, of which 53 per cent. attended *Gymnasia* and 47 per cent. *Realschulen*. In schools with only a six-years' course, 92 per cent. of the pupils attended the *Realschulen* and *Realgymnasia*. (These statistics, the latest available, are from the *Kommunal-Jahrbuch*, 1913–14, p. 362.)

The salaries paid to *Oberlehrer*, as the teachers in these schools are called, begin at 2,700 marks and rise to 6,000 marks, an additional sum—from 560 to 1,300 marks—being allowed for house-rent. The *Oberlehrer* must have studied at least three years at a university, and after the lapse of a number of years' service he is entitled to receive the title of Professor. The head master of a German school is designated *Direktor*, and his salary may rise as high as 7,200 marks. It need hardly be added that these figures are now much larger owing to the depreciation of German currency.

The system of secondary education which has just been described has been long enough at work to allow of a fair estimate of its advantages and disadvantages; and it appears not improbable that further changes will be made in it in the immediate future. The strict differentiation of the three types of schools has tended to each type becoming stereotyped, or developing in the direction of greater specialization: the *Gymnasium* is becoming more

and more definitely stamped as a classical school, while the *Oberrealschule* tends to become increasingly "modern," even ranging itself hostilely against the *Gymnasium*; it has, one might say, declared open war on the study of the classics. The *Realgymnasium*, standing as it does between these two extremes, is placed in an awkward dilemma; its very existence is threatened, and Professor Paulsen foreshadows a fusion of *Oberrealschule* and *Realgymnasium* as one of the things likely to happen in the future. As matters stand at present, however, the want of elasticity in the German secondary school system is felt as a serious drawback; the strict subdivision of higher school education into three types of schools has forced parents to decide the future careers of their boys at the early age of 9 or 10, before it is possible to form an opinion of their special aptitudes. It is true, the lower classes of the *Gymnasium* and *Realgymnasium* run sufficiently parallel to admit of a change from one to the other; but a change from the *Gymnasium* to the *Realschule*, or *vice versâ*, is difficult at any stage without causing a serious check to the boy's education.

It has been to meet this disadvantage that the so-called *Reformgymnasia* and *Reformrealgymnasia* have been instituted. These schools aim at a common curriculum for both classical and modern education for the first three years. The basis of this reformed curriculum is drawn rather from the *Realschule* than from the *Gymnasium*; that is to say, French is the foundation of language-study, not Latin. At the end of these three years the choice is open to the boy of proceeding on *Gymnasium* and *Realgymnasium* lines; that is, taking up Latin, or beginning English and passing to natural science—the course of the *Oberrealschule*. The question as to whether the pupil will complete his education in a *Gymnasium* or a *Realgymnasium* has, according to this system, not to be decided for another two years—five from the beginning—when the future *Gymnasiast* takes up Greek, the *Realgymnasiast* English. This is the so-called Frankfort system. Another system, associated with Altona, is slightly different, English being begun a year earlier; but its object, that of delaying the final decision as to the pupil's career, is the same. The most recent available statistics state the number of "Reform" institutions at 184, of which 26 only develop in their highest classes on *Gymnasium* lines, the remaining 158 are *Realschulen*. These schools have naturally the same privileges and advantages in respect of *Einjährigenschein* and *Abiturientenzeugnis* as the normal types. There is no question but that secondary schools of the reformed type will develop rapidly in the future. Meanwhile, attempts are also being made to render the course of study at the recognized types of schools more elastic, by permitting optional courses and making provision for a certain amount of adaptation to the tastes and talents of the pupil: the boy who is intellectually unsuited to follow the routine laid down for the majority has now a better chance of making his mark in life than he had before the "reform" movement was introduced.

Some Criticisms. Looking at German school education as a whole, one must recognize its extraordinary thoroughness and efficiency; it stands easily first among the educational systems of the present day. Most praiseworthy of all is perhaps the determination of the German educational authorities not to lose sight, in spite of the increasing demands for a "practical" education, of the real end of education, the training of the mind. Thus, whatever changes are likely to be made in the system, will be in the direction of developing, not superseding, present conditions. At the same time, the foreign observer can hardly avoid the conclusion that the thoroughness of German education is bought at the price of a strain on both body and mind of the children, which is much more severe than is to be found in other countries. The number of hours weekly and the number of school-days in the year are exceedingly high. In higher classes, thirty hours distributed over all six working days are not unusual; and German school-holidays amount altogether to at most twelve weeks in the year. In order to get the full value out of this school period, a rigorous discipline is enforced. The Germans themselves are not blind to the dangers of this overtaxing of their children; and the rigour, especially of elementary education, has, in recent years, been a subject of increasing discussion. By one party the system is claimed as providing a groundwork for the magnificent discipline of the German people, their amenableness to authority: qualities which, in view of the comparatively recent welding of the country out of heterogeneous elements are rated particularly high in the national character. By others again, it has been accused of seriously undermining the physical health and stamina of the people at the cost of mental development—blamed for the increase of shortsightedness and other physical defects; and, gravest charge of all, the extraordinary high number of suicides of children in their later school years has been put down to the rigour of school discipline and mental strain. The system also reacts on the national life in other ways. The constant incentive to mental effort would seem, for instance, to induce a "priggishness" and *Strebertum* which, unnatural and disagreeable in the child, is apt to develop in mature life into arrogance and ruthlessness in a man's dealings with his fellow-men. A further condemnation of the system is to be read out of the peculiar rebound, when, with the passing of the *Abiturientenexamen*, the strenuous discipline of the school is suddenly removed, and the boy becomes a student of the university and is "free." This freedom takes upon itself in an appalling number of cases a form not far removed from dissoluteness.

These evils have all been clearly recognized in Germany, although there is a reluctance to ascribe them to defects in the school system. At the same time, efforts have been made to improve the system by lessening the rigour of school life, giving it some of the attractiveness which it possesses in England and America, and making it a period of life on which the grown man or woman looks back with pleasure. A less disciplined nature study is becoming an increasing feature in elementary schools; more care is being devoted to the making of German school-books—a matter in which the Germans have been hitherto so strangely behindhand—which are now more attractive and better adapted to the young growing mind than they were twenty years ago; and school games are now regarded as an essential element in German school life. Doubtless the future will bring many healthy developments on these lines; but, in the meantime, the pedagogic mind in Germany experiences considerable difficulty in abandoning its old domineering and hectoring attitude towards the child. Even in the matter of school games, there is a tendency to carry into them

too much of the pedagogy of the schoolroom. The opportunity, which seems in our eyes so important, of encouraging by means of games, individual initiative, self-reliance, and of inculcating fair-play, is not taken advantage of.

A still wider question is the general bearing of this admittedly very thorough educational system on the population as a whole. One can hardly imagine a scheme being devised which would, as it were, bring greater pressure to bear on the population to take every advantage of it. The high respect which book learning inspires in all classes acts as a general incentive; while the fact that this book-learning reacts immediately on the social status of the young man—absolving him under the old regime from the lengthy military service of the "unlearned," providing him with a leaving certificate which renders him eligible for the higher careers, and conferring on him the coveted title of doctor, forms an immediate and irrestible stimulus. The effect of all this is what, for good or evil, must be described as over-education; that is to say, boys are too often kept at school longer than is consistent with their station in life, with the consequence that there is a glut of eager candidates for occupations and offices to which a good education is a necessary passport. The pressure on all the learned professions in the years immediately preceding the Great War had reached an almost intolerable pitch; and the State was confessedly unable to provide for the future of the thousands of young men turned out every year fully equipped by the universities. It is thus no wonder that the emoluments of the higher official and professional classes, so far from rising with the increase in the cost of modern life, remained stationary, and even in some cases were reduced. It is true, there has been a certain outlet owing to the wise demand for intellectually-trained men in commerce and industry, where the prospects have certainly been alluring; but here, too, the over-education of the proletariate has led to difficulties, and it is a constant complaint in industrial circles that it is easier to find masters than men. Here lies, no doubt, a serious problem which the educational authorities of the future in Germany will be obliged sooner or later to face.

The Universities. The German universities represent the most imperial aspect of German education. For although, like the schools, they are under the immediate jurisdiction of the State to which they belong, the complete freedom of interchange, both of teachers and students, has created ties and uniformity of aims and ideas such as exist in no other department of German education.

Professor Paulsen, in his standard work on the German universities, distinguishes three types of university: the English, as represented by Oxford and Cambridge; the French; and the German. He holds that the German university stands, in system and organization, midway between the English and the French type. Its special characteristic is that, besides being an institution for the highest scholarly and scientific instruction, it is at the same time a centre for research and investigation. The German professor is not merely a teacher, but also a scholar and investigator; his function as a servant of the State is twofold: he must instruct, and at the same time advance his particular branch of study or science. "In this unity of research and instruction lies the peculiar character of the German university."

The German universities are State institutions, but with a considerable amount of self-government. Prussia has ten universities: Berlin, Bonn, Breslau, Göttingen, Greifswald, Halle, Kiel, Königsberg, Marburg, Münster; Bavaria has three: Munich, Würzburg, and Erlangen; Baden two: Heidelberg and Freiburg. The other States have one each, namely: Saxony, Leipzig; Württemberg, Tübingen; Hesse, Giessen; Saxe-Weimar, Jena; Mecklenburg-Schwerin, Rostock. To these has now to be added Frankfort-on-Main, where the former Academy of Social and Commercial Sciences was converted into a university in October, 1914, and Hamburg.

Organization. The present organization of the German University and the new ideals that inspire it date, in large measure, from the foundation of the University of Berlin in 1810, under the far-seeing guidance of Wilhelm von Humboldt. The organization is comparatively simple. The connecting link between State and university is represented by a *Kurator*, whose powers are considerable, especially on the side of financial control; but the nominal head of the university is the *Rektor*, who has the title of *Magnificus*, and is chosen for a period of one year from among the professors. In some universities the reigning sovereign or a royal prince is *Rektor*, in which case the actual administrative functions are carried out by a *Prorektor*; otherwise the *Prorektor* is the *Rektor's* immediate predecessor in office. The professors are divided into *Ordentliche* (or "full" professors) and *Ausserordentliche* ("extraordinary" professors); there are also *Honorarprofessoren* or *Titelprofessoren*, who are usually lecturers on whom the title of Professor has been conferred. The *Ordentliche* professors alone form the faculty (*Fakultat*), at the head of which sits the *Dekan* or Dean, a rotatory office like that of *Rektor*. The *Ordentliche* professors are also alone concerned with the examining and administrative work of the faculty. The pre-war salaries of full professors began at 4,800 marks in Berlin, 4,000 marks elsewhere, and might rise with length of service to 7,000 marks and 6,000 marks respectively; but these sums were increased by an allowance for house-rent and by the often very considerable income accruing from lecture fees. The *Ausserordentliche* or "extraordinary" professors have no vote on the faculty, but they are, as a rule, in receipt of a small salary, outside the fees paid to them for lectures. The third class of teacher, which may perhaps be regarded as the most vital feature of the German university system, is the *Privatdocent*. The *Privatdocent* is a private lecturer who has obtained permission to lecture (*venia legendi*) by laying before the university evidence of his ability and scholarship in the shape of a *Habilitationsschrift*. He receives no salary, but is entitled to the fees which are paid by those who attend his lectures. His obligations to the university are correspondingly slight, being practically limited to taking advantage of the privilege that has been conferred upon him. The importance of this form of lectureship is that it gives a young man who aspires to an academic career an opportunity of gaining experience and winning a reputation; while it provides the universities with a body of young teachers from which the higher posts are replenished. At most universities there are also a number of salaried lecturers or *Lektoren*, mostly foreigners, teaching modern languages.

The all-important executive body of the German university is not the Senate but the Faculty; and

most of the universities have the four Faculties of Theology, Arts (called, in Germany, the *Philosophische Fakultät*), Law, and Medicine. Some however, show a variation on this norm. In Bonn, Breslau and Tübingen, there are two theological faculties, one Protestant, the other Catholic; in Münster, Munich, Würzburg, and Freiburg, only a Catholic faculty; in the other universities only a Protestant one. Some universities, again, have created a special faculty for mathematics and natural science; in Munich there is one for political science.

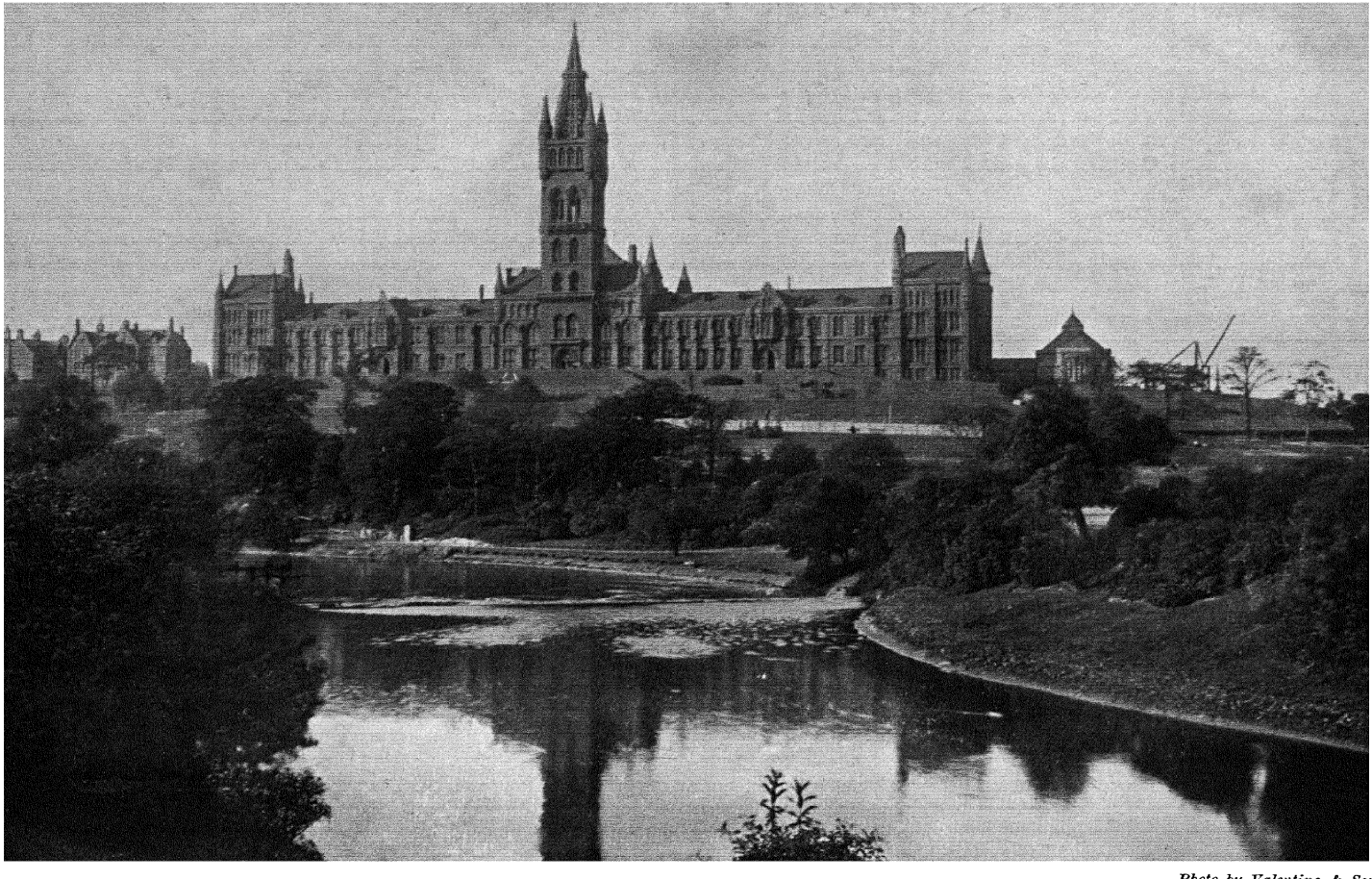
As regards the students, the university presents, as has already been indicated, the greatest possible contrast to the school in Germany. Whereas, in the latter, discipline and restraint are carried to a degree unexampled elsewhere, the German university student rejoices in a freedom equally unprecedented. The portal of the university is the *Abiturientenexamen*. Permission to attend courses may be granted to students not possessing this qualification; but such "guests" (*Hospitanten*) have no academic standing; they are not encouraged, and their study leads nowhere. Once the young man has his Leaving Examination behind him, all restraint ceases. He becomes a matriculated student and enjoys complete *Lernfreiheit*, that is to say, he may attend whatever courses he likes, attend as irregularly as he likes, and no questions are asked. His university course is wholly untrammelled by examinations until its close. The *Lernfreiheit* is not, however, quite so great as it seems, in so far as the student who has a profession in view, or the attainment of a degree, must necessarily submit himself to a certain regulated course; and, as a matter of fact, it is usual for him to follow the advice of his professors in such things.

The German universities distinguish carefully, at least in the Faculty of Arts, between academic education and professional education. The legitimate end of the student's purely academic career is the acquisition of the degree of "doctor of philosophy," the only degree now retained by the German universities. This is usually obtained after the completion of three years' study (six *Semesters*), not necessarily all at one and the same university, and usually, in fact, at at least two universities. The candidate has to present a dissertation contributing to the advance of knowledge, which in Germany (not in Austria) has, if accepted, to be published; and to submit himself to an oral examination in one principal subject (*Hauptfach*) and two subsidiary ones (*Nebenfächer*); in the Prussian universities, one of these subsidiary subjects must be philosophy. This degree is an academic title and nothing more: it confers no professional advantages or privileges. The examinations leading to the professions are entirely separate and not conducted by the universities, but by the State (*Staatsexamina*), although naturally the university professors are largely represented on the State *Prüfungskommission*.

University teachers throughout Germany are entitled to the fees they draw for their so-called "private" lectures; but all professors paid by the State are required to hold in each term at least one course of public lectures, for which no fee is charged. Lectures form the staple form of instruction; but practical class-work is not unknown; and a very important feature of the German teaching is the *Seminar*. The *Seminar* is for the student of humanistic learning what the laboratory is for the scientist; and it is in the *Seminar* that the most important work of the German university is carried out. It offers a training in the methods of research and investigation; and the work is conducted less on pedagogical lines than in the spirit of pure scholarship. The professor does not teach, but rather works with his students, guiding and advising them, and criticizing the results of their work, which are laid before and discussed by the whole class.

The German universities have shown themselves more reluctant to admit women-students than any other universities of Europe. Only by slow degrees and obstinate fighting have academic privileges been won for women. It is true, women have, for a considerable time, been admitted as "guests" (*Hospitantinnen*) to lectures at the discretion of the lecturers; but this is obviously very far from throwing open university careers to women. In this respect, the most advanced German States have been Baden and Bavaria, which were the first to permit women possessing the qualification of the school-leaving certificate to matriculate and pursue university careers on the same conditions as young men.

General Considerations. Magnificent as has been the intellectual achievement of the German universities in the past, there has, in recent years, been considerable criticism of the system and organization, a criticism which possibly foreshadows certain developments calculated to adapt them better to the immediate needs of the present. The two cardinal doctrines of the system, *Lernfreiheit* and *Lehrfreiheit* have been repeatedly assailed. This freedom of learning, it is held, is a distinct disadvantage to the German student—at least, following, as it does, so suddenly on the very "unfree" state of the *Gymnasium* or *Realschule*; and there is a strong movement in academic circles for the institution of a kind of intermediary stage between the school and the university proper, something similar to the "college" of the American system. With the doctrine of *Lehrfreiheit*, there is less reason —at least from the standpoint of the universities— to quarrel; but it might be pointed out that the nature of government in Germany rendered, at any rate, before the War, such *Lehrfreiheit* in a State institution illusory, at least where the subjects in question were vital to the State. There was, for instance, only one kind of history, politics, political economy which the German Government could permit its future officials to be taught; and there could be no question here of *Lehrfreiheit*. The case of a lecturer in physics, Arons, who was dismissed from the University of Berlin because he happened to share the political views of the Social Democratic Party, is not forgotten. It is, however, obvious that, without actual interference with this privilege, the dangers, from the point of view of the State, could be adequately coped with owing to the fact that the promotion and appointment of professors lie exclusively in the hands of the State—the faculty concerned being only required to submit to the Ministry two or three "recommendations," which need not even be accepted. Germany, again, points with pride to the fact that, with rare exceptions, all her intellectual achievement has been done under the aegis of her universities; the greatest scholar or scientist is regarded as the most suitable university professor. The advantages of young minds being thus brought into immediate touch with the intellectual leaders of the nation are very great; and it must be admitted that, after the long and thorough school training



Glasgow University

Photo by Valentine & Sons

PLATE XLIII

which the German undergraduate has undergone, he does not stand so much in need of "teaching" as the undergraduate in other lands. At the same time, the tendency to underestimate the value of teaching power, the gift of imparting knowledge, has its disadvantages; many university chairs are rendered sterile by being occupied by men—it may be of enormous learning and reputation—who have neither the ability nor the inclination to teach, whose lectures are merely unpublished text-books dictated to their classes, and who regard their position as existing solely to further their own research and scholarship. The aim of the university and its *Seminars* is to turn out scholars, not practical men, such as teachers, lawyers, clergymen, physicians. And in the increased struggle for existence, the German student who is looking forward to a professional career, is beginning to demand greater consideration for his practical needs, and at the same time a wider and more encyclopaedic view of knowledge than the over-specialized departments of the universities are prepared to give him. Thus the cry becomes every year more insistent that the staffs of the universities should be at least leavened with teachers who are prepared to meet purely practical needs, or at least combine the practical with the ideal. Moreover, it is open to question whether the German identification of the highest scholarship and investigation with the teaching and controlling forces of the university is altogether wise. It leads to a kind of intellectual arrogance in the higher walks of education, to an accentuation of that caste-spirit which permeates German society and finds its outward expression in the multiplicity of titles; it cannot be good for education as a whole. The university professor is an object of almost superstitious respect: he is the embodiment of that specialized learning which is regarded as the pinnacle of education. But if the facts are looked fairly in the face, this attitude of mind is rarely justified. The German professor has attained his position by single-minded and exclusive devotion to his *Fach*, or even only to a small portion of it; he is, as a rule, anything but a man of the world with a wide outlook on affairs. Thus it is very questionable if he is always the best guide for young men setting out in life; and there are, no doubt, lacking in the training which the German university offers to its students, those features which in other lands make for national strength and for the wise conduct of the individual life.

In conclusion, some mention must be made of other institutions in Germany analogous to the universities. Recent years have seen a rapid advance in the organization and popularity of technical universities (*Technische Hochschulen*), of which there are now nine, all situated in large centres of population: in Berlin (Charlottenburg), Hanover, Aachen, Dresden, Stuttgart, Munich, Karlsruhe, Darmstadt, Brunswick; while two new institutions were planned, before the war, for Danzig and Breslau. The number of students exceeds 20,000. To these technical universities have to be added numerous mining academies, schools of forestry and agriculture, and veterinary colleges, as well as commercial academies at Cologne, Leipzig, and Frankfort, the last of which has just been converted into a university. The technical universities are empowered to grant degrees, to which they have added the new title of Doctor of Engineering (*Doc. Ing.*). On the whole, however, these institutions are organized on much more practical lines than the universities proper; abstract research is less in favour, and lecturing in the university sense is, in the main, restricted to the historical and philological branches of study which are included in their curriculums. J. G. R.

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GESNER, JOHANN (1709–1790).—A native of Zurich, and an enthusiastic student of natural history, who made excursions to the mountains of Switzerland to study natural science. He became doctor of medicine; and lectured at Zurich on anatomy, natural history, and mathematics; founded the Physical Society at Zurich, and wrote treatises on natural history, especially on the parts of vegetation and fructification, on a botanical thermoscope, and on the motions and powers of the body.

GESTURE LANGUAGE.—This is the organized use of mien and gesture for the expression of the thoughts and feelings. Facial movements and gestures to emphasize and to supplement vocal speech, play an important part in the expression of feeling among the peoples of Southern Europe.

GHENT, THE UNIVERSITY OF.—(See NETHERLANDS, THE UNIVERSITIES OF THE.)

GHETTO SCHOOLS OF LONDON, THE.—In the record of educational progress, the Ghetto of London has long maintained an enviable reputation. The Jew of the Ghetto regards the efficient education of his offspring in the light of a religious obligation. He does not hesitate to regard his syngagogue as a debating centre, and at the close of service will employ argument in pressing home a theory. So great is his thirst for knowledge, that the Ghetto street tradesman who peruses his classics whilst awaiting his clients, is a spectacle long divested of novelty. It follows that this keen appetite for knowledge should be transmitted to his offspring; and schools in the Ghetto, by reason of their numbers, stand four-square in the face of that Talmudical rebuke—

"The place that is of schools devoid
Is surely doomed to be destroyed."

Opinions differ as to the date of the first Jewish settlement in these Isles; but, between the period that spans their assumed settlement in 1070 and their banishment in 1290, we have little or nothing to shed light on the educational provisions of the Anglo-Jewish pioneers. The dawn of Jewish educational history in England may be said to have broken in the seventeenth century, with the hardly perceptible immigration of Hispano-Jewish refugees, who had fled from the tortures of the Inquisition and sought sanctuary upon these shores before the Jewish right to re-settle had been legally recognized. These visitors from Spain set to work to organize their community on a firm basis, after the necessity for worshipping in secret had at length been dispensed with.

Pioneer Jewish Schools. The Ghetto of the day, and for at least a couple of centuries subsequently, had its being in the Ward of Portsoken; and here, in King Street, Aldgate, in 1664, the first Ghetto school came into existence. The newcomers—subsequently known as the "Sephardim," natives of Spain, by way of distinguishing them from the "Ashkenazim," or Jews from Germany and Poland who came in their wake, and adhered to a slightly different ritual—gave their establishment the poetic name of *Ngetz Hayyim* ("The Tree of Life"), its purpose being the study of the Law of Moses and its commentaries. In the same year was added the "Gates of Hope" School, which had for its object the educating, clothing, and apprenticing of the sons of indigent members of the Spanish and Portuguese Jews' Congregation. With 1735 came the decision to add a "Writing School," the sum of £20 per annum being set aside for the teaching of English. Until 1885, the scholars at Heneage Lane, descendants for the most part of the original pupils, continued to receive a thorough religious and secular education. After that period, secular instruction was dispensed with, the scholars attending the day schools in the neighbourhood, though continuing to receive Hebrew instruction at Heneage Lane twice weekly.

Characteristics. The method of administering this pioneer Jewish school suggests that a number of latter-day innovations were anticipated long ago. Pupils had to submit to a periodic medical inspection, and on stated occasions received the attentions of the school dentist. There were charity clothes for needy boys, garments for week-days, and "best clothes" for Sabbaths and festivals, the latter being returned to the school cupboards at the close of Sabbath or Holy day. There was, of course, a girls' department to the Ghetto's oldest school. Founded, in 1730, by Ishac da Costa Villareal, the subjects of instruction included "the Hebrew prayers, reading, writing, counting in Spanish and English, and needlework." With the early nineteenth century came the establishment of the National and Infant School; within late years the decrease of this little community has impaired its one-time exclusiveness, so that those now partaking of the facilities offered at Thrawl Street, E.1, are recruited largely from the ranks of the once-despised "Ashkenazim."

Profiting by the example of their Sephardic brothers, the Ashkenazim made for these shores in a steady stream, establishing the synagogues and schools without which existence was unthinkable. The forerunner of the present Jews' Free School, which came into being in 1817, was a Talmud Torah, established as far back as 1770. The Ghetto of West London had its educational needs met by the establishment of the Westminster Jews' Free School in 1811, since when kindred establishments have sprung up in all parts of London, the East End being especially favoured in this regard.

Ghetto Schools of To-day. Ghetto schools of to-day may be said to include: Council schools, the pupils of which are largely Jewish; Talmud Torahs, at which the essentials of Hebrew and religion are taught, as well as the more advanced subject of Rabbinical commentary; Chedarim, private Hebrew schools, largely supported by the foreign element, by reason of the individual tuition afforded; Hebrew schools for boys and girls, where the ancient Jewish tongue is exclusively used as a spoken language; and classes under the auspices of the Jewish Religious Education Board, in which Hebrew and religion are taught on Sabbaths and week-days. The Talmud Torahs (there are two in Spitalfields, with a combined roll of about 1,500) and the Chedarim may be regarded as a concession to that immigration from Eastern Europe, which has grown in volume since 1880, and brought in its train a desire for a more advanced form of Hebrew instruction than was at that time available in the public schools. Another importation from Eastern Europe was the Yeshiba, or Rabbinical seminary, at which youths of humble parentage receive gratuitous preparation for the ministry. London possesses one of these institutions; its former home was the upper portion of a Ghetto tenement. Now it is housed in a more suitable establishment in the neighbourhood of Aldgate. The educational record of this modest Yeshiba is especially brilliant; and it is noteworthy that, as with the major portion of the East End Jewish schools, it is maintained by the pence of the very humblest. G. COSTA.

GILBERT, SIR HUMPHREY (1539–1583).—One of the most famous of the Elizabethan navigators; was born at Dartmouth; and in Elizabeth's reign lived at Compton Castle, near Torquay. He was half-brother of Raleigh and an intimate friend of Sir Richard Grenville. After serving in Ireland and

the Netherlands as a soldier, he turned to the subject of navigation and exploration; and in 1576 published a *Discourse to prove a Passage by the North-west to Cathay and the East Indies*. In 1578 he obtained a royal patent to discover and occupy remote heathen lands, but his expedition (1578–1579) proved costly and unproductive, ruining his estate, and from the start being doomed to failure by mutiny and dissensions. In 1583 he started again, intending to discover the North-West Passage. His expedition safely reached Newfoundland, which was annexed in the name of Elizabeth. From Newfoundland the expedition sailed southward, but soon lost all ships except two, the *Golden Hind* and the *Squirrel*, the last a vessel of only 10-tons burden. Worn out with hunger and want of clothes, the crews persuaded Gilbert to sail towards England on 31st August. Heavy storms were encountered, and off the Azores the *Squirrel* foundered (Sir Humphrey going down " book in hand " and crying out to his men: " We are as near heaven by sea as by land") 9th September, 1583. Kingsley gives an account (taken from Hakluyt) of the expedition in *Westward Ho !*

GILCHRIST EDUCATIONAL TRUST, THE.— The Gilchrist Educational Trust was founded in 1865 for the administration of funds left under the will of Dr. Thomas Borthwick Gilchrist, and assigned by him to educational purposes.

Dr. Gilchrist was born at Edinburgh in 1759. After a short visit to the West Indies, and a few years devoted to the study of medicine at Edinburgh, he entered the service of the East India Company as Assistant Surgeon; but, becoming impressed with the importance to Europeans of a knowledge of Eastern languages, he obtained leave of absence, and devoted the best years of his life to that object. By living in native dress among the Hindoos, he acquired a knowledge of their language that enabled him to compile the first dictionary of Hindustani. This was published by the Calcutta Press, but at such cost to Dr. Gilchrist as to cause him serious financial embarrassment, which he made a not very successful attempt to relieve by becoming temporarily an indigo planter. Later, at the age of 40, he was appointed to the Chair of Hindustani at the Marquis Wellesley's College at Calcutta; but, five years later, compelled by serious illness to resign, he returned to England. The rest of his life was occupied in lecturing, in publishing works on Oriental languages, in founding with James Inglis the Commercial Bank of Scotland, and in giving his whole-hearted support to many educational schemes. He died at Paris, in 1840, at the age of eighty-one.

Dr. Gilchrist's faith in education as a leading factor in the progress of civilization was shown in the terms of his will, by which he left the bulk of his property in the hands of Trustees, empowering them to appropriate the fund " in such manner as they should, in their absolute and uncontrolled discretion, think proper for the benefit, advancement, and propagation of Education and Learning in every part of the world." The sum the Trustees ultimately found at their disposal was rather more than £100,000, chiefly derived from shares in the Commercial Bank of Scotland, and from the sale of land at Sydney, N.S.W., bought many years before at a very low price.

The five original Trustees were nominated in the will; vacancies have since been filled by nomination by those remaining on the Trust. The roll includes, among other distinguished names, those of George Grote, Lord Playfair, Lord Frederick Cavendish, Lord Reay, Alfred Lyttelton, and Professor Stuart. The present Trustees are Lord Shuttleworth (Chairman), Dr. Walter Leaf, Mr. Michael Sadler, Mrs. Bryant, and Lord Richard Cavendish. In the course of their work, the Trustees have been indebted to the educational experience and energy of two distinguished men: Dr. W. B. Carpenter and Dr. R. D. Roberts, who acted as Secretaries for twenty and twenty-six years respectively.

Scope of the Trust's Educational Work. It would clearly have been impossible for the Trustees, with the limited funds at their disposal, to undertake the entire responsibility of any wide scheme of educational work. Since Mr. Forster's Act of 1870, and especially since Mr. Balfour's Act of 1902, the nation has recognized such work as its own proper concern. The Trustees have always felt that there was room to give support to educational objects of a pioneer character, the utility of which was not at first recognized with sufficient clearness to ensure their general support, but, in the judgment of authorities, containing promise of success. They have accordingly helped a number of such objects by grants, and in the majority of instances have had the satisfaction of seeing a success achieved that has earned their general recognition and enabled them to dispense with further assistance from the Trust. Thus, the Trustees early recognized the importance of the movement for the higher education of women, and assisted it by founding scholarships at Girton and Newnham Colleges, and other scholarships for women in association with the degrees of the University of London. Many other scholarships and studentships for both men and women have been founded since. Some given formerly have now been withdrawn, as the development of the work of universities, colleges, and the Board of Education has rendered their continuance of less importance. Among these may be mentioned scholarships to assist natives of India and of British colonies to follow, in the absence of suitable educational opportunities in their own countries, courses of study at universities in England and Scotland, and travelling studentships to enable teachers in secondary schools to study and report upon foreign educational methods. The last, rendered unnecessary by the encouragement of similar schemes by the Board of Education, have been superseded by studentships to enable intending teachers of modern languages, who have taken an honours degree at a British university, to spend a year at a foreign university before beginning scholastic work. Other objects to which the Trustees have given substantial support are the University Extension Movement, in the initiation of which the late Secretary, Dr. R. D. Roberts, took a prominent part; and the system of Tutorial Classes arranged jointly by the Universities and the Workers' Educational Association.

An early foundation of the Trust was the establishment of a series of popular lectures, and by these its work is most widely known. Series of five lectures each, generally dealing with matters of scientific interest (though, especially in later years, subjects of humanitarian interest have been included), have been given in all the large towns of England, Wales, and Ireland, and attended by large working-class audiences. Many distinguished men have been associated with this work as lecturers; among them,

Sir Robert Ball, Dr. Dallinger, Sir Charles Waldstein, and Dr. Andrew Wilson. The aim throughout has been to develop interest in Science and Art, and lead to the encouragement of educational work of a more permanent character; and these lectures have been effective in stimulating the zeal for education that has found expression in the establishment of Technical and Municipal Colleges in the chief towns of the country. The lectures are still arranged, generally at smaller and more remote towns than formerly; but it is possible that, their chief aim having been achieved, the funds allocated to them may, in the future, be assigned to other purposes.

The Trustees are always prepared to consider applications for assistance on behalf of educational schemes; but it is essential that these applications should be made by a university, college, or other responsible public body.

The offices of the Trust are at 1 Plowden Buildings, Temple, London, E.C.; and the present Secretary is Dr. A. H. Fison. A. H. F.

GILL, ALEXANDER (1564–1635).—He was high master of St. Paul's School, London, from 1608 to 1635. His method of instruction is said to have been eminently successful. He was an excellent Latin scholar as well as an eminent divine and critic, and wrote a treatise concerning the Trinity, and a Commentary on the Creed. His son Alexander (1597–1642) was usher under his father, and succeeded him in 1635, but was dismissed in 1640 for excessive severity. He excelled in Latin poetry, and published a volume *Poetici Conatus* (1632). While he was usher under his father, Milton was his favourite scholar. Three of Milton's letters to him are extant, and express his great esteem for Gill and high praise of his Latin poetry. Gill gave to the library of Trinity College, Oxford, an old folio edition of Spenser's *Faerie Queene*, and Drayton's *Polyolbion* by Selden, each containing poetical mottoes in his own handwriting.

GILPIN, BERNARD (1517–1583).—The "apostle of the North" and Archdeacon of Durham towards the end of Mary's reign. His vigorous attacks on pluralities and the indolence of the clergy made him many enemies; but in Elizabeth's reign he became rector of Houghton-le-Spring, where he spent the rest of his life in benevolent works—preaching, teaching, helping the poor, and showing hospitality to strangers. He visited the wildest parts of the northern counties, preaching and exercising a wonderful influence over his congregations.

GILPIN, WILLIAM (1724–1804).—Educated at Oxford; for a time a schoolmaster at Cheam, Surrey; and during his later years vicar of Boldre, in Hampshire. He wrote a number of works descriptive of scenery in Great Britain, illustrated by water-colours of his own execution. The chief of these deal with the Highlands, the Wye, the Lake District, and the Isle of Wight.

GINER DE LOS RIOS, FRANCISCO.—A Spanish philosopher and educator; born 10th October, 1839, in Ronda (Málaga); studied at the Universities of Barcelona and Granada, and went to Madrid in 1863, at a period of political and religious reaction; but he found a minority of advanced thinkers, among them the man from whom he received the most profound influence, Professor Sanz del Rio, who had imported from Germany the idealistic philosophy of Krause. In 1867, Giner was appointed to the Chair of Philosophy of Law at the University of Madrid; but he immediately resigned in solidarity with his teachers, expelled from their chairs for rebellion against the religious tests imposed by the Government. He was reinstated in 1868 by the Ministry which sprang from the revolution. His ideas, prodigally spread, powerfully influenced the reform of pedagogical, constitutional, and criminal legislation; but he never sought public office, personal advantage, or notoriety. He was the soul of the temporary renaissance in the University of Madrid, where he gave free courses and published a review.

The reaction of 1875, which restored the Bourbons, attempted again to impose dogma on the University. Giner, Salmerón, Azcárate, and other liberal professors initiating a protest, were tried and deprived of their chairs. Having rejected a shameful transaction proposed by Cánovas (head of the Government), Giner was taken and confined in a military prison at Cadiz. Together with several persecuted professors and other co-workers, he founded, in 1876, the "Institución libre de Enseñanza," a kind of unofficial university, which, being unable to confer degrees, and inclining more and more to pedagogical problems, gradually became, after 1878, a primary and secondary school, independent of State and Church, and "totally foreign to any spirit or interest of religious sect, philosophic school or political party."

In 1881 the first liberal ministry of the Revolution reinstated the professors, Giner holding his chair henceforth until his death, 18th February, 1915.

Wishing to establish contact with world-culture, he went to England, France, Belgium, and Holland; caused his pupils to travel; received many important foreign visitors in Madrid; kept pace with new publications in German, English, French, and Italian. He fostered Spanish tradition, maintaining, however, that isolation is harmful to the national personality.

In Metaphysics, Giner sympathized with Schelling for his synthesis of Nature and Spirit. In Ethics and Law, reacting against the rigid and dogmatic *droit naturel*, he leaned primarily on Krause and Savigny. He conceived the social person as an organism; and opposed to the reflexive and artificial form of legislation the fluidity and spontaneity of custom. He ascribed to Parliaments and Governments an essentially educative mission, and defined Law as a system of activities through which every rational being is to contribute to the fulfilment of the destiny of the rest. Therefore he was radical in the content of his ideals, but anti-revolutionary and conservative in his mode of action.

In pedagogical problems, Giner sought inspiration in all the great modern thinkers (Rousseau, Pestalozzi, Herbart, Krause, Froebel); but he received primarily English influences through his intimate friendships, on his travels in England, and in consequence of his reaction against Continental intellectualism. Education was for Giner the formation of habits, incorporating definite inclinations in the instinctive and emotional life through the influence of adequate atmosphere and personal suggestion. He admired the democratic movement of the French elementary school and likewise the German seminars, which apply to the university the methods of the kindergarten.

The Institucion libre de Enseñanza. The "Institución libre de Enseñanza" aims at the formation of character, and has introduced modern methods: co-education; handwork; mingling of rich and poor children; intimacy between teachers and pupils; excursions to the country, historic cities, and museums; games; summer camps; alumni associations; and foreign scholarships. Its *Boletín* is the most important pedagogical review of Spain. This exemplary action has orientated the pedagogical policy of the Governments (even the reactionaries) toward the principles enunciated by Giner: renovation of the teaching *personnel* by searching for competence and aptitude; sending of young men and women abroad; creation of centres of disinterested scientific research to stimulate the universities and prepare future professors; rapid multiplication of primary schools to eliminate illiteracy; extension of school age to 16 or 17; respect for the conscience of teachers and pupils; attention to moral education; restraint in the superficial and uniform reforms improvised by the ministers, confiding the new pedagogic policy (pursued by modest attempts) to neutral and permanent technical bodies emancipated from politics.

A profoundly religious spirit, Giner professed Catholicism in his youth; but when he found the policy of the Church superficial and intolerant, he ceased calling himself a Catholic. The religious conscience (natural to man) can be satisfied without need of a positive creed or "natural religion." Religious instruction ought to be in the hands of the churches and the families, not the schools, which must remain neutral. Since morality is the free realization of good for its own sake, the moral education has no need of religious dogmas as a foundation.

He considered art as an aim of life, a means of interpreting Nature, and an educative agent. He inspired an artistic renaissance, veneration of historic monuments, love for simple and refined country life.

Remaining unmarried, he found a home in the families of his two favourite pupils, M. B. Cossio and R. Rubio, principal continuators of the Institución.

He left numerous publications and countless notes and letters, still unpublished, which enshrine the most delicate part of his nature, always timid of publicity. But his chief influence was exerted by word and example in intimate association with people of all social classes.

Publications. *Principios de Derecho Natural* (1874); *Estudios jurídicos y políticos* (1875); *Estudios de Literatura y Arte* (1876); *Estudios filosóficos y religiosos* (1876); *Estudios sobre educación* (1886); *Educación y enseñanza* (1889); *Estudios y fragmentos sobre la teoría de la persona social* (1899); *Filosofía y Sociología* (1904); *Pedagogía universitaria* (1905); *Sobre el concepto de la ley en el Derecho positivo* (1910); pamphlets, translations, and numerous articles in reviews, especially in the *Boletín de la Institución libre de enseñanza.* His "Complete Works" are in course of publication.

J. C.

GIOVANNI DA RAVENNA.—(See RENAISSANCE, THE.)

GIRL GUIDES.—Girl Guides are not Girl Scouts. The Girl Guide Movement was organized, in 1911, by Lieut.-General Sir Robert Baden-Powell, K.C.B., that girls might have a scheme corresponding to the Boy Scout organization (*q.v.*) for their brothers.

The term "Guide" was chosen with care as representing an ideal which is essentially feminine, and yet touching the romance of activity by the connection of the word with the Guides of the Indian Frontier.

There is much in the discipline and organization of the Scouts and Guides which is similar, but it cannot be too clearly understood that the ultimate purpose of the latter is to help girls to realize more of the ideals of womanhood. The idea of imitating boys or Scouts is entirely absent from the official publications (*Girl Guiding* and the *Girl Guide Gazette*) and the recognized tests for badges.

Organization. The Girl Guides are an incorporated Association, with a Council of distinguished men and women, Miss Baden-Powell as their President, and Lady Baden-Powell as Chief Guide. The headquarters are at 76 Victoria Street, S.W.1.

The movement has grown rapidly: in May, 1921, in the British Isles, there were more than 183,500 guides enrolled, who had voluntarily taken upon themselves the discipline of three promises made in the presence of fellow guides—

(1) To honour God and the King; (2) to try to do daily good turns to other people; (3) to obey the law of the Guides.

The motto is "Be Prepared," and its interpretation: "Prepare, by forethought and by practice, to meet any of the emergencies of life."

Guides may be enrolled between the ages of 11 and 18, after obtaining written permission from parent or guardian. The preliminary training over and a simple test passed, the Guide becomes a "tender-foot," with privileges, responsibilities, and knowledge of secret signs and passwords.

There are two grades of guides—second and first class; and a varied and increasing number of proficiency badges, which may be won after accredited tests. The unit of the organization is the patrol, which consists of six ordinary guides, a second, and patrol leader. Three patrols form a company under the command of a lieutenant or captain, whom the guides address as Madam.

The organization embraces all shades of religious belief and all classes of society; patrols are usually formed of girls of the same broad type, and very often with some other bond of sympathy as well as the community of the guides; the several members of one patrol belonging to the same church, school, workshop, or village. In thinly populated districts there are "The Lone Patrols," officered by a captain, who commands by correspondence.

Patrols are assisted by local lady commissioners, whose "province" may be not geographical, but sectional; the Y.M.C.A. girls' clubs have a "section" of their own, and some schools have a cadet corps.

Recently, two supplementary schemes have been formulated for junior guides and the training of Guiders. The "Brownies" are children under 11, who take two promises only, and whose motto is "Lend a hand." The scheme is based on Mrs. Ewing's story of the "Brownies." The tests for the badges are simple, and have very definite relation to the home.

One of the great difficulties of the scheme hitherto has been the lack of well-trained Guiders. In the autumn of 1915, after a successful officers' camp, a training school for officers was opened in London. The O.T.S. meets one day a week at its headquarters, and the President (Mrs. Blyth) gives

more continuous training for periods varying from one week to three months at her house, "Windy Sayles," Boxmoor, at a charge of 12s. a week. Instruction is given in milking and dairy work, gardening, knots and splices, handywoman's badge work (whitewashing and carpentry), cooking (hay-box, camp, and kitchen), laundry, housekeeping, as well as training in handling guide companies.

There are companies in all parts of the Empire: Canada has more than 10,000 guides; and regular reports come to headquarters from India, Australia, Tasmania, and elsewhere.

The full significance of the work would be lost were it not realized that other countries have similar organizations; and, in 1913, a company of German Girl Guides visited London.

America has taken up the work with much enthusiasm, and it may be that there is ground for the hope of greater mutual knowledge between the several nations of the world in the future, owing to widening sympathies of the Guides. A fundamental basis of patriotism lies in all guide discipline and activity.

Uniform. The official uniform is a Navy blue skirt and blouse, each with two pockets; a blue felt hat; a pale blue, triangular necktie; leather belt and gauntlet gloves. The company name and patrol colour are upon the left shoulder. Badges are worn as follows: Second Class, First Class, Ambulance, Sick Nurse, and Child Nurse on the left upper sleeve; proficiency badges on the right sleeve above the cuff. Badges may also be won called Artist, Astronomer, Boatswain, Beekeeper, Clerk, Cook, Cyclist, Dairymaid, Electrician, Florist, Friend to Animals, Fire Brigade, Flyer, Gymnast, Handy-woman, Horsemanship, Interpreter, Knitter, Laundress, Matron, Musician, Needlewoman, Naturalist, Pathfinder, Pioneer, Rifle Shot, Signaller, Swimmer, Surveyor, Telegraphist. All-round cords may be worn by a First Class Guide, who has seven proficiency badges and who has made a Union Jack. A Silver Fish is a guide who has passed eighteen of these tests, and is therefore considered capable of making her way against "the stream of difficulties in life." There are special awards for great merit and life-saving.

The Guide Law deals simply with honour, loyalty, helpfulness, courtesy, purity, obedience, contentment, and thrift. The keynote of the Guide Law and the discipline of the training as a whole is the use of the indicative mood and the total absence of the imperative. "A Girl Guide obeys orders" is a simple statement which leads to the action affirmed.

Aims of the Movement. The purpose of the organization is clearly character development, hence the close link between it and the ideal before all teachers. Schools of all types are actively interested, and many schoolgirl companies have been formed. Some educational establishments have their guides, and their own uniform and badges, but prefer not to be registered at headquarters. The usefulness of the scheme in schools, therefore, is more widely recognized than is at first suggested by the list of registered companies. As a rule, the Guiders are members of the staff, but occasionally some other lady is captain.

The school company is a wonderful power in the school: not that such a moral code and standard of honour cannot be otherwise obtained, but because the discipline is voluntary self-discipline. It is easy for the grown-up mind to criticize, to call the "good turn" obligation a piece of self-righteousness; this but adds another example of the failure of the adult mind to understand the child mind and the effective appeal made by the guide movement to the girl's imagination. If the guide's promise to *try* to do a good turn every day is tested to its real basis, it will be seen that it is founded on a very true humility. How many Englishwomen recognize the obligation of constant acts on behalf of others as a *raison d'être;* that the fulfilment of the obligation is not a matter for self-congratulation, but its omission a disgrace? It may require to be made clear that a "good turn" is outside one's duty: no plain act of duty is a "good turn."

A growing girl, and especially a schoolgirl, often reaches out longing hands towards complete life: her school days seem long, and she fails to realise the purpose of her set lessons. She becomes adult earlier than her brother and, while she has many more years in the schoolroom, the romance of Guide-land seizes her imagination, for she is treated by her Guider as a real person, and is no longer "only a child." She begins to deal with the things of real life, and is the happier and, therefore, better child as she makes a linseed poultice, bandages her comrade's injured foot, talks of the right way to lay a patient with a broken rib, masters the difference between a Morse "l" and "f" or a Semaphore "l" and "p"; puts a "washer" on a tap, builds a bridge over a real or imaginary stream, tracks a rabbit in the snow, cooks her sausages at the camp fire, instructs a "tender-foot," or as leader learns to control her comrades. It is all a game in very truth, but it is no small thing that she plays the game. Our guide may never need to build a rain and wind-proof hut of twigs and bracken, but she certainly hopes she may; while all the time she is strengthening the towers of her character.

A school company, too, gives the chance of leadership to that difficult and often disappointing girl—the one who leaves school from a middle form. Such girls often become keen guides, and readily learn the joy of self-acquired knowledge and skill. A fifth-form guide will acquire some portions of Guide Craft more quickly than the sixth-form girl, and the bias given to the power of "doing things" is an effectual check on the tendency of some clever girls to mental snobbery. A wise school captain will refrain from teaching too much: a guide learns for herself, and instruction practices should never degenerate into lessons.

Of recent years, day schools have been seeking some basis other than the form for the development of *esprit de corps;* some have tried to introduce the "house" system in order to bring together in their recreations girls of different school age. The patrol may easily be used to this end.

The highest part of a woman's nature is emotional and spiritual, and it is during adolescence that her emotional characteristics take definite form. The great gift of the Girl Guide's training is that it is based on sound psychological and ethical principles. The natural result of a stimulus to our emotional nature is some act; if the act natural to the stimulus follows, the will is strengthened in the formation of a habit; but if the stimulus be inhibited, the will to form that habit is correspondingly weakened. All our ethical training, therefore, should be directed towards the inhibiting of wrong and increasing the sensitiveness to right stimuli. Much care is taken to inhibit wrong stimulus by correction and

punishment; but often an impetus to good action (kindness, charity, or patriotism) is inhibited through lack of opportunity to translate it into action. The Girl Guide with her motto, "Be Prepared," her training in doing things at every opportunity, has the chance given her, and often taken by her subconsciously, of putting into action the stimuli with which her nature has come in contact in her various lessons. Further, the adolescent girl is receiving constant impressions as her nature expands to knowledge of her surroundings, and since the world is a beautiful place and the sum of life is good, the effect of their stimulus is too precious to be lost.

Many girls during adolescence tend to be too introspective, and hence those responsible for them should encourage them to be always occupied, especially in outdoor pursuits. After a day at school or in the workroom, Guide activities have just the right appeal.

Although the Girl Guides were organized in peace times, it was the Great War that won recognition for them. Men grew more accustomed to uniform, and learnt to smile with sympathy as they knew of Guides knitting for Boy Scouts on patrol duty, of war hostels to assist the wounded, and of help given to Red Cross hospitals and supply depôts.

M. E. H.

GIRLS AND WOMEN IN ENGLAND, EDUCATION OF.—The effective claim to educational facilities for women was only rarely made by women themselves in earlier times. Yet women, with trained intellectual power, or with educational interest, devoted their means to the education of boys and men. Thus, in 1384, Lady Berkeley founded a grammar school at Wotton-under-Edge. In 1505, Margaret, Countess of Richmond, founded Christ's College, Cambridge; and, in 1508, the same lady founded St. John's College, Cambridge. The Countess Margaret, probably the most accomplished lady in academic knowledge in England in the Middle Ages, was the patroness of William Caxton and of Wynkyn de Worde, and the foundress of the Lady Margaret Professorship in Divinity at Cambridge, a post to which Erasmus was appointed in 1510. The great scholar wrote the epitaph for the tomb of the Countess in 1513; but a much more adequate repayment for his indebtedness to a woman's foundation was his *de Matrimonio Christiano* (1526), a treatise dedicated to Queen Catherine of Aragon, dealing with women's education in somewhat of the spirit of the Italian Renaissance, in which women began to be regarded as the mates and equals of men in educational endeavours. (See Burckhardt's *Renaissance in Italy*, English ed., pp. 395 *et seqq.*)

The advance of interest in the education of girls and women in the sixteenth century connects itself with two marked periods, which may be called the Age of Queen Katharine of Aragon (from *c.* 1500–1528) and the Age of Queen Elizabeth (1559–1603). Erasmus wrote his *de Matrimonio Christiano* in 1526, but was preceded by *de Institutione Feminae Christianae* of Juan Luis Vives (in 1523), also dedicated to Queen Katharine of Aragon, Vives' fellow-countrywoman. Both Queen Katharine and Vives had been brought up in their early years in the atmosphere of the Spanish Renaissance (*q.v.*), the one in Alcalá and the other at Valencia; and Queen Katharine's childhood had been spent in the Court of Ferdinand and Isabella, the rulers of the conjoint Aragon and Castile, the united Court being the most brilliant in Europe at that time. (See SPAIN, THE RENAISSANCE IN.) Katharine had been taught by Italian and Spanish humanists; and Erasmus bears testimony that in her knowledge of classical letters she was "a miracle of her sex, and not less to be reverenced for her piety than for her erudition." In 1523, Katharine and the King (Henry VIII) welcomed Juan Luis Vives (*q.v.*) to England, and put him in charge of their daughter, the Princess Mary, for whom he wrote a plan of studies serving for a girl's education, the first of its kind known in England. Vives' *de Institutione Feminae Christianae* is a remarkable transitional book, disclosing the change taking place from the old cloistral education of women in the Middle Ages to Renaissance views. Vives retains the mediaeval ideal of household education (*q.v.*), but he bases the curriculum on selected classical reading, together with the literature of the early fathers. Both Erasmus and Vives required great rigour of excision in "heathen" writers, if read by girls. Both held strict pietistic ideals for education, in continuity with mediaeval tradition for women's education. Vives approves of the use of the vernacular for girls, and requires self-activity in the collection in paper note-books of examples of classical usages in grammar and syntax. His outlook is ascetic in the training of the girl, condemnation of lavish apparel, adornment, food; adverse to the girl's frequenting public places of dancing and amusement, and as emphatically excludes romance-reading as, later, did Cervantes in his *Don Quixote*. The maiden is to be trained in medicine and surgery; and in manual work, *e.g.* needlework, embroidery [in which Katharine herself was eminently proficient], weaving, and cookery. Reading of the lives of the saints, a form of literature which Vives desired to be made strictly historical, supplemented all the manual training.

The Influence of More and his Circle. Such semi-cloistral, semi-courtly training for women was precisely in accord with Queen Katharine's views and, we may say, with the views of all the best and most progressive women and men of the first half of the sixteenth century. The great typical instance of the practice of these aims is referred to by both Erasmus and Vives, viz., the School or Household of Sir Thomas More; and in the intellectual gatherings and pursuits of this household the King and Queen showed keen personal interest.

Vives' treatise on women's education was written in Latin. Sir Thomas More himself had intended to translate it into English; but, owing to the pressure of public duties, one of the tutors in his household, Richard Hyrde, undertook the translation (though revised by Sir Thomas More) in 1540. The same Richard Hyrde, in 1524, wrote a Preface to the translation of Erasmus' treatise *On the Pater-noster* made by Margaret Roper (daughter of Thomas More), then 19 years of age. Hyrde's Preface is the first tractate in English on the education of women.

About 1550 appeared Thomas Becon's *New Catechism*. Becon was one of the Marian exiles, and his general views are accordingly puritanic; but he is one of the first advocates of learned women as teachers of girls. (See BECON, THOMAS.) The origin of such views must be sought in the ideas gained by the Marian exiles abroad. Household education must have been broken up in the wanderings of the exiles, and their children, girls as well as boys, must have been gathered together in

schools—no longer household, but *public*—of English children mixing with foreigners.

The Age of Elizabeth. The following description of Queen Elizabeth's Court by William Harrison (1577) shows the dominant aims of, with the differences from, the education of the ladies of Queen Katharine's Court, which were accounted for by the Protestant Reformation: "Many of the ladies of the Court have a sound knowledge of Latin and Greek, and many, of the Spanish, Italian, and French languages. They exercise their fingers in needlework, crewel-work, spinning of silk. They are continually reading either the Scriptures or English and foreign history. They compose books, or write translations. The youngest play on lutes, citherns, and practise song and all kinds of music. They are skilful in surgery and distillation of waters, and in cookery." Foxe's *History of Martyrs* (as we call it) was open to all. In short, Harrison declares that the Court was more like a public school of the universities than a prince's palace.

Mulcaster says, in his *Positions* (1581), that young maidens were trained in the subjects which he calls the "Elementarie," and even states that it is the "manner and custom of my country which alloweth them to learn," though *not* in the public grammar schools; and he at least requires a curriculum of reading, writing, music (vocal and instrumental), needlework and housewifery, philosophy (if there is time) and drawing, classical and modern languages, and some logic and rhetoric. He contemplates the elementary school for girls to be public; and later education private.

The first official recognition of women teachers I have noticed in the "Articles concerning Schoolmasters and Teachers of Children: Men *or* Women," issued in 1557.

Seventeenth Century. The Court education of Queen Elizabeth's reign followed the Italian influence of Castiglione's *Cortegiano* (published 1528). This had been translated by Sir Edward Hoby in 1561. "The gentlewoman should be learned and sure in the most necessary languages, a good musician, able to draw and paint, be a good housewife, able to devise sports and pastimes, and be a good dancer." Another source of influence, though later, was from Spain, viz., the devotional and mystical works of St. Teresa, which indirectly influenced Lady Falkland; while the Spanish writer, Valdes, strongly influenced Nicholas Ferrar of Little Gidding. (See HOUSEHOLD EDUCATION.) But strongest of all influences was the puritanic spirit of the returned exiles from Geneva, which only developed its full significance for women's education in England in the seventeenth century. Yet its efforts began to colour all English life in the latter part of the sixteenth century. The essential point was the democratic tendency of the doctrine of the value of the human soul. The type of education is that described by Nehemiah Wallington, speaking of his mother, educated in the second half of the sixteenth century: "She was very ripe and perfect in all stories of the Bible; likewise in all stories of the [Protestant] martyrs, and would readily turn to them; she was also perfect and well seen in the English chronicles and in the descents of the kings of England." The education of children, both boys and girls, to inspire firmness of conviction and readiness to fight and die for their faith, is a feature after the Marian persecution in England, and after St. Bartholomew's Day in France, almost as noteworthy as the training of Spartan mothers sending their sons to the wars, handing them their shields "With this or on it." So was it with English Puritan and French Huguenot mothers, the "shields" being the Bible and *Book of Martyrs*. There can be no doubt that, in the second part of the sixteenth century, and the first half of the seventeenth century, girls could read to an extent incomparably greater than any previous century. Probably some schools admitted a few girls. At any rate, at Bunbury, in Cheshire, in 1594, Thomas Aldersey specifically provided that a few girls might become scholars, though they were to leave at 9 years of age. In 1627, John Whitson left property to provide for a school for forty poor "women-children" to be furnished with "convenient lodging, bedding, linen, and other necessaries." This was the Red Maids' Hospital at Bristol. In 1628, Sir William Borlase founded a school at Great Marlow for twenty-four boys *and* twenty-four girls; and the latter were to learn to knit, spin, and make bone-lace.

"Public" Girls' Schools. By the middle of the seventeenth century, a number of girls' schools had been established in England, also of the private type—though the term "public" was used of any school which required children to mix with children from other households than their own, in a house not connected with one of the families. Hackney became one of the chief centres in London for girls' schools. There are many references in the latter half of the seventeenth century. Pepys says (21st April, 1667): "To Hackney Church. That which I went chiefly to see was the young ladies of the *schools, whereof there is great store ;* very pretty." Dramatists and the literary journals also refer to the Hackney boarding schools for young ladies. Katharine Fowler, afterwards Mrs. Phillips, the poetess—the "Matchless Ovinda"—was sent to a fashionable boarding school, in 1639, at Hackney, kept by Mrs. Salmon. In 1648, Sir John Bramston "put his two eldest daughters to school with Mrs. Salmon and sent my wife's maid with them." In 1643, Mrs. Perwick kept a girls' school at Hackney, and about 800 girls altogether passed through this school. The school was taught largely by masters. Instrumental music on the lute, harpsichord, and the organ; and vocal music, country and French dancing—all of which were praised by foreigners—were a feature of the school. Accomplishment of a manual kind flourished, such as needlework and work in "silver, silks, straws, glass, wax, gums, etc.," and was encouraged. Penmanship, accountancy, housewifery, and cookery were, at any rate, amongst the aims of this school. Mrs. Perwick's school was only one of a number at Hackney, which was known as "the Ladies' University."

Country ladies' schools were probably rare. It is difficult to obtain information as to the existence of such schools before the Great Civil War, because the traces of private schools, if existent, may easily have been lost; but the existence of schools immediately after the Restoration points to previous schools as not unlikely. It is clear that there were *some* schools. Thus a letter (21st July, 1648) of Alexander Rigby (MSS. of Lord Kenyon's Collection, Historical MSS. Commission, p. 64), speaks of placing Rigby's nieces at a school at Manchester kept by a Mrs. Amye, "who hath the tuition of many children of rank and quality, far before my nieces." For attendance, meat, drink, lodging, fuel, washing, and candlelight, together with instruction in reading and all manner of

sewing, the fees were £11 a year apiece; and she did not "put them to the charge of bringing a maid with them." A scrivener was engaged to teach writing, and also a dancing master to teach dancing, and a music master for the music. "The scrivener's charge is small; the charge of the dancing master is, for every child, five shillings at her entry, and five shillings for every month wherein he is employed."

Women's Colleges. In the first half of the seventeenth century came the first proposals for women's colleges. The movement undoubtedly was indirectly suggested by the old training of gentlewomen in convents, and perhaps directly by the mystical writings of St. Teresa, and the actual foundation of cloistral education of women, in Silesia, "without vow." The pioneer in England of the scheme, for it was not carried into effect, was the Lady Lettice, Viscountess Falkland; and it was described, in 1648, by John Duncon (? Duncombe) as "that magnificent and most religious contrivement that there might be places for the education of young gentlewomen, and for retirement of widows (*as Colleges and the Inns of Court and Chancery are for men*). . . . This was much in her thoughts, hoping thereby that learning and religion might flourish more in her own sex than heretofore." Lady Falkland's scheme further recognized that such colleges should be distributed in "several parts of the kingdom."

In 1649, Sir Balthazar Gerbier established an academy at Bethnal Green; and in his circular issued 21st December, 1649, apparently first suggested the principle of a mixed college of the present-day university-college type. In 1671 was issued a scheme for a Protestant College, apparently intended to translate into action the plan of Lady Falkland. The writer says that the "maiden schools" (*i.e.*, the private girls' schools) have not satisfied expectations, and parents find it desirable to send their daughters abroad (even sometimes to Popish monasteries) in preference; or to families of Nonconformists; or to educate them at home, and run risks from the association with servants, sometimes of corrupt wards. This proposal seems to be for a college under public control—substantially a public school for girls and women. "With sons it hath been found better for them to pass their youth in a collegiate life under tutors and Heads and Fellows of Colleges; so it is not to be doubted that some such Collegiate life may prove as successful for the education of daughters." "Elder virgins and widows could be part of the College, parallel to Tutors and Fellows in Men's Colleges. The best teachers in London are to be engaged for Singing, Dancing, Musical Instruments, Writing, French tongue, Fashionable Dresses, all sorts of Needlework, Confectionery, Cooking, Distilling of Waters, Perfume-making, and the making of Physical and Chyrurgical Medicines and Salves for the Poor." Statutes were proposed, and a visitor of high position was to be appointed.

In 1678, a tractate appeared entitled *Advice to the Women and Maidens of London*, suggesting that "instead of their *usual* pastime and education in Needlework, Lace, and Point-making," they should study and practise methods of keeping books of account, "whereby, either single or married, they may know their estates, carry on their trades, and avoid the danger of a helpless and forlorn condition, incident to widows." This is probably the first direct proposal for the commercial education for girls.

In the *Choice Ayres* (1679) of the well-known musician, John Playford, is an advertisement of the boarding school of his wife, kept in a house opposite to Islington Church, "where young gentlewomen may be instructed in all manner of Curious Works, as also Reading, Writing, Music, Dancing, and the French language."

In 1697, Mary Astell revived the suggestion of a ladies' college, but with a return to the more ascetic proposals of Lady Falkland. (See ASTELL, MARY.)

Some Famous Seventeenth-century Girls' Schools. Returning to the girls' boarding-schools of the seventeenth century, the following seem to be the most noteworthy. The school of Mrs. Bathsua Makin, who had been the teacher of the Princess Elizabeth, daughter of King Charles I, from 1642 till 1650. By 1673, Mrs. Makin had removed to Tottenham High Cross, and issued her *Essay to Revive the Ancient Education of Gentlewomen*, the first treatise advocating a liberal education written by a woman in England. It is founded upon an earlier treatise on the same subject by Anna Maria Schuran, of Utrecht, in 1659, entitled: *The Learned Maid, or whether a Maid may be a Scholar.* Mrs. Makin pleads for a knowledge by girls of "the languages," natural philosophy, geometry, husbandry, arithmetic, politics, economics, physic, and chirurgery, as well as grammar, rhetoric, and logic—showing the usefulness of work to women, and presumably offering training in the widest of curricula at her Tottenham High Cross School.

After the Restoration in 1675, Mrs. Hannah Woolley gave, in the *Gentlewoman's Companion*, probably the best contemporary account for the second half of the seventeenth century of the educational aims of the progressive women of the time. At one time, Mrs. Woolley herself had a school of sixty girls. She is an advocate of literature teaching, even advocating the reading of romances for girls. Mrs. Woolley, too, marks the re-introduction of the teaching of Italian as well as French to girls. The old ideal of literature is retained, joined with housewifery, and skill in physic and surgery. The claim of educational equality (far from identity of subjects and training) is asserted.

By the end of the seventeenth century, Mary Astell (*q.v.*) had drawn attention to women's need for education; and Elizabeth Elstob had shown, in her own training, that women could pursue profitably, for the advancement of learning, paths of investigation. Her researches in Anglo-Saxon probably did more to make clear the need for women's higher education than any formal treatise. The real beginning of a general elementary education came only at the end of the century in the charity schools (*q.v.*).

Seminaries and Academies. In the eighteenth century the need for girls' education was recognized by the large number of girls' "seminaries" or "academies," or young ladies' boarding-schools, which flourished according to the particular disposition and attainments of the proprietors. The institution was largely a class-institution, called into existence, at least to some extent, so as to constitute a social distinction from the girls trained in the charity or parochial schools.

Amongst girls' schools of repute in the eighteenth century was that of Miss (usually known as Mistress) Hannah More, who wrote *Essays for Young Ladies* (1777) and *Strictures on Female Education* (1799). But earlier, in 1766, Miss More and her sisters

established a boarding-school in Park Street, Bristol, where "many ladies of the most brilliant parts and shining worth were educated, extending their advantages to thousands in the improvement of general society." Miss More was a promoter of Sunday schools and all the educational philanthropic movements which helped forward the idea of girls' education along with boys. She was intimately connected with ladies such as Mrs. Montagu (whose mother had been educated at Mrs. Bethsua Makins' school mentioned above), Mrs. Vesey, Mrs. Thrale, Mrs. Delany, Mrs. Carter, Mrs. Chapman, and Mrs. Boscawen—a coterie known as "Blue Stockings" (*q.v.*); and the appreciation of them, by such literary chiefs as Samuel Johnson, Samuel Richardson, Horace Walpole, Edmund Burke, and Sir Joshua Reynolds, though they were far from the educational plane of Miss Elstob, and later of Mary Wollstancroft, introduced a high level of interest in books and cultured conversation which created a demand for preparatory education. Mary Lamb (the sister of Charles Lamb), born in 1764, gave reminiscences, in 1809, of the old seminary at Amwell, which brings the eighteenth-century girls' seminary into literature, and picturesquely provides the boarding-school atmosphere.

F. W.

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GIRLS' EDUCATION AS EQUIPMENT FOR LIFE.—It is only in the present generation that the question of preparing girls for a professional life has seriously concerned educationists; and, indeed, until within the last ten years, the professions open to women were so few, and the women desiring professions in such a minority, that the question neither assumed the same importance, nor presented the same difficulties as it does to-day. To-day many new careers are thrown open to women, and they are flocking to enter professions. Hence the problem of adjusting girls' education to the new requirements becomes of paramount importance.

The subject of vocational training for women bristles with difficulties. In the first place, there is no traditional age at which a girl enters school. The boy goes to his private school at 8 and, unless destined for the Navy, stays there till he goes to his public school at 13. The girl enters school at any age from 8 to 16, after a shorter or lon period of training at home under a governess, this uncertainty as to the background of education very much complicates school arrangements. There is the same irregularity as to the time of leaving school. Some girls leave as early as 16. Thus it becomes extremely difficult to establish anything like continuity and system in education.

Again, the desirability of modelling girls' education on that of boys', which has been the custom in schools, especially in the last thirty years, may be called in question. The plan was adopted with a view to preparing girls and boys for the same examinations, and enabling them to proceed to university work; but only a small proportion of girls are able to enter for the university, and the majority of the pupils are thus stinted in some branches of training that might be most helpful to them, while they devote much time to work which may be, from their point of view, less necessary. It is natural and right, we think, that girls should give more time to Art and Music than boys, and that certain subjects, such as Domestic Science, should find a place in their course of study. The demands of parents, too, necessitate much attention to Literature and Modern Languages; and if, at the same time, Mathematics and Science have to be worked up to the same standard as in a boys' school, it is obvious that the time-table must become overloaded and too diverse; at a time, moreover, when a girl should be most carefully guarded from strain, her physical vigour being often at a low ebb.

In training for a vocation, examinations cannot be ignored, for they are required for entrance to most professions. But it is to be hoped that such examinations will tend more and more to become of the nature of school-leaving examinations to be coupled with a record of the pupil's school career. This was recommended by the Consultative Committee on Examinations in Secondary Schools in 1911.

Specialization. It is essential that a general education should not stop too early, and that girls should not be allowed to specialize before the age of 17. In this, we believe that most employers of labour would agree. Manual labour needs an actual dexterity of hand, only to be got by early application; but success in professional work will be attained more rapidly by the generally well-informed and widely-read person. The value of the trained mind is greater than the value of a small amount of technical knowledge, and a wide outlook and many resources and interests in life equip the worker in a way that will be of real value to the work, and will counteract the dangers of absorption in daily routine. It would be well if specialized instruction for any profession could be delayed till the age at which a university course ordinarily begins, and it will be the easier to do this if there has been an attempt to encourage girls to discover for themselves their special tastes at a comparatively early period, which would enable a certain bias—scientific, literary, artistic, or practical—to be given to their general education.

The difference between the ideal preparation for a professional, as opposed to a non-professional life, is more apparent than real. For the non-professional woman, the ideal education is that which helps her to be generally efficient, and, if possible, specially proficient in one subject. The same may surely be

said for the professional woman. What, then, is the ideal school or university education for a girl?

The Curriculum and Its Aim. In the first place, education should be directed towards arousing in the child a desire to know, and showing the pupil how to attack a subject, rather than to accumulate information. The curriculum must cease to be the fighting ground of specialists. Concessions must be made, not only by one specialist to another, but by all to the children. The child's initiative in work must be more respected. The natural relation, based upon fellowship in activity between teacher and taught, is that of an experienced master-workman with an apprentice. Mrs. Sidgwick, in her address to the British Association in 1915, said: "Intellectual curiosity is an important adjunct to the mental processes involved in understanding the world we live in, a valuable aid in the formation of good judgment, and a great assistance in practical life. Intellectual curiosity and aesthetic sensibility are, moreover, the mainsprings of culture, that is, of some of the highest pleasures we can enjoy."

This "intellectual curiosity" must be coupled with independence of judgment, and here the girl is deficient as compared with the boy; her lower degree of mental vigour arising, possibly, from her lower degree of physical vigour. However simple the problem may be, the girl will rather depend on external authority—be it that of the teacher or of books—than think out the matter for herself and pronounce judgment on it. There is an inherent inertness of mind, a lack of self-confidence, a fear of making a mistake, to overcome which should be a primary object in a girl's education. To this end, the undue use of books and the reproduction of teachers' notes is to be discouraged, insistence being laid on intellectual self-reliance.

In power of concentration, also, the girl needs all the assistance that training can give, partly on account of her lower physical force reacting on her mental force, and partly owing to her natural versatility, which tempts her to pass perpetually from one subject to another. For this reason, if for no other, a too varied curriculum is to be avoided—few subjects being taken, and those comprehensively studied rather than many dealt with superficially. It is lack of concentration that makes it so hard for a girl to express herself lucidly and with precision. Her tendency is to be verbose, redundant, and vague, setting her ideas down without arrangement, and not distinguishing between points of primary and secondary importance. She must learn to study a subject both broadly and in detail, and to classify and sort her information. Education on these lines develops individuality, and, accordingly, the later school courses should be planned to meet the needs of the individual.

Modern school education is apt to give far too little attention to this point. The time-tables of the higher classes should be partly fixed and partly free (*i.e.* certain subjects should be taken by all, certain others should be open to choice). Naturally this greatly complicates the organization and makes it very difficult; but, if the object can be attained, the value is immense. Let it be borne in mind that this article is written entirely from the point of view of school education; but it should be remembered that, for a satisfactory educational system, it is essential that school and home should co-operate. Education must begin in the home, continue in the school, and be completed in the home. Ultimate responsibility must abide with the parents, and to them the younger generation ought to turn for encouragement in initiative, development of interests, and guidance in practical affairs, however much they may rely upon the professional skill of their teachers. The responsibility of parents is never in abeyance, and they should be the first to be roused by the problems of the present time, to regard education as something more than a convention. L. M. F.

GIRLS' FRIENDLY SOCIETY, THE.—Under the patronage of Queen Victoria, and the Archbishops of Canterbury and York, this Society was formed by members of the Church of England in 1875. Its objects, as stated in the Society's rules, are—

"To unite for the Glory of God, in one Fellowship of Prayer and Service, the Girls and Women of the Empire, to uphold Purity in thought, word, and deed.

"The Society offers friendly comradeship and opportunities of service for others, through introductions from branch to branch, and from one country to another. It also encourages loyalty and faithfulness in work and home life, and self-control in all things.

"1. All those who join the Society must have borne a virtuous character and must promise to uphold the Object of the Society by the witness of their lives. Those failing to bear this witness in life and conduct forfeit their Card.

"2. Women and girls join the Society as Associates or Members. Associates must be members of the Church of England, the organization of the Society following that of the Church. Associates and Members must subscribe annually to the Society. Not less than 6d. of each Member's subscription to go to the Central Fund."

The chief workers of the Society are the Associates, who must be members of the Church of England; and the organization of the Society follows as much as possible that of the Church, being diocesan, ruridecanal, and parochial. The Associates contribute annually not less than 2s. 6d. to the funds.

The Members are drawn from all classes. The Society is, however, very careful that no girl shall be admitted who has not borne a virtuous character.

The Society appeals strongly to mothers, especially to those who are sending their daughters out into the world and away from home. It endeavours to provide friends for young girls, to shield them from temptation, to encourage them to influence one another for good, and to help them in all needs that arise from their being away from home.

When the war broke out in 1914, over 1,500 members, associates, and helpers were in France and Germany, half of them being members commended from branches in England. The Society's lodges in Paris and Frankfort were havens of refuge, for among the English communities in foreign cities the Society holds a recognized position as a centre of protection for English girls. In Berlin, 940 members and others were assisted, and after weeks of delay and difficulty, the Society's party of 300 made a painful journey home. Many others were assisted to England in smaller parties.

Candidates may enrol themselves in the Society at any age between 12 and 35, and children may be

enrolled at 8 years of age with their parents' consent. They must remain candidates during a period of probation before becoming members. By fixing a low limit of age, the Society comes into touch with many girls of school age; and much work is done in both elementary and secondary schools among the pupils, and many teachers are active helpers of the Society.

Industrial and Educational Work. The Employment and Training Department is carried on by means of a Central Employment Office and registry offices connected with G.F.S. Hostels, and deals with applications from servants and others in need of employment. Clubs for girls are organized by the Society in most towns and some country districts, to which all girls are generally invited, whether members of the G.F.S. or not.

The Society organizes classes, lectures, exhibitions and competitions, providing training in needlework, first aid, music, knitting, home nursing, and many other subjects.

Summer holiday camps are arranged for younger girls, and " Weeks " for older members and Associates, where the pleasure of a holiday may be combined with a certain amount of study and training.

There is also a central needlework depôt for the work of chronic invalids and blind members, and a department for sick members which does much work in assisting them. Arrangements are made for the adoption of invalids, and the Flower Mission distributes flowers to invalids in their homes and to institutions. Hostels and Homes of Rest have been established in towns throughout the length and breadth of England.

The publications of the Society are intended to report work and to keep the members in touch with all the activities of the Society. They include the *Workers' Journal* (monthly); *Friendly Leaves* (monthly); and *Our Letter* (monthly) for G.F.S. candidates. Further educational work is carried on in many branches by means of reading unions and study circles, and the G.F.S. Library provides a means of circulating selected books among members.

The Emigration Department secures care and protection for young girls on their voyages, as well as a safe and suitable reception for them at their destinations.

The central offices of the Society are at 39 Victoria Street, Westminster, S.W.1.

GIRLS' HIGH SCHOOLS WITH UNIVERSITY EDUCATION, THE CONNECTION OF.—The first indication of a connection between girls' high schools and university education may be traced to the foundation of Queen's College, Harley Street, in 1848: this can with truth be called the parent of both public secondary schools for girls and university colleges for women. Notable among its *alumnae* were Frances Mary Buss and Dorothea Beale, those prophets of the educational cause, whose message happily did not fall on unheeding ears. The foundation of Bedford College (*q.v.*) in 1849; of the North London Collegiate School (*q.v.*) in 1850; and of the Ladies' College, Cheltenham (*q.v.*) in 1853, points to the fact that in the Victorian Age the movement for women's education was challenging attention, and the efforts to propagate throughout the country the efficiency which had hitherto been largely the monopoly of these institutions were greatly aided in 1867 by the Report of the Royal Commission to inquire into Secondary Education: this report, which declared the condition of girls' education to be unsatisfactory, succeeded in arresting public attention, and was followed by immediate action. The foundation of day schools, with moderate fees for girls, was seen to be one solution of the problem; and in 1872 the Girls' Public Day School Company (*q.v.*) was established: the first school of the Company was opened at Chelsea, followed in a few months by the second at Notting Hill, and in the next two or three years by many others. Similar schools sprang up about the same time at Manchester, Birmingham, Bedford, and elsewhere.

Women at the Older Universities. Another outcome of the Report was the formation of a committee for considering the foundation of a college " designed to hold in relation to girls' schools and home teaching a position analogous to that occupied by the universities towards the public schools for boys "; and in October, 1869, in a small house at Hitchin, a handful of women students began the reading planned for candidates for degrees in the University of Cambridge. This was the first women's college in England established with the avowed hope of connection with a university, and in 1873 it moved from its humble abode at Hitchin to the now familiar red-brick buildings of Girton College (*q.v.*). Almost simultaneously Newnham College (*q.v.*) had originated; and so ably did the members of these infant colleges acquit themselves, that in 1881 the right to sit at the Tripos Examinations was granted to women by three Graces of the Senate of the University of Cambridge. The number of students at Girton and Newnham is now approximately four hundred, and this number is largely recruited from public day schools for girls. At Oxford, Somerville College and Lady Margaret Hall (*qq.v.*), both opened in 1879, and St. Hugh's College and St. Hilda's Hall, opened subsequently, are resident colleges for women attending university lectures and entering for university examinations; while the Society of Oxford Home Students is a community of non-resident women students occupied with university work. The number of women students in Oxford is between four and five hundred, and these, too, are drawn largely from girls' high schools. Thus a steady flow of workers passes from the highest forms of girls' secondary schools to the older universities, where the women students, although the degree has been slow in coming, have been welcomed as learners, and are encouraged to glean from the rich fields of association and tradition, which are the heritage of Oxford and Cambridge.

London and Other Universities. In 1879, London University opened its degrees to women; and Bedford College, Westfield College (*q.v.*), and other institutions provided residence for many of the women students working for London degrees in Science and Art and desiring at the same time the advantages of resident college life. The Royal Holloway College (*q.v.*), opened in 1886, though placed at some distance from London, attracted many students by the beauty of its position and the excellence of its teaching. In these and other colleges associated with the London University, an unfailing supply of students is guaranteed by the passing on from high schools of those pupils who wish to find means of self-expression and self-development in university work. In like manner, the Universities of St. Andrews, Glasgow, Aberdeen, Edinburgh, Dublin, Durham, Manchester, Wales,

Birmingham, Liverpool, Leeds, Sheffield, Belfast, and Bristol all have their steadily increasing quota of women students, the majority of whom have passed on from the public secondary schools for girls now to be found in all parts of the British Isles.

Preparation. So well recognized a fact has it become, that the Sixth Form of a girls' public secondary school is a stepping-stone to a university course, that the reading of such forms is, to a large extent, fixed by the demands of university work. The qualifying examinations can, as a rule, be disposed of by a girl in the first year in the Sixth Form; and if she is intending to specialize in classics, mathematics, science, modern languages, history, or English, her time during subsequent years in the highest form is spent chiefly on the subject to which she intends to devote herself. It often happens that girls passing from school to college return to teach their special subjects in schools of the same type as those in which they were themselves educated: thus the connection between school and college becomes doubly strengthened. Firm as this tie undoubtedly is, the fact remains that it is not the majority of high school pupils who find their way to a university; and this raises the challenge: Why is not a university course the fate of the larger number? The reasons are various: It may be a matter of unsuitability of temperament, of outlook, of ability, of inclination; it is sometimes the mistaken view of parents that, if a girl should marry, her education would be wasted; but only too often it is a lack of ways and means. It is true that the value of education, and of specialized education, is becoming more and more universally admitted; but not yet has the British nation fully awakened to the fact that it is wasting the brain capacity of the larger number of its citizens by not placing within their reach opportunities for the development of the mental powers by a generously administered educational system. And, in particular, the scarcity of scholarships and the lack of accommodation at the universities for girls wishing to do university work block the way of many a potential scholar. Perhaps in a golden age of the future it will be recognized that for all able boys and girls the true measure of their right to knowledge is their capacity for receiving it, and they will then find the way made easy for them to pass through the doorway of a university to the many coveted professions to be reached only through that doorway. At a time when men's colleges were left empty by the hungry demands of war, and scholarships and letters had perforce to be thrust into the background, girls' schools and women's colleges working together rendered to the nation a service of untold value. They helped to keep up the standard of specialized work, without which it is impossible to maintain any satisfactory standard of work not highly specialized; they protected education from demands unduly utilitarian and materialistic; and to them it was given to see visions which alone can preserve a nation from choosing as its aim the soul-binding pursuit of mere money-making and lead it to the conviction that the true object of education should be "the quest of goodness, truth, and beauty." R. M. H.-B.

GIRLS IN LARGE CITIES, THE TRAINING OF. —In spite of the strides which the progress of girls' education has made within the last half-century, there are still many who regard the education and training of a girl as of less importance than that of a boy. In reality, it is quite as important and a far more complicated matter. Almost every boy will be a wage-earner and citizen. If, as is probable, he is to own a home at some time of his life, he is expected to work outside it, and not within. A girl will often be a wage-earner for the early part of her life, and a home-maker and citizen for the later and longer part. For which of these professions should she be educated: for the home life or for wage-earning? Women will in all probability continue to be wage-earners in greater numbers than they have been before. Should this aspect of their lives, then, be the main consideration? This is the problem of a woman's life and training—the pull between the claims of a home and of a wage-earning life.

It is impossible in a short article to speak of the whole question of training girls, so I propose to write only of the elementary school girl and the opportunities of training which are offered her to-day.

Brevity of School Life among Girls. Elementary education has been compulsory to the age of 13, and in many districts by by-laws to the age of 14. Partial exemption for half-time employment is allowed in certain areas from 12 years of age, but compulsory full-time education to 14 will be universal under the Education Act of 1918. Education authorities give practically equal opportunities to boys and girls in the elementary schools and the new public secondary schools. Scholarships are obtainable by the clever girls in the elementary schools, which enable them at 11 years of age, or thereabouts, to pass on to secondary schools; and a certain number can pass on to higher elementary schools. Within the last few years a small number of day trade-schools have been established which offer training in the theory and practice of certain women's trades, combined with a certain amount of general education: eight of these are in London.

In the last year before the war there were over 3,000,000 girls in attendance at public elementary schools, of whom 1,576 only were over 15 years of age. There were 4,525 at higher elementary schools, and 96,964 at secondary schools regarded by the Board of Education as efficient. No figures are available for the number in attendance at schools which have not been inspected and approved by officials of the Board of Education. The Census of 1911 showed that 11 per cent. of girls of 13 years of age in England and Wales were in employment; of 14 years, 39 per cent.; 15 years, 57 per cent.; and 16 years, 67 per cent. For urban districts only, the proportion was higher still, being 13 per cent. at 13, 41 per cent. at 14, 60 per cent. at 15, and 68 per cent. at 16 years of age. Thus, for less than half the girls in the country can a full-time education be continued beyond the age of 15. The Census figures allow no opportunity of estimating how many girls not in employment are at school, and how many at home with or without household occupation.

The Consultative Committee of the Board of Education on attendance at continuation schools, in their report in 1909, estimated that three-quarters of the girls between 14 and 17 years of age were under no educational care either in the day or in the evening. It is not to be wondered at that more girls do not avail themselves of the facilities for evening education when their hours of work are considered. A twelve-hour day is allowed by the

Factory Acts; and a ten-hour day, including meal times, is common.

It must be remembered that training does not end on leaving school. During the adaptable years of youth it is proceeding, well or ill, according to a girl's environment. Many, no doubt, learn more after they have left school than they ever learned when in it; but the quality of such learning must depend on the nature of the girl's work, her home, and her companions. For the wage-earner, the main part must be obtained during working hours, since she is little at home.

Inadequate Later Training. It is difficult to determine how many girls enter work that gives some mental discipline when they leave school. The skilled trades, where some form of apprenticeship—actual or nominal—exists, do give some regular training, since the work necessitates the use of mind and hand and develops the creative capacity. Clerical work of the lower order, which consists in the constant repetition of some routine work, though at first offering a little mental training, rapidly becomes narrowing when followed for some time. The factory employment, which the majority of girls enter on leaving school, is purely routine work: labelling, bottling, packing, and machine-tending require only deftness of hand and eye and the power of concentration. An inquiry made by the London County Council into the occupations taken up by boys and girls on leaving certain elementary schools showed that only between 30 and 40 per cent. entered occupations which could be regarded as giving training, or passed on to higher education. It may, therefore, be safely assumed that 50 per cent. of the girls leaving the elementary schools in large towns enter work which gives no mental discipline. The questions, therefore, arise: First, what is the best training that can be given during the few short years at school; and, secondly, what improvements are required to give girls better opportunities in the future?

Before considering this, it is well to mention the criticisms which are brought against the average working girl and woman. Employers of girls complain that, though the little new hand is steady, regular, and keen about her work, she quickly loses interest and becomes inattentive, irregular as to time-keeping, and satisfied with a certain level wage. As a growing girl she is flighty, with a young man, dress, the "pictures," and the novelette as her chief concerns. As a married woman, she is accused of thriftless housekeeping and ignorance of the care of children, and of having no desire to learn. But no criticism is fair which does not take into account the narrowness of her life.

Suggestions for a Curriculum. Our working girls need wider interests, more intelligence, more adaptability, more power of reasoning and of drawing inferences, more idea of the value of money—but, especially, more idea of the little they know and the amount there is to learn. Above all, the desire to learn must be awakened. If that can once be roused, self-training will continue and opportunities for further education be grasped at. This can only be roused in different ways in different people; and, therefore, the utmost possible adaptability of curriculum is necessary, so that each may find some chief interest and some healthy pleasure while still at the day school. The teaching should be connected as far as possible with daily life. Theoretical teaching which cannot be applied to a girl's humdrum daily existence is worse than useless, for it makes her undervalue knowledge. Do not give her domestic economy lessons, for instance, with model apparatus to hand; give them to her in a cottage kitchen with the makeshift apparatus she finds at home, and let her use her ingenuity in discovering how the best can be done with the worst apparatus. When she has learned this, let her see the better things that money can buy. Teach her to observe: to take note of what she sees in the streets, such as prices on the street stalls, notices of the borough council, and the factories in the neighbourhood. But, besides this, encourage her in good reading, and in the development of some hobby, if it is only fine needlework. A certain amount of spare time, in which each girl can do whatever handwork, reading, or study she prefers, is most desirable, since it allows the teacher to determine the girl's tastes and the girl to learn something of the means of occupying free time. Her interests must not be limited, however, to the interests of the immediate neighbourhood; but, when her attention has been grasped by this, she must be led on to realize its connection with the world outside, and the part it has played in history, and so take interest in all the wider world.

Instruction in drawing is very important for girls, since it trains the eye and hand, and is of use directly and indirectly in many occupations. Instruction in elementary natural science is as important for girls as it is for boys, since, if properly taught with practical work, and in its relation to the natural facts she already knows, it increases her powers of observation and develops her powers of reasoning. Moreover, instruction in elementary biology teaches the laws of reproduction, and paves the way for warning of the dangers to be met with in that connection. The Royal Commission on Venereal Diseases has recommended that this warning should be given to pupils individually before they leave school.

Finally, a girl should never be allowed to leave school imagining that by having reached the top standard or qualified for a school-leaving examination she has learned all that she need know. The whole teaching in the top standards should be directed to showing how little she really does know. For this reason it is a pity that elementary schools are almost always distinct from the buildings of secondary schools and other higher educational institutes, so that the pupils do not realize how elementary their work is.

When girls first go out to work, the work and its surroundings are, as a rule, their chief interest, far exceeding for the moment all thoughts of home life. At such a time, the teaching offered should all be based on the work and the materials with which the girls are dealing. A girl's interest will be kept and her mind awakened if she learns something of the use and destination of the articles she is making, and of the origin of the raw material; something, in fact, of the wonder of the world-wide system of modern industry, and of her own little niche in it. Later, when her interest in her work passes, it will be well to turn to home subjects again, show her the true value of money and the best that can be bought with it; but, here again, it is desirable that there should be a large amount of choice of subject possible.

Many of the best teachers are, of course, already carrying out these suggestions, but present conditions of education make it difficult. For the instruction

to be more diverse, a large reduction in the numbers in the classes is essential; for it to be more adaptable, a greater specialization of teachers is needed in the elementary schools, as is arranged in secondary schools. These reforms can be carried out without fresh legislation, and a reduction in the size of classes has long been promised. An extra year in day school under the discipline and influence of good teachers would make a great difference to the moral and intellectual development of a girl, and it is hoped that this reform will soon come. A shortening of the hours of work is necessary and some continuance of education after the day school has been left. The introduction of compulsory day continuation classes under the recent Education Act will give scope and opportunity for the instruction based on a girl's work mentioned above.

I have attempted to sketch briefly the important lines of training for our working-girls, and I have now only to answer the question raised at first: To which profession should the education be mainly directed? For girls who can afford a longer time at school, the answer must depend largely on the circumstances of each pupil. For the elementary schoolgirl, whose time at school is so limited, the problem appears to me less great, since, as I have attempted to show, the main need is an awakening of the girl's interests and desire to learn, and this can only be done by the subjects which appeal to her most. Let the education, then, in all her earlier years be varied, but free from direct technical bias; and let it be directed to teaching her her responsibilities as a home-maker, a citizen, and a worker, and her ignorance of all she needs to know to duly fill those posts. H. W. J.

GIRLS' PUBLIC DAY SCHOOL TRUST, THE.—The unsatisfactory condition in England of the education of girls of the middle and upper classes was brought fully before the public, in 1870, by the Report of the Schools Inquiry Commission, held under the presidency of Lord Lyttelton. Happily, this Report came at a time when friends of education were ready with the ability and energy needed to inaugurate a new era. Miss Emily Davies had obtained the opening of local University examinations to girls. She, with Lady Stanley of Alderley and others, had established Girton College. Mrs. William Grey and Miss Shirreff had written on the Higher Education of Women; Miss Beale (herself a pupil of Queen's College, London, founded chiefly by the Rev. F. D. Maurice) had raised the standard of education at Cheltenham Ladies' College; and Miss Buss (also a pupil of Queen's College) had placed the North London Collegiate School, founded by herself in 1850, in the hands of trustees, as a public endowed school.

Opportunity for discussion was given at the Meeting of the British Association held at Belfast, 1871; and also at the Social Science Congress held at Leeds in the same year, when papers were contributed by Mrs. W. Grey and Miss M. Gurney. Mrs. Grey advocated the plan of large day schools with boarding houses in connection, and especially urged that girls should be trained to do work in the world. Subsequent to this meeting, and after a discussion at the Society of Arts, Mrs. Grey formed the "National Union for the Higher Education of Women"; the first scheme of the Union being the establishment of such schools as had been described. For this object, capital was necessary; and it was decided, with the co-operation of leading educationists, to raise the necessary funds by means of a shareholding company.

The Girls' Public Day School Company was inaugurated at a public meeting, held in the Albert Hall in the autumn of 1872, and attended by H.R.H. Princess Louise, Marchioness of Lorne. Lord Lyttelton presided, and was supported by Bishop Fraser, the Right Hon. W. Cowper Temple, and others. Mrs. Grey expressed the resolve of the promoters that the proposed schools should be places not only of instruction, but of education in the truest sense of the word. She spoke of "at present" counting supporters by hundreds, scattered over the three kingdoms; and hoped "that these hundreds would soon become thousands." The Company was incorporated under Articles of Association, H.R.H. Princess Louise becoming Patroness in 1884, when the Women's Education Union was dissolved; having also established the Maria Grey Training College for Secondary Teachers, and published an important magazine—*The Journal of Women's Education.*

H.R.H. Princess Louise has given unwavering support to the schools. She gave her advice at their formation, and has graciously attended prize meetings, and opened new buildings at various towns and in the suburbs of London, besides presiding at four great gatherings: at St. James' Hall in 1888, the Crystal Palace in 1890, and at the Albert Hall in 1894 and 1907. Her Royal Highness being unavoidably absent, H.R.H. the Prince of Wales (subsequently King Edward) presided at the Albert Hall meetings in 1883 and 1900.

Scope and Work of the Schools. A Council of Management was formed in 1872, one third of the members always to be women. The Marquess of Lorne, K.G. (afterwards the Duke of Argyll), was an original member; and Sir James Kay-Shuttleworth, Bart., was the first Chairman; followed by Mr. C. S. Roundell, Mr. W. H. Stone, Mr. (afterwards Sir William) Bousfield, and the Rev. Prebendary The Hon. J. Stafford Northcote, the present Chairman. Capt. Sir Douglas Galton, K.C.B., and the Dowager Lady Stanley of Alderley were also original members. The first question discussed by the Council was the grade of school to be opened, the Royal Commission having advised three grades of schools above the elementary. It was resolved to begin with High Schools of the first, or highest, grade, in the hope that schools of lower grade might be added. Subsequent experience has, however, shown the difficulty of supplying lower grade schools without endowment; and the High Schools of the Company are still framed on the original scheme, the object being to supply for girls the best possible education, corresponding with the education given to boys in the great public schools of the country.

Incidentally to their main object, the schools serve a useful purpose by providing the means of higher education for those exceptional girls from elementary or middle schools who gain scholarships given by County Councils, Technical Education Committees, and similar bodies.

Regulations were carefully considered and embodied in a pamphlet. Amongst these is one placing the election of assistant teachers in the hands of the Council, on the recommendation of the Head Mistress, and giving the right of appeal. This has since been largely adopted in other schools.

The first school of the Company opened with

twenty girls, on 21st January, 1873, at Durham House, Chelsea—a spacious, old-fashioned house, reputed to have been successively the residence of Catherine of Aragon and of Jane Seymour. The house was soon outgrown, and the school was removed, in 1880, to Cromwell Road and, in 1888, to its permanent home in Kensington—a building in its own grounds, with verandahs, tennis court, and an assembly hall decorated with casts of the Parthenon frieze and well furnished with gymnastic apparatus. A large science room has been added.

Notting Hill High School followed, opening 16th September, 1873, with seven pupils. It has since become a large school. The gifts of friends have adorned the assembly hall and the Sixth Form room. Amongst these gifts is the excellent portrait by Mr. Shannon, R.A., of Miss Jones, commemorating the twenty-first year of her head mistress-ship.

The schools at Croydon, Norwich, Oxford, Sheffield, etc., rapidly followed. Clapham, the largest school (with about 560 pupils), has been rebuilt on the site of the old "The Lawn," and departments have been added for training Secondary Teachers of all ordinary subjects, and of Art and Domestic Science. These departments were introduced by the former Head Mistress (Mrs. Woodhouse), previously Head Mistress at Sheffield. There are also Music Training Departments at Kensington and Streatham Hill.

In the year 1875, at the Social Science Meeting at Brighton, Miss Shirreff said that success beyond all expectation had attended the efforts of the Company. The number of pupils then in the schools was 700; in 1880, it was 2,000; and in the succeeding thirty-five years it has increased to totals varying from 5,000 to 7,000. Upwards of 73,600 pupils have passed through the Trust Schools.

The various schemes for improving the Higher Education of Women promoted by the Council of the Trust have been carried through by the Head and Assistant Mistresses, to whose talent and energy, and devotion to their work, the success of the Schools is indeed due. They are in constant communication with the Council, and this communication has been helped by the visits of the Council's Inspectors, as also by frequent conferences between the Council and Head Mistresses. It has been found a great advantage to have many schools under one government for the consideration and introduction of new plans. The Universities have aided by affording opportunities of subsequent education, and by the opening of examinations and degrees. The examination of the Joint Board of Oxford and Cambridge, originally planned for the great Public Boys' Schools, was opened to girls in 1878, and adopted by the Council of the Trust. It has proved of great value on account of its high standard and as a guarantee of independent testimony to the education given. The higher certificates of the Board have been taken in the Schools at an age when an external examination is useful, the certificates sometimes exempting from the entrance examinations of the Universities. Some of the schools also take the examinations of the Northern Universities, London Matriculation, Cambridge Higher Local, or the Senior Local Examinations of Oxford and Cambridge. Numerous Entrance Scholarships have been won by pupils of the Trust at the Universities open to women, and at Women's Colleges at Oxford, Cambridge, and London. The number of former Trust students studying at University colleges in one year amounts to about 350, and annually about 120 Degree Examinations are passed.

The Arts have not been neglected. In Music, the Council have the advice of a Music Advisory Board, consisting of Dr. Lloyd, of Eton, Dr. E. Walker, of Oxford, and Dr. Faning, who inspect the music teaching at the schools. Many pupils have taken the certificates of the Associated Board of the R.A. and R.C.M., and there are orchestras in most schools.

In Drawing, the Council have an Advisory Board consisting of George Clausen, Esq., R.A.; Henry Tonks, Esq.; Vignoles Fisher, Esq.; Professor Selwyn Image; and A. S. Hartrick, Esq., R.W.S. Drawing certificates signed by H.R.H. Princess Louise and by the Board are awarded annually by the Council after an examination held by the Board, who also visit the Schools.

The need which has of late years been felt for systematic teaching in Domestic Economy has been met by the provision in many of the schools of classes for such subjects as Cookery, Hygiene, Laundry Work, First Aid and Nursing, which are largely attended by the elder girls. These are open to outsiders.

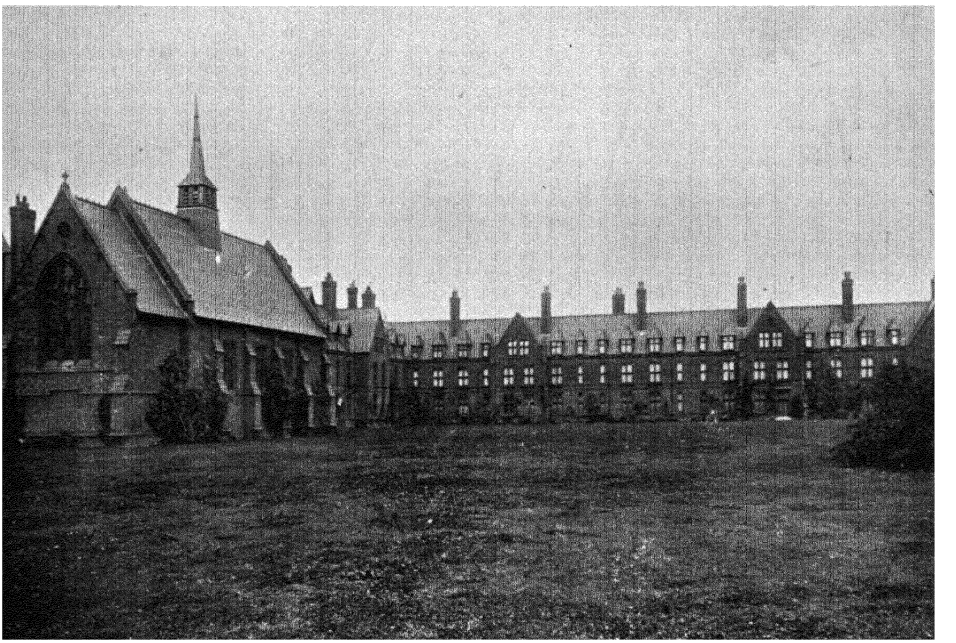
Physical training and games are strenuously encouraged. A scheme for health reports of individual girls, including a record book, was prepared by Mrs. Woodhouse, Head Mistress of Clapham High School, with the aid of Miss Wilson, M.D., and is now in use at most of the schools. Previously to this, in the years 1892 and 1894, reports on the eyesight of pupils, and advice on the lighting of class-rooms and the construction of desks, were furnished to the Council by the late Miss Ellaby, M.D. Playfields and playgrounds are connected with nearly all schools, and gymnastic apparatus is provided. Games clubs have been formed, notably a London Union (under the presidency of the Chairman of the Trust) instituted by Miss F. Gadesden, Head Mistress of Blackheath School, for tennis, hockey, and basket-ball competitions. Also school efforts for poorer neighbours have led to the formation of numerous Old Girls' Associations. Most of the schools have their own magazines, containing articles by girls and mistresses.

Administrative Work of the Company. Important boarding-houses are connected with nearly all the schools, licensed by the Council, and under the supervision of the Head Mistresses.

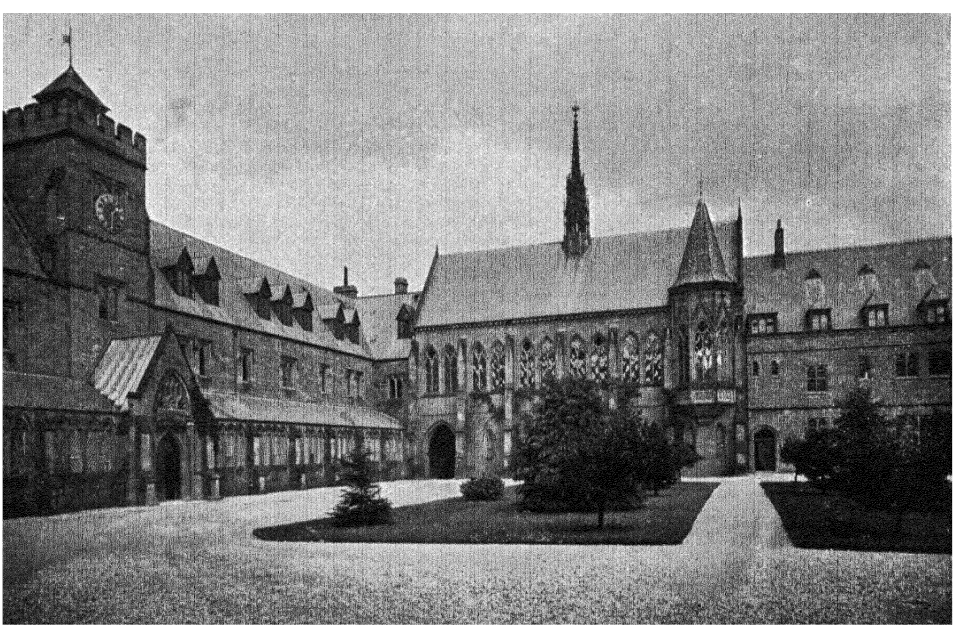
The present number of schools is twenty-five. There are twelve in London and the suburbs—Blackheath, Bromley, Clapham, Croydon, Kensington, Notting Hill, Putney, South Hampstead, Streatham Hill, Sutton, Sydenham, Wimbledon Hill; and thirteen in the provinces—Bath, Birkenhead, Brighton, Ipswich, Liverpool, Newcastle, Norwich, Nottingham, Oxford, Portsmouth, Sheffield, Shrewsbury, and Tunbridge Wells.

For nearly twenty years the Company paid a dividend of 5 per cent. on its shares; but, in 1898, the shareholders, on the recommendation of the Council, determined that the interest on capital should not in future exceed 4 per cent., in order that as much money as possible might be spent on school equipment and on those educational developments which modern experience showed to be advantageous. Since the year 1911 no dividend has been paid, profits having been devoted to interest on loans, and to depreciation.

In the year 1906 the Company was converted into a Trust, with the object of obtaining for the



Girton College, Cambridge



Trinity College, Glenalmond—The Quadrangle

PLATE XLIV

High Schools the status of endowed schools, and a share in the grants voted by Parliament for secondary education. The schools are recognized by the Board of Education for this purpose, and are inspected periodically by the Board's Inspectors.

The shares have been taken up in all parts of the country, as the schools extend from Newcastle-on-Tyne to Brighton; and Local Committees have been formed, and give important aid. Building expenses have been heavy; and, in 1912, a special Building Fund was started, with Professor Wyndham R. Dunstan, F.R.S., as Chairman of Committee. The subjoined extracts are from a letter printed in *The Times*, July, 1912—

"It is now necessary to provide new buildings for some schools and to improve the buildings of others. The Council of the Trust feel that the strictly educational demands made on their limited resources have become so great, that they must raise a Special Fund for this purpose; and they, therefore, ask all those who realize the importance of the work they are doing to assist them in obtaining a sum of £50,000, to be devoted exclusively to building purposes. We appeal to the many former pupils of the schools, to parents who appreciate the need for this effort, and to all who realize the national importance of the work, to send donations, great or small, in aid of the Building Fund.

"The Princess Louise, Duchess of Argyll, Patroness of the Trust, who signs this appeal, has most kindly consented to act as Treasurer of the Fund, and will welcome donations. The following are the Trustees of the Building Fund: His Grace the Duke of Argyll, K.G., K.T.; the Right Hon. Lord Burghclere; and the Right Hon. Henry Hobhouse."

A public dinner was held (addressed by Viscount Bryce, Prof. Michael Sadler, of Leeds University, and others), and about £9,000 has been already subscribed either to the general fund, or specially to any school of the Trust. Of this Fund, £4,354 has been expended towards the rebuilding of Brighton and Hove School (now completed) and £1,737 towards the enlargement of Putney School. Most useful improvements to the buildings have been effected at various other schools.

The Council give Training Scholarships for senior students at Clapham, Kensington, Oxford, and Streatham Hill; and allot annually about £500 for prizes and £830 for senior and junior scholarships held in the schools. During the war they also gave a free scholarship in every school to a girl whose father had been, or was, on active service. Ninety-five Belgian children were also received, some at reduced fees and some having their fees paid by their fellow-scholars.

Extra prizes are given by friends of the various schools, and gifts have been received for the founding of scholarships, some to be held at the Universities. Amongst gifts, the Somerville Bequest was given, in 1873, by Miss Woodroffe for annual school Science prizes; and the Dunville Bequest given in 1886, the interest (£10) to be given annually to aid poorer scholars. Memorial Scholarships and Prizes and Leaving Exhibitions have been given at Clapham, Croydon, Dulwich, Ipswich, Liverpool, Newcastle, Oxford, Portsmouth, Sheffield, Sutton, Sydenham, and Wimbledon. Also 262 shares have been relinquished by shareholders and placed in the hands of Trustees for the benefit of the Trust.

M. GURNEY.

GIRTON COLLEGE, CAMBRIDGE.—Girton, slightly the earlier of the two women's colleges at Cambridge, and about two miles west of the town, was opened, in 1873, with accommodation for twenty-one students. This has been increased by successive additions, and there is now room for over 160, including resident staff and students.

The College had started at Hitchin, in 1869, with five students; and in 1872 the three "Girton Pioneers"—Miss Woodhead, Miss Rachel Cook, and Miss Lumsden: the first women to take Cambridge University examinations for Degrees—succeeded in passing Tripos examinations, to which (as well as to the previous examination) they had been informally admitted. Up to 1881 it was entirely at the option of examiners whether or not they would examine women candidates. But in 1881 things were put on a better footing, and the University formally opened the Previous and Tripos examinations to the students of Girton and Newnham, giving successful candidates a university *certificate* (not a *Degree*) and a place in the published Class lists.

Attempts made in 1887 and 1897 to obtain further academic privileges were without success. In January, 1915, the 1881 Regulations concerning the admission of women to university examinations were revised in consequence of changes in the Tripos examinations, but the official relation of the women's colleges to the University remains (February, 1920) substantially as it was settled in 1881.

Students are not received at Girton under the age of 18, and must pass an Entrance examination. They generally read for Honours.

The number of students who entered Girton from its foundation up to June, 1919, was 1,695. Of these, 1,291 obtained Honours, and 78 attained the standard of the Ordinary Degree. Students have also passed examinations for the Degree of Bachelor of Music, and obtained the University diplomas in Geography and in Agriculture.

The charge for board, lodging, and instruction is £42 per term (February, 1920).

"The main industry of the daughters of the College is education; but there are many Girtonians in other walks of life, and not a few have made contributions of permanent value to science and letters."

The site consists of about 40 acres, the buildings including two libraries, a hall, a chapel, a chemical laboratory, and a swimming bath. The Library comprises upwards of 14,000 volumes, and contains, among other treasures, original editions of Ruskin's and Tennyson's works, with the authors' autographs. The Chapel (completed in 1901) has some excellent carving by old students; and a very fine organ.

The garden—fruitful and beautiful—is one of the greatest charms of the College. It has a quite unrivalled Honeysuckle Walk, the haunt of students' May Term tea-parties, as well as of nightingales and many lesser song-birds.

Detailed information about College matters (examinations, fees, etc.) is included in the *Girton Report*, to be obtained from the Secretary of the College; and further particulars, together with views, portraits of Miss Emily Davies, Madame Bodichon, Mr. Sedley Taylor, Rosalind (Countess of Carlisle), and other founders and benefactors, are given in the volume on *Girton College* (1913) in Black's "Beautiful Britain" Series. E. E. C. J.

GLANDS, FUNCTIONS AND DISORDERS OF.—(See ENDOCRINE STRUCTURES IN RELATION TO EDUCATION, THE.)

GLASGOW, THE UNIVERSITY OF.—Like the sister Universities of Aberdeen and St. Andrews this institution owes its origin to the Church of Rome, having been founded in 1451 by Bishop Turnbull, who obtained a " bull " of ratification from Pope Nicholas V. The government of its affairs was entrusted to the Bishop of Glasgow and his successors in office. There do not appear to have been any recognized permanent college buildings until 1460, when James, first Lord Hamilton, endowed a college in the old High Street, in which the classes of the University continued to meet for more than 400 years. This property was added to from time to time, amongst the earliest additions being thirteen acres of ground adjacent to the college, granted by Queen Mary, while in 1577 a new charter, granted by James VI, brought additional funds. Owing to the necessity for expansion, the college buildings and adjoining property in the High Street were sold for about £100,000, and the new buildings, now the chief home of the University at Gilmorehill, designed by Sir G. Gilbert Scott, were opened in 1870.

During the first two centuries of its existence, the University suffered through various political and ecclesiastical changes, and little real progress was made until the beginning of the eighteenth century. Between 1700 and 1760 no fewer than seven new professorships were established, viz., Humanity, Oriental Languages, Civil Law, Medicine, History, Anatomy and Astronomy. During the next forty-seven years no new chairs were established, but between 1807 and 1896 the following new professorships were created: Natural History, Surgery, Midwifery, Chemistry, Botany, Materia Medica, Institutes of Medicine, Forensic Medicine, Civil Engineering, Conveyancing, English Language and Literature, Biblical Criticism, Clinical Surgery, Clinical Medicine, Naval Architecture, History, Pathology, and Political Economy. Since 1900 a number of new professorships have been established as well as a considerable number of additional lectureships.

Buildings. The present buildings at Gilmorehill were first occupied in 1870 and cost round about £470,000, of which over £250,000 was subscribed mainly in Glasgow and £120,000 was granted by Parliament. Besides the buildings used for class-work there is the Bute Hall, for the erection of which the late Marquis of Bute gave a donation of £40,000. The graduation ceremony and other important university functions are held here. Many additions have been made to the original main buildings from time to time, especially for the provision of better facilities for practical work in science and medicine. A Museum and a Herbarium have also been added. In 1893, shortly after the admission of women to the Scottish Universities, the Governors of Queen Margaret College, a neighbouring institution, devoted to the higher education of women, presented to the University for the use of the women students the whole of its buildings and grounds, and since this time Queen Margaret College has been a constituent part of the University. In 1907 two new groups of buildings were completed, funds having been provided for this purpose by the Carnegie Trust (£60,500), and under the late Professor Story's University Equipment Scheme (£40,000). One of the groups is devoted to the Natural Philosophy Department and the other to the Departments of Physiology, Materia Medica and Forensic Medicine. The Royal Technical College, which is situated in the centre of the city, was affiliated to the University in 1918. In 1917 the property of Hillhead House and Ground, in University Avenue, was purchased and presented to the University by the family of the late Mr. Walter MacLellan of Blairvaddick.

Constitution. The present constitution dates from 1858 when the Universities (Scotland) Act was passed, and embodies the changes required by the further Act of 1889. The chief governing and administrative authority is the University Court, which is composed of fourteen members representing respectively the General Council of Graduates, the *Senatus Academicus* or Senate, and the Students. The duties of the *Senatus* are concerned mainly with teaching and discipline. The chief officers are the Chancellor, who is the head of the University, the Rector, the Principal, and the Dean of Faculties. Since 1875 the Chancellor has been elected by the General Council; he holds his office for life. The Rector is elected for three years by the students, who are for this purpose divided into four " nations " according to their place of birth, viz., Glottiana (Lanarkshire), Transforthana (Scotland North of the Forth), Rothseiana (Buteshire, Renfrewshire, Ayrshire) and Loudoniana (all other places).

Faculties. There are five faculties: Arts, Science, Medicine, Law and Divinity. The curriculum for an ordinary Arts Degree (M.A.) may embrace either five or six subjects, but if five subjects are chosen, two of these must be studied for a longer period by the candidate and a higher standard in each is expected. Every course for the Degree of M.A. must include either Logic or Moral Philosophy. The M.A. (Hons.) Degree may be taken in one or more of about twelve departments of study. The degree of Bachelor of Education, Ed.B., is conferred by this faculty.

Besides the degree of B.Sc. in Pure Science the faculty of Science confers the following degrees: B.Sc. (Engineering), B.Sc. (Agriculture), B.Sc. (Public Health), B.Sc. (Pharmacy), and B.Sc. (Applied Chemistry). Higher degrees are granted to graduates who offer a satisfactory thesis on an appropriate subject for further study not less than five years after graduation. The degrees offered in the faculty of Medicine are Bachelor of Medicine (M.B.) and Bachelor of Surgery (B.S.), leading respectively to the degrees of Doctor of Medicine (M.D.), and Master of Surgery (M.Ch.) under certain conditions. In Law the degrees are Bachelor of Laws (LL.B.) and Bachelor of Law (B.L.), as well as the honorary degree of LL.D. In Divinity there are the degrees of Bachelor of Divinity (B.D.) and an honorary degree, Doctor of Divinity (D.D.). In 1909 a new degree, Doctor of Philosophy (Ph.D.) was made available for graduates in any faculty, especially for research students.

The number of students in the several faculties during the year 1919-1920 was 4,204, of which 3,177 were men and 1,027 were women. The chief figures making up these were as follows—

Arts: .	Men, 603;	Women, 446.
Science: .	,, 871;	,, 93.
Medicine: .	,, 1,371;	,, 464.

Formerly the Arts Faculty attracted more students than any other, but recently there has been a great increase in the number of medical students.

The Senate elects Boards of Studies corresponding to the Departments of study for graduation in Arts. Each Board of Studies is composed of the Principal, the Dean of the Faculty of Arts, and other members of the Senate and Lecturers in the University selected by the Senate from time to time.

An Appointments Committee exists "for the purpose of spreading information among graduates and students regarding all kinds of posts, Civil Service, commercial and professional, for which educated men and women are suitable."

Social and Other Activities. The Students' Representative Council consists of representatives, men and women, from the different faculties and its aims are, as in the case of the corresponding bodies at the other Scottish Universities: "(1) to represent the students in matters affecting their interests; (2) to afford a recognized means of communication between the students and the University authorities; (3) to promote social and academic unity among the students." The S.R.C. carries on many activities that are directed by corresponding sub-committees, among which are the Inter-Universities Committee, the Magazine Committee, the Amusements Committee, the Lodgings Committee, and the Book Exchange Committee. There are besides a number of other University Societies, including the Glasgow University Union, the Queen Margaret Union, the Dialectic Society, the Literary and Debating Society, etc.

There is a well-equipped gymnasium, and an Officers' Training Corps, which was established in 1909. The University Library, which was founded in the fifteenth century, contains an extensive and valuable collection of books, to which valuable additions have been made from time to time. Amongst the most notable of the recent additions are: The library of the late W. Euing, Esq. (15,000 volumes), the Walker-Arnott Botanical Library (970 volumes), and the Musical Library of the late Thos. L. Stillie (760 volumes).

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GLENALMOND, TRINITY COLLEGE.—In 1841 a number of English and Scottish noblemen, clergy, and gentlemen, including William Ewart Gladstone and Dean Ramsay, resolved to found a first-grade public school to supply the needs of the Episcopalians of Scotland. They selected a site on the right bank of the River Almond, some 10 miles from Perth, in the midst of splendid mountain scenery. The first warden was Charles Wordsworth, afterwards Bishop of St. Andrews, a nephew of the poet; he had been tutor to Gladstone and Manning at Christ Church, and had played in the first inter-university cricket match and rowed in the first university boat-race; under him the school soon achieved distinction. It was opened in 1847. The buildings, which surround a quadrangle, comprise classrooms, dormitories, laboratories, an art school and museum, a workshop, a gymnasium, and fives-courts; besides the chapel (the gift of Bishop Wordsworth), the entrance lodge, hall, and gate, built when Dr. Hannah was warden; and the library and reading-room erected as a memorial to O.G.'s who lost their lives in the Boer War (1899–1902). The dormitories contain cubicles, though senior boys have separate bedrooms. There is a detached sanatorium, and a well-equipped engineering laboratory.

The boys number about 150. They enter the Junior or Preparatory School between 9 and 13, and the Senior School between 13 and 15. The "Common" Entrance Examination fixes the standard of attainments for the latter. The lower forms of the Senior School form the Middle School; the upper part is divided into the usual two sides; there are also an Army Class and an Engineering Department. The Cadet Corps (O.T.C.) is attached to the "Black Watch," and wears Atholl Murray tartan. There are many entrance scholarships: two or three of £20–£60 are offered annually; the McQueen Bursary of £50 a year is confined to sons of Army and Navy officers; fifteen scholarships of £55 are reserved for sons of the Scottish episcopal clergy, and six exhibitions of £40 for sons of the clergy in general. Among the leaving exhibitions are two Old Glenalmond Scholarships of £40, and the "James Carnegie" of £50; two scholarships of £70 at Keble are awarded to Glenalmond boys, *ceteris paribus*.

GLOUCESTER ACADEMY.—(See DISSENTING ACADEMIES, THEIR CONTRIBUTION TO ENGLISH EDUCATION.)

GNATHIC INDEX OF FLOWER. — (See CRANIOMETRY.)

"GOD AND THE KING."—This is the name of a short treatise, issued in Latin, and in English, separately, to show the divine right of King James I to the throne. It was issued by the King's "special privilege and command" in 1615. It asserts categorically, first, that the King "hath no superior besides God, to whom he is immediately subject within his dominions"; and, second, "that the bond of allegiance from his subjects unto him as their supreme Lord is inviolable, and cannot by any means be dissolved."

The claim of Divine right laid down was a counterblast to the supreme position claimed by the Pope. The plots and treasons of Queen Elizabeth's reign are summarized to show the necessity of the strictest oath of allegiance to the King; and it is laid down emphatically that no earthly power (*e.g.* that of the Pope) can absolve subjects from allegiance, nor Roman Bulls and curses exonerate such subjects from the consequences of treason against the King. There is an engraved frontispiece with the King in state and, above, Hebrew characters with rays proceeding from a scroll bearing the words "By mee Kings Raigne."

The treatise is in the form of a dialogue between Theodidactus and Philalethes. In 1663, it was republished with the portrait of Charles II in place of James I; and similarly, in 1727, it was re-edited to advocate the Divine right of the Hanoverians. The original author is supposed to have been Richard Mocket (1577–1618), Warden of All Souls College, Oxford (1614), who was licensee of books for entry at Stationers' Hall (1610–1614).

The significance of the tractate in the history of education lies in the fact that, in 1616, by Patent Roll of King James I, it is stated that, by "our special direction," the Archbishop of Canterbury and the rest of the bishops of the realm had been enjoined by the King to order the "teaching of all

youths in the said book." A similar Proclamation was issued by King Charles II in 1662, recommending all "masters of families and apprentices to have a copy of the treatise," and fixing the price to be asked for each copy not to exceed 6d. In Ireland (between 1615 and 1625) a Proclamation was issued for the use of the book in either Latin or English. In Scotland, the Town Council of Edinburgh purchased large quantities of the treatise for sale; and the General Assembly, in 1616, ordained its use.

English Visitation Articles in the seventeenth century inquired whether the minister "doth teach the book *God and the King*." This book, therefore, illustrates direct interference by the State with school-teaching for political purposes.

(See also LYLY (WILLIAM), and OCLAND (C.), for further instances of State authorization of school text-books, as well as the direct requirement from diocesan authorities of the use of certain catechisms.)

F. W.

GODDARD, WILLIAM STANLEY (1757–1845).—Educated at Winchester and Merton College (Oxford); became second master of Winchester School in 1784, and head master in 1796. He is described as one of the best masters Winchester ever had. He found the school in a low state, with small numbers and bad discipline; but within three years he raised its numbers from 60 to 140, and greatly improved its scholarship. Among his pupils were Bishop Shuttleworth and Doctor Arnold of Rugby (*q.v.*). He was an able teacher and a firm disciplinarian, and Arnold learnt much from him regarding the government of boys by reliance on their sense of honour.

GODWIN, MARY WOLLSTONECRAFT (1759–1797).—She was of Irish race, and born at Hoxton, London. Her father, Edward Wollstonecraft, squandered a large fortune, and at 19 his daughter had to provide for herself. She and her sisters for a time kept a school at Newington Green, and later she was governess in Lord Kingsborough's family. In 1788 she became acquainted with Dr. Johnson, did work for him, and wrote *Thoughts on the Education of Daughters*. In 1792 she published her *Vindication of the Rights of Women*, which she dedicated to Talleyrand; and in the winter of the same year she went to Paris, where she witnessed the Terror, and commenced to write a valuable *Historical and Moral View of the Revolution*. In Paris she formed an irregular union with a worthless soldier, Gilbert Imlay, who deserted her after the birth of a daughter. After her return to London in 1795, she lived with the novelist William Godwin, who married her in 1797, and died in September of the same year—a few days after the birth of a daughter, Mary, the future Mrs. Shelley. Mary Godwin was the "proto-martyr of the Rights of Women," and many years in advance of her time. Her *Vindication* is full of prejudices, and shows the writer's scanty knowledge of human nature and good society. But it protests against the unsuitable sentimental teaching of young girls of her day, and advocates the establishment of Government day schools. Many of her contentions would be accepted without question at the present day.

GODWIN, WILLIAM (1756–1836).—The son of a Nonconformist minister of Wisbech; entered Hoxton Presbyterian College in 1773; and from 1778 to 1783 was a minister at various places; but he turned Socinian and republican, and by 1787 declared himself a "complete unbeliever." He took up literature, and in 1793 published *Enquiry concerning Political Justice*, in which he denounced law, and marriage as the worst of all laws. His *Adventures of Caleb Williams* (1794) made him famous. It was a really strong "novel with a purpose," intended to give a "general review of the modes of domestic and unrecorded despotism by which man becomes the destroyer of man." Through Dr. Johnson he made the acquaintance of Mary Wollstonecraft, whom he subsequently married. He wrote a number of prose works, including novels; a poor tragedy, *Antonio;* and some biographies; but nothing equal to his early works. Godwin was the first systematic English anarchist, condemning Government for all its laws, restrictions, and punishment; and advocating the welfare of the community by the liberty and development of the individual. But he condemned the use of physical force as a remedy against bad government. His essays on *The Study of the Classics* and *Choice of Reading* are valuable contributions to literature on debatable subjects, and his *Caleb Williams* still holds a place in popular literature.

GOETHE, JOHANN WOLFGANG VON (1749–1832).—He was a German poet who did much to place his nation at the head of the intellectual movement of the nineteenth century. He advocated self-development with a view to usefulness, effected by activity within wise limits. His writings include dramas (*Faust, Egmont*), poems (*Iphigenia*), novels (*Wilhelm Meister*), and many shorter poems.

GOLDSMITH, OLIVER (1728–1774).—He was the son of a village clergyman in the county of Longford, and was at first educated at such a village school as he describes in *The Deserted Village*. He afterwards took a degree at Trinity College, Dublin; studied medicine at Edinburgh; and travelled on foot on the Continent, supporting himself by flute-playing, gambling, and "disputing" at universities. In 1756 he returned to England, and was employed successively as usher in a school, corrector for the Press, reviewer, and newspaper-writer. He fortunately made acquaintance with Dr. Johnson (see Boswell's *Life of Johnson*), who in 1761 sold for him the manuscript of *The Vicar of Wakefield*, which was published in 1766, after Goldsmith had become famous by the appearance of his *Traveller*. He had previously published an *Inquiry into the State of Polite Learning in Europe* (1759), which was clever, but full of inaccuracies; and *Citizen of the World* (1760), a series of letters supposed to be written from London by a Chinaman. Goldsmith also wrote a *History of England*, and a *Roman History*, which Johnson praised as telling "shortly all you want to know"; *She Stoops to Conquer* (1773), which is still a popular comedy; and *The Good-natured Man* (1767), praised by Johnson as the best comedy produced for many years. Goldsmith had no rival in his delicate wit, light epigram, and graceful pathos.

GOLDSMITHS' COLLEGE, NEW CROSS.—(See LONDON CITY COMPANIES AND EDUCATION, THE.)

GORDON MEMORIAL COLLEGE, KHARTOUM.—Immediately after the defeat of the Dervishes by General Kitchener in September, 1898, at

Omdurman, steps were taken to set up a permanent memorial to the memory of General Gordon at Khartoum. On 5th January, 1899, the foundation-stone was laid of the Gordon Memorial College, the necessary funds having been obtained by Viscount Kitchener by public subscription. He himself opened the College in November, 1902. It provides literary, scientific, and technical instruction; and as early as 1906 the pupils were 500 in number. One branch of the College is a training school for teachers. The endowment fund amounts to £100,000.

GOTHA, SCHOOL REFORM IN.—The German duchy of Saxe-Gotha is associated with a great effort in school reform carried out in the seventeenth century by its Duke, Ernst the Pious, assisted by the German schoolman Andreas Reyher. After an inquiry into the state of schools in the duchy, Duke Ernst appointed Reyher as rector of the gymnasium in Gotha, and directed him to draw up a scheme of education for the State schools. In 1642, Reyher produced a *School Method*, which was revised and re-issued several times during the Duke's reign. The scheme included compulsory education, prescribed the elementary subjects to be taught in all schools, and gave instructions to teachers on methods of teaching and discipline. Natural science and useful industrial education were provided for, and annual examinations were held under inspectors appointed by the State. A number of model schools were founded, and Reyher wrote many text-books for the use of teachers and pupils. Teachers were well paid under Duke Ernst, and provision was made for sickness and for the maintenance of their widows and orphans. Higher education received equal care and attention, and pupils of the gymnasium were prepared for a university career. After the Duke's death in 1675, education in Gotha declined. Reyher had died two years earlier.

GOTHENBURG UNIVERSITY.—This was founded as a high school in 1887, partly by private enterprise and partly by the municipal authorities. The Royal Society of Science and Literature had provided lectures at Gothenburg since 1841, and had received public aid after 1874. This institution is not a State university, and has only one faculty (viz., Arts) in which it confers degrees. Since 1909 it has been under the authority of the Chancellor of State Universities. It has always been open to women.

GOTTINGEN UNIVERSITY (in Hanover).—This was opened by George II in 1737, and quickly became renowned for higher learning, attracting many English and American students. As a new university, it gave less prominence to theology, and normally more than half its students devote their attention to philosophy. After the Napoleonic Wars, it was re-established, and since then has made rapid strides. Besides philosophy, it is specially renowned for mathematics and physics. Its library contains over 500,000 volumes and 7,000 manuscripts, and is the largest university library in Germany. Women have been admitted since 1893, and the doctor's degree has been granted to women. The usual number of students is about 2,500.

GOUGE, THOMAS (1609–1681).—He was born in London; educated at Eton and Cambridge; and became vicar of St. Sepulchre's, London. He became famous for his catechetical classes, which he held every morning for persons of all ages. To encourage the attendance of the aged poor, he distributed money to them once a week, varying the day to secure constant attendance. He also promoted the spinning of flax and hemp, buying the raw material and paying the workers for their yarn, which he sold as best he could. In 1672 he settled in Wales, and set up schools in which children should be taught to read and write the English language and learn the Catechism. He engaged teachers and paid them a penny or twopence a week for each scholar. He spent much money in circulating religious books in Wales, including a New Testament with Psalms, printed in 1672; and a Welsh translation of *The Whole Duty of Man*. By his efforts 300 schools were set up in Wales, and he frequently visited them. He wrote several religious books, including *A Short Catechism* (1621, and 1631), for his schools.

GOUGE, WILLIAM (1578-1653).—A Puritan divine; was educated at Eton and King's College, Cambridge; and became lecturer on Logic and Philosophy at his college in 1602. He left Cambridge in 1604, married, and became a preacher in London.

GOUVEA, ANDRE.—(See GUYENNE, COLLÈGE DE.)

GOUERNOUR, THE.—(See ELYOT, SIR THOMAS.)

GOVERNESSES' BENEVOLENT INSTITUTION, THE.—This was founded, in 1843, by the Rev. David Lang. It succeeded the Governesses' Mutual Assurance Society, which was a benefit society making provision for sickness and old age, but which failed because its plan proved unworkable. The objects of the present institution are more varied and extensive than were those of its predecessor. It was established "to raise the character of governesses as a class, and thus to improve the tone of female education; to assist governesses in making provision for their old age; to assist in distress and age those governesses whose exertions for their parents or families have prevented such a provision."

The work of the Institution is divided into at least nine distinct branches—

The Home. A home was opened at 47 Harley Street, London, W., where governesses can stay during the intervals between their engagements. They are admitted by the Ladies' Committee of the Home for a period of one month or less, which may be extended by the committee to three months. The charges are very moderate.

Free Registration. By means of satisfactory letters of recommendation, governesses may register their names and other particulars about themselves. A register is also kept of applications for governesses, and the Institution undertakes to put governesses requiring appointments into communication with employers requiring governesses. No charge is made either to principals or to governesses, thus saving the latter a very large sum in fees annually.

Holiday House. "Fairmount," Shanklin, was presented to the Institution by Mr. J. R. Furneaux, a subscriber, and is in a lofty position overlooking Shanklin pier. It has accommodation for nineteen visitors in separate bedrooms, The charges are moderate. The admission is for not more than a month, unless specially sanctioned by the committee.

The Chislehurst Home. This home for aged governesses consists of a block of twelve houses,

each having a separate entrance. The accommodation is such that an inmate can have a relative or friend to live with her. Each house is occupied by a pensioner of the Institution, who is allowed an annuity with free coals and medical attendance. The houses are pleasantly situated, and surrounded by attractive and well-kept gardens.

Temporary Assistance. More than £2,000 is distributed annually, and in a private way, through the Ladies' Committee. This assistance is invaluable in helping governesses who are in temporary difficulty, owing to illness, lack of employment, etc.

Annuities. Free elective annuities, secured by invested capital, are granted to governesses over 50 years of age, single or widows, and British subjects. Upwards of £11,000 is devoted annually to annuities, and about £500 is, in addition, distributed among the candidates for election.

Provident Fund. This fund was established to help governesses in any way connected with education, but its principal object is to encourage thrift by assisting them to purchase deferred annuities The terms are very favourable to governesses, and the policy-holders are protected against loss in every possible way. Frequent subscriptions and donations to the Provident Fund enable the Institution from time to time to reduce the annual payments of policy-holders. A special feature of the scheme is that if any lady should be unable to continue payment of her premiums, or should die before the annuity is due, all the premiums paid are returned with compound interest at 3 per cent. per annum. A cash option, similarly calculated, is also available at the deferred age, which is a valuable provision for a policy-holder in bad health at the time.

Governess Member Fund. Those who subscribe not less than half a guinea annually are enrolled as "Governess Members," and are entitled to vote at the half-yearly elections for annuities. A ten-years' subscriber obtains special privileges in the voting should she become an accepted candidate for an annuity, and has the right to compete for certain annuities reserved for Governess Members only. The committee has power to return to a Governess Member who is a candidate for an annuity all her subscriptions in full should she appear to be in need of such help. Thus the Governess Member Fund becomes a means of remunerative insurance against hard times in old age.

Queen's College. This College is situated at 43 Harley Street, London, W. It was founded in 1848 to promote the general education of women and to grant certificates of knowledge. The Governesses' Benevolent Institution makes Free Presentations to Queen's College to those in some way dependent on a governess. The candidates must be at least 14 years of age, so that Presentation is a valuable help to a girl who proposes to enter the teaching profession.

The offices of the Secretary of the Institution are at Dacre House, 5 Arundel Street, Strand, London, W.C.2.

GOVERNMENT OF SCHOOLS IN OTHER THAN COUNTY AREAS, THE.—Local administration in other than county areas covers all the seventy-six county boroughs, ranging from Birmingham (with a population of 840,000) to Canterbury (with 24,000). Non-county boroughs with a population of over 10,000, and urban districts with over 20,000, are also autonomous authorities for the purpose of administering the powers conferred by Part III of the Education Act, 1902, with respect to elementary education.

Under the Act of 1918, authorities may enter into arrangements with each other for co-operation and combination for such purposes as they think fit, and the Board of Education may by scheme provide for the federation of authorities who wish to make such arrangements. Part III authorities may also relinquish their powers to the County Council.

Powers of an Education Committee. All authorities, except those controlling higher education alone, are required to appoint an education committee in accordance with a scheme approved by the Board of Education; and the local education authority can delegate to this committee any powers it sees fit, except that of levying a rate or borrowing, and *must* refer all educational matters to it, though it may, in cases of urgency, act without waiting for its report. The council must appoint some of its own members to form a majority of the committee, and must also include persons experienced in education, including women. Within these limits, wide variety is found among authorities. In many, all matters are delegated except certain reserved powers, and the authority of the council is maintained through the necessity of approving annual estimates and receiving an annual report. Powers reserved to a council are various, depending partly on the size of the town and partly on the degree of control which the council wishes to retain. The powers most commonly reserved are those relating to purchase or sale of land and erection of buildings, and, less frequently, the appointment of chief officers, the framing of scales of salaries, and the fixing of staff. At the other extreme, all the proceedings of the education committee are reported to the town council, and require confirmation before they are valid. The money voted annually by the council in accordance with estimates submitted by, the committee is, in some cases, paid over direct the committee having power to expend the money as it sees fit, and, being enabled, for instance, to transfer a saving on one vote to meet a deficiency on another. In other cases, expenditure exceeding any vote, or even the sub-head of a vote, by more than a certain sum requires confirmation by the council; while, in other instances still, all divergencies from the annual estimates require similar confirmation.

The meetings of a borough education committee are held at least once a month, and there is, therefore, less necessity for delegation of functions to sub-committees than is the case in the counties, where the meetings are less frequent. The meetings of the sub-committees are so arranged as to enable them to report in sufficient time to the education committee. The sub-committees are held in private, and the education committee is open to the public. Both the committee and the sub-committees are re-constituted after the municipal elections each November, and proceed to elect chairmen. The practice has grown up in some authorities for the chairmen of the education committee and of the sub-committees to hold office for only a certain period—one or two years. In others, longer tenure of office is the custom. The advantage of a change of chairman is that it prevents the tendency for one or two members to retain the chief offices, with a result that the bulk of the work and responsibility is left to them, while the other members cease to take a very active interest in affairs except as

occasional critics. On the other hand, where an exceptionally able, hardworking, and tactful chairman, who is able to get the best work from the individual members of the committee, is in the chair, the benefit of his ripened experience is lost by the change of office. Unless re-appointments are allowed after a few years, the supply of really able chairmen tends to be exhausted, and the system of rotation results in a loss of efficiency. But the rotation of chairmen results in greater influence being exercised by the officials who carry on the continuity of practice. The larger authorities, and many of the smaller, usually have meetings in the daytime. In some, the full education committee meetings are held in the evening, and sub-committees in the day time. Wherever possible, the day meetings are to be preferred as involving less strain on the office staff.

The object of all schemes should be to secure freedom to those specially cognizant of the needs of education, combined with due control of the financial interests of the ratepayers, and to avoid a common defect of local administration, namely, the tendency to swing from reckless expenditure to excessive and equally costly parsimony. This tendency is often illustrated in the relations between the education committee and the finance committee of the town council. The finance committee, held largely responsible for the amount of the rate, looks with suspicion on the education committee, which demands a large expenditure for which the return is not to be found, as in the case of the trading committees, in terms of £ *s. d.* The education committee, on the other hand, feels that its estimates do not always receive sympathetic consideration at the hands of the town council, and is sometimes impatient of financial regulations, which, though wise in themselves, may in practice operate harshly against the interests of education. An extreme attitude is thus easily possible on either side, but it may roughly be held to be true that the claims of education are not always sufficiently understood. How far educationists themselves are responsible for this, by not making their aims and ideals sufficiently conform to the practical life of the day; and how far the feeling of antagonism to education is caused by the somewhat vague criticisms, often mutually destructive, that are levelled at it—this is not the place to determine.

Co-opted Members. The co-opted members are a valuable element, especially where they are appointed solely for their experience and knowledge of educational matters. The number of women members could be usefully increased beyond the minimum, as it is found that they are too few to cope with the duties which could be usefully placed upon them.

With the wide extension of the functions of an education committee in the last few years in the direction of social activities, and with the deepening conception of education itself, there is an increasing need to enlist the services of all persons of goodwill. In many cases the fear is expressed that the education committee itself does not attract those persons who have the welfare of education so genuinely at heart as the old *ad hoc* authorities, and this is especially the case where the co-opted members are regarded as being in a less important position than the members of the council itself. Members of town councils are elected on a variety of questions, most of which are concerned with matters requiring the qualities that make a successful business man. Necessary though a leaven of business ability is to any public body, it is comparatively rare to find it combined with the zeal for education and the experience which are so important. Thus, while the work of the education committee is marked by high administrative success, undue emphasis is apt to be laid on the utilitarian side of education, rather than on its true meaning and spirit.

Sub-Committees. The work of the education committee is divided among various sub-committees. The main sub-committees are the elementary or school management sub-committee, the higher schools sub-committee, and the finance sub-committee. Questions of accommodation, of the planning and maintenance of buildings, of the ordering of furniture and other material, are sometimes referred to independent committees, and are sometimes assigned to the elementary or higher schools committee according to their subject-matter. The staffing of the schools is generally dealt with by each committee concerned; but in some cases there is an especial staffing sub-committee, which deals also with the office staff. Similarly, evening schools, training and technical colleges, and canteen committees are sometimes independent and sometimes subordinate committees. Each method has its advantages. For instance, to take the question of staffing, its problems are partly special (*e.g.* concerned with elementary schools), and partly general, arising from the employment of staff by an authority. Thus, a staffing sub-committee subordinate to the elementary schools committee is in closer touch with the needs of the schools; but, with a single staffing committee, it is more easy to formulate a common policy governing the appointment and salaries of the staff. In addition to the finance committee, there is sometimes a general purposes sub-committee, but most generally the functions of the two are combined. A useful device for preliminary consideration of the larger problems of administration is to have a general purposes sub-committee, consisting of the chairmen of the various sub-committees, so that their possibly conflicting claims can be reconciled in a simple manner without friction. In some cases, the general purposes sub-committee consists of all the members of the education committee, and is constituted in order to secure the discussion of questions of general interest by all the members otherwise than at the public meeting of the education committee. The new duties relating to medical inspection and treatment of school children have either been assigned to the elementary schools committee, or a new children's care or health committee has been formed. In the latter case, the powers of the committee include all matters relating to the welfare of school children other than the actual scholastic work. Where district or school care committees have been formed, they report to this central care committee. A juvenile employment sub-committee, to include representatives of employers and employed and other external interests, is usual either to administer the Education (Choice of Employment) Act, 1910, or to act as a juvenile advisory committee to the Board of Trade Labour Exchange.

The vast preponderance of the work of an education committee is carried out by the sub-committees, and it may be said to be very excellently done. Considerations of party and theory disappear in face of the great amount of detailed work which has to be done, and are only brought into play when larger questions of policy are involved. A tendency to over-elaboration of detail is the

only criticism from the administrative point of view that can fairly be levelled against the proceedings of those persons who voluntarily give so large a part of their time and energies to the public service.

The variations in the sub-committees and their duties have generally grown up as practice found necessary, and it is well thoroughly to revise from time to time their constitution. The universal tendency is for committee work to increase, with the result that procedure becomes dilatory and unnecessary overlapping is occasioned. On the whole, it is of advantage to have a few main committees dealing largely with more important questions or main principles, other matters being referred, where the size of the work demands it, to subordinate branch sub-committees. In this way, a concentration of energy and interest is secured.

Managers. The local education authority of a borough is not required to appoint managers for "provided" elementary schools, but many authorities do so. The commoner practice is for certain members of the committee to be appointed as visitors to particular schools. Where managers are appointed, details of the school management relating to the particular school—such as granting special holidays, prize distributions, and displays—are left to them. The appointment of assistant teachers, and sometimes head teachers, is also, in many instances, left to the managers, subject to confirmation. The advantage of appointing managers consists in securing persons in each locality interested in the schools, and thus widening the field of educational interest. The disadvantage is to be found in the fact that such managers are concerned only with their own schools, and are not so likely to look at the needs of education as a whole. It is more difficult, for instance, for the central authority to arrange transfers of staff where managers are given independent functions. The appointment of head teachers is usually wisely reserved to the central committee, who have wider knowledge of the most suitable available teachers, whereas managers are prone to overrate the claims of assistant teachers with long service in their own schools, whereby the fluidity of the teaching staff is lessened and the beneficial effects of transfer from school to school are lost.

Elementary schools not provided by the local education authority have a body of managers consisting of not more than four "foundation managers," representing the denominational purposes of the school, and not more than two managers appointed by the local authority, though not necessarily members of the authority. The appointment and dismissal of teachers rests with the managers, but the consent of the authority is required. The grounds on which the education authority refuses consent must be other than grounds connected with the religious instruction of the school. The managers are required to carry out reasonable directions of the authority with regard to secular instruction, and may not refuse admission to the recognized inspector or representative of the authority. As regards the buildings, the general distinction between the duties of the managers and the authority is that the managers provide and the authority maintains. The only method by which an authority can enforce its wishes on managers is by ceasing to maintain the school, a means often out of proportion to the point at issue. An authority, for instance, may be penalized by loss of grants due to the default of the managers, but it has no means except a threat to withdraw maintenance to make the penalty felt by those in default.

Appointment of Teachers. Since the efficiency of all education depends in the highest degree on the number and quality of the staff, the appointment of teachers is one of the most important functions the authority can exercise. The present practice leaves a good deal to be desired in this respect. The authorities are naturally anxious that the best appointments should be given to those who have devoted themselves to its service. This tends to localize the supply of teachers, and, though improving their salaries, has taken away from the best teachers opportunities for wider experience and progressive advancement. This applies to some extent even in the larger authorities, and much more in the smaller boroughs. The lack of stimulus supplied by a continual influx of new ideas from outside is increased where the authority itself trains the majority of its teachers.

The Staff. The executive work of an education committee is carried out through its chief official, who is named either secretary or director of education. In practice, there is little difference between the two titles. "Director" lays stress on his duties in advising as to the needs of education and the necessary organization to give effect to it. "Secretary" lays stress on his duties in conveying the decisions of the committee to those concerned, and seeing that they are carried into effect; but both sets of functions are required in every case. The secretary or director acts as a channel of communication between the committee and its teachers, managers, and the outside public. He is responsible for the discipline of the staff, including the attendance officers, as well as for the general administration. He is also responsible for the conduct of meetings and the preparation of minutes. The chief education officers are drawn from various sources. Some were secretaries to the old technical instruction committees before the Act of 1902; others were clerks to the school boards, which were superseded at that time. Others have been drawn from inspectors to the Board of Education or local authorities, and from the teaching profession; while a few have entered the education service in other ways. With the exception of former clerks to school boards, they have not, as a rule, risen to their present position from the lowest ranks of the office staff. The sources of future supply are a matter of some anxiety, unless the conditions of entrance to the lower ranks are altered. Directors of education will probably be drawn in an increasing degree from those with experience of teaching or inspectorial work. The director should be careful not to interfere unduly with the discretion of teachers in the exercise of their duties. He should simply endeavour to secure conditions for efficiency. On the other hand, he is able to serve as a focus for educational interest and endeavour in the town, and, with the chairman of the education committee, officially represents education in the eyes of the public. In common with all civil and municipal servants, it is important that he should not be identified prominently with any political, municipal, or religious party. It is often a matter for the exercise of wise judgment for an official to combine loyal support to the chairman of committees without becoming unduly identified with

policies for which they individually stand. The ideal director would, in addition to academic qualifications, have wide experience of elementary, higher, and technical education; but it is too much to expect this often to be combined in one man. A knowledge of law, of the principles of local finance, and of economics and social theory are all of great service, and one or other of these qualifications is possessed by many education officials. The salaries of chief officials are fixed independently in each case, according to the importance of the town. The larger boroughs offer salaries up to £2,000 a year.

General Organization and Relations with Other Departments. The relation of the chief education official to certain other officers deserves attention. The town clerk is usually responsible for giving legal advice to the committee, for preparing contracts and conveyances of land, and for co-ordinating its procedure to that of the town council. He also conducts correspondence relating to the raising of loans and levying of rates, and sometimes also with the Board of Education in regard to matters relating particularly to the local education authority. The position of the school medical officer has given rise to some controversy, and is difficult to adjust. His duties are intimately connected with the public health of the town and, at the same time, impinge at every point on educational administration. The medical officer of health is usually appointed as school medical officer, and the school doctors and their staff are in his department, but are subject in their relations to the working of the schools, to arrangements made by the chief education official. The position is somewhat anomalous, but, given goodwill on both sides, works without friction. Educational finance and book-keeping are either conducted by an accountant in the education offices, or are under the control of the borough accountant. In the former case, the borough accountant is consulted as to the form for the presentation of estimates, and on matters involving principles governing the whole of the borough finances. In the latter case, the estimates are prepared on information supplied by the education officer. Unless there are special circumstances, the arrangement of having the accountant responsible to the education officer is preferable, since he is much more readily brought into contact with educational needs and the detailed routine of which the great bulk of the work consists. It is, moreover, of distinct advantage that the chief education official shall be entirely responsible for the preparation of estimates and accounts, while financial procedure can be adequately safeguarded by regulations of the town council governing the form of estimates.

Various arrangements are possible for securing expert advice on the building of new schools and carrying out and supervising repairs. In the larger boroughs, an architect or surveyor is appointed. Where there is not sufficient work for a full-time officer, a private firm is engaged, and paid either by a fixed retaining fee or on commission, or by a combination of the two. An independent architect is entrusted with the design of the more important buildings, where the authority is not sufficiently large to employ a full-time officer of the requisite status. The architect or surveyor is not usually in the department of the chief education official, but is subject to his directions as to non-technical points.

The larger authorities appoint inspectors, who advise on educational matters and secure a recognized standard of efficiency being reached. A good inspector is rather an adviser than a critic, and is of particular service in securing contact between the schools and making known the practice of the best teachers. Local inspectors are almost entirely drawn from the ranks of teachers. A lady inspector or superintendent of domestic subjects is common. In the smaller boroughs, the secretary to the education committee acts as inspector, but he is generally unable to devote sufficient attention to the duties, nor is he by practice qualified to fulfil the very special requirements of the position.

The subordinate staff is recruited from the usual sources: either from the elementary schools at about 14, or from the secondary schools at 16. Increase of salary is usually steady and automatic up to a certain point, beyond which vacancies are filled by special promotion. Here, again, the salaries offered vary greatly under different authorities. Heads of departments range up to about £600 per annum, and the rest of the staff to about £250 to £400. The education services generally have failed to take advantage of the recent development of education higher than secondary, and very little use has so far been made of those who have profited by the newer universities—even the secondary schools supplying a comparatively small proportion of the staff. The need for persons of higher qualifications to fill the intermediate posts has been recognized, and something has been done to meet it by the examinations of the Association of Local Government Officers. Of recent years, an increasing number of women have been employed as clerks or typists, and during the war they filled responsible intermediate posts with conspicuous success.

The duties of attendance officers who were previously concerned solely with the attendance of children at school, have been largely increased of recent years, and they are now required to make inquiries as to the economic conditions of families in connection with the provision of meals and the assessment of charges for medical treatment. This tendency is likely to be more marked in future years, and it is possible that special training will be necessary. In the past they have been selected in a somewhat haphazard manner on the grounds of general good character and reliability. A certain number of nurses and other women have been appointed as attendance officers, and, in view of the more varied nature of their functions, the practice can be usefully extended. A superintendent of attendance officers is usual where there are more than five or six of them. An employment officer is appointed where the Choice of Employment Act is in force; in other cases, it is usual for the education committee to appoint an officer to represent it, and to act in consultation with the Board of Trade Advisory Committees.

Schemes of Education. Under the Act of 1918, every authority, when required by the Board of Education to do so, must submit schemes showing how their duties and powers are proposed to be exercised. Before submitting schemes, the Council of any County must consult with the authorities for the purposes of Part III within their area, and the latter may if they desire submit proposals to the Board for consideration in connection with the scheme of the County. Provision is made for the views of parents and other persons interested being considered and for due publicity being given to schemes which it is proposed to frame.

If the Board do not consider a scheme adequate, they shall offer to hold a conference with representatives of the authority, and if requested by the authority shall hold a public inquiry. Failing agreement, the Board are required to lay before Parliament the report of the public inquiry, if any, together with their reasons for disapproving of the scheme, stating any action which they intend to take by way of reducing the grants payable to the authority.

The educational schemes are a noticeable feature of the new Act and it is anticipated that they will result in great benefit to education by requiring authorities to consider their problems as a whole and from the educational point of view rather from that of finance. The procedure in cases of disagreement between the Board and an authority was a matter of some controversy during the passage of the Education Bill through Parliament and was the result of agreement with the representatives of the authorities. Its exact effect can only be ascertained after experience has been gained of its operation. J. H. T.

GOWER'S WALK SCHOOL, WHITECHAPEL.—This was founded, in 1807, by William Davis, an East London merchant, one of the first members of the Standing Committee of the National Society (*q.v.*); and aimed at providing for 100 girls and 100 boys (1) definite Christian teaching, (2) sound elementary instruction, and (3) practical preparation for industrial life. The features that make the school unique are connected with (3).

Here we have the first technical school in England, the founder being a century in advance of his time. The boys were trained in the rudiments of printing, and the girls in needlework; but no boy was allowed to enter the school printing office until he was 10 years old and had attained some proficiency in reading, writing, and arithmetic. He then spent about half of each working day in the schoolroom, and the other half in the press or composing room. The methods employed were exactly the same as in the trade, so that good business habits were cultivated. The profits of the boys' work, which amounted in 1840 to upwards of £100 a year, were divided among the children, partly in the form of pocket-money and partly accumulated and paid to them when they left the school. Employers have always been anxious to take old Gower's Walk boys as apprentices, accepting their technical knowledge in lieu of premium, and the school has long been known among printers as the "School Press." Carrying on its traditions, it has recently acquired a photographic room with full equipment and apparatus, the governors and trustees recognizing the close connection there is in these days between printing and photography.

The school is administered in a liberal spirit, and the physical side of the training is well looked after. Cricket, football, and swimming are encouraged, and there is an old-established shooting-range. The boys are distinguished by their excellent physique, as well as by a certain alertness, manliness, and independence, largely induced by the character of their education. Their moral and religious training still follows the lines laid down so carefully by the founder.

GOZA, THEODORE.—(See RENAISSANCE, THE.)

GRACES, SCHOOL AND COLLEGE.—The word is from the Latin through the French. In the sense of "a short prayer either asking a blessing before, or rendering thanks after, a meal," it was used till the sixteenth century almost exclusively in the plural, but in singular sense (*cf.* Fr. *rendre grâces*, Lat. *gratias agere* and our "return thanks," "thanksgiving"). The earliest known occurrence of the word in English in this sense is a 1225 Ancr. R. 44, *Ower graces . . . bifore mete and efter.*" Tindale translates Matt. xxvi. 30: "When they had said grace, they went out" (see *Engl. Hist. Dict.*).

The Custom. Charles Lamb begins his essay on "Grace before Meat" with the suggestion that "the custom had probably its origin in the early times of the world and the hunter-state of man, when dinners were precarious things and a full meal was something more than a common blessing! When a bellyful was a windfall and looked like a special providence." Thus can it be best easily explained that the saying of grace is specially attached to our meals only!

To say grace at meals was a Jewish custom (Berachoth, ch. VII). Jesus Christ Himself observed this custom (Matt. xiv. 19, xv. 36; Mark viii. 6; John vi. 11), and it naturally passed into the Christian Church (1 Tim. iv. 3–5; Clem. Alex. Test., etc.).

Forms. The earliest Christian form is found in the Apostolical Constitutions (4th Cant.): "Blessed art Thou, O Lord, Who feedest me from my youth up, Who givest food to all flesh. Fill our hearts with joy and gladness; that alway having a sufficiency, we may abound unto every good work in Christ Jesus Our Lord . . . ." The most ancient graces of the Latin Church are found in the Gelasian Sacramentary (7th or 8th C.). Here is one which, in various forms, is in constant use to this day in ancient seats of learning: *Benedic, Domine, dona tua, quae de tua largitate* (bounty) *sumus sumpturi, per Chr. Dom. nostrum.*

The mediaeval Primers (Books of Devotion for laity and in English) contain a number of graces; that of Edward VI (1553) gives fourteen. In that of 1534 occurs the following: The Grace or blessing of the table to be said of children standing before it, their hands elevated and joined together, saying thus devoutly and sadly: "The eyes of all things look up and wait upon Thee. . . . Thou openest Thy hand and replenishest all things living with Thy blessing. Our Father, Our Lord God, Our heavenly Father, bless thou us and these Thy gifts. . . . So be it."

Graces in Schools and Colleges. For a typical Latin school grace, we may take that of Westminster School. The heading is an extract from the statutes, drawn up shortly after the re-foundation of the school by Queen Elizabeth—

DE AGENDIS GRATIIS TEMPORE PRANDII ET COENAE.

ANTE PRANDIUM ET COENAM MENSA, UT PIETAS JUBET, SANCTE ET RELIGIOSE CONSECRARI DEBET. EJUS FORMA HAEC SIT: OMNES DISCIPULI EX UTROQUE LATERE AULAE SECUNDUM INFERIORES MENSAS ORDINE DECENTI STENT, PRAETER TRES ANTE SUPREMAM MENSAM STANTES, E QUIBUS UNUS HOC MODO INCIPIAT ET RELIQUI OMNES RESPONDEANT.

V. *Oculi omnium in te spectant, Domine.*
R. *Et tu das illis escam in tempore.*
V. *Aperis tu manum tuam.*
R. *Et imples omne animal benedictione.*
V. *Gloria Patri*, etc.
R. *Sicut erat*, etc. *Amen.*

[*LESSER LITANY & LORD'S PRAYER.*]

V. *Mensae coelestis participes faciat nos rex aeternae gloriae.*
R. *Amen.*

OREMUS.

Benedic, Domine nobis et donis tuis, quae de tua largitate sumus sumpturi, et concede ut illis salubriter nutriti tibi debitum obsequium praestare valeamus. Per Chr. Dom. Nostrum.
R. *Amen.*

DEINDE OMNES SIMUL DICANT.

Deus caritas est; qui manet in caritate in Deo manet, et Deus in eo; sit Deus in nobis, et nos maneamus in ipso. Amen.

This grace is still read by three King's Scholars in the manner directed. The tendency, however, in most schools is to reserve the longer grace for special occasions, and to substitute a shorter one.

At Eton a long Latin grace is used in college *once a week.*

At Winchester an old grace, which was once sung daily, is still sung two or three times a term (two verses only) by the seventy scholars at the close of the midday meal—

Te de profundis, summe Rex,
Jehovah! supplex invoco;
Intende voci supplicis;
Ad te precantem suspice.

With the Doxology:

Deo Patri sit gloria
Ejusque soli Filio,
Cum Spiritu sanctissimo,
Et nunc et in perpetuum.

It is sung to the tune by John Bishop, *Jam Lucis* (Oxford Hymn-book, No. 7 (2)).

A much more elaborate grace with intoned supplications and responses by the choir, composed by John Reading, is sung annually at the "Domum" dinner.

At other schools (*e.g.* Giggleswick) the simplest of all Latin graces are used: *Benedictus Benedicat* and *Benedicto Benedicatur.*

At Oxford and Cambridge, every College has its Latin graces, but in many of these the longer forms are used only on Sunday (*e.g.* Trinity, Cambridge, and Exeter College, Oxford); or, in other cases, only once a year (*e.g.* Balliol on the day of its patron saint, St. Catharine; and Trinity, Oxford, on Trinity Monday at the Gaudy).

Some schools have frankly given up Latin. Graces in English were written by the then Bishop of London in 1705 for the use of Christ's Hospital.

At Marlborough we find English graces in use.

The Value of Graces. There seems to be a general consensus of opinion among heads of colleges and schools that graces may inevitably be formal, but that they have a definite value all the same. It has been said: "I think that the habit of a minute or two's silence and reflection before meals is a good thing. In any case, an ancient grace, known to have been used in the same place and in the same manner for many centuries, is an impressive thing, and contributes to the formation of character. A respect for ancient and honourable custom is surely part of the ideal of an English gentleman."

GRADING AND PROMOTION.—The division of a school into classes may be regarded as an effort to create a suitable environment for those whose range of capabilities is almost the same. The competitive element is one of the most effective stimulants in calling forth human effort; but, for competition to be operative to the fullest extent, there must be fairly equal chances for all the competitors. Only the adult with the greatest determination will be found struggling onward when he is being outdistanced by his rivals, and the will-power requisite to battle against great odds will rarely be found in a child. It follows, therefore, that the suitable environment for the individual scholar is one in which he is associated with others whose attainments are about on a level with his own.

At first sight, it would appear that a classification by age would secure this association. But, though age gives a rough-and-ready basis for a preliminary classification, further discrimination is needed. All teachers know pupils who, in mental attainments, are one, two, or even three years behind their fellows of the same age; just as they know those who are more mature than their years would imply. The not unnatural tendency on the part of teachers is to welcome the latter with open arms, and to cast reproaches at the former. But a more extended experience of child life causes a teacher to modify this attitude. The rate of a child's development is no guide as to its ultimate amount. The instances of intellectually-gifted persons who have been slow in the first stages of development are by no means negligible; neither are the examples of the precocious, who have belied their early promise.

An estimation of equal attainments presents several difficulties. What may be called "average" children often show varying degrees of capacity in different directions, and this is even more markedly the case with clever children. Some excel in subjects that require manipulative skill; some shine in those that demand higher mental constructions. Boys usually outstrip girls in mathematical and scientific subjects, while in literary work the positions are often reversed.

Single-subject Classification. Instead of endeavouring to estimate a child in his all-round capacity for the purpose of determining his class or standard, it is better to consider his attainments in a single subject, or group of cognate subjects. With young children the subject usually chosen is reading: though, if the so-called reading is the result of a more or less mechanical grouping of letters into syllables and words, without any real mental mastery of their content, classification on this basis often brings disappointment.

Yet the best grading is that which follows out to its logical conclusion the estimation of a child from this standpoint of a single subject or group of cognate subjects, the child changing from class to class in different subjects. The ideal has frequently to be modified in practice, according to the constitution of the school staff and the convenience of the buildings for the quiet, rapid interchange of the scholars.

Where it is not possible to regroup the scholars under different teachers, it is often of advantage to sectionize a class so that the more proficient members can work by themselves and those that are

most useful in those subjects in which the children who have made a start must depend on their own individual exertions, and where co-operative work is at least helpful. It can be done much more efficaciously with older scholars. Yet it is possible to push sectionizing too far, even to the creation and crystallization of inequalities and the elimination of wholesome competition.

With the classification of scholars according to subjects, a "departmental" system of staffing may be adopted, whereby different subjects are taught by specialists.

Parallel Classes. In some of the first-grade schools, the mode of classification known as "bifurcation" obtains, where, at a certain stage in his school life, a scholar is given the opportunity of continuing a purely classical course on the "classical" side; or of combining a less amount of the classics with modern languages, science, or mathematics on the "modern" side. One objection to this is the difficulty of preventing these modern departments from becoming the refuge of boys whose inferior abilities or neglect of opportunities have hindered them from success in classical studies. This danger has been met by treating the modern side as not inferior in dignity to the classical, staffing both with masters of equal ability, and expecting both to reach the same high standard.

Grading in Primary Schools. For many years after the introduction of compulsory education, the power of classifying scholars as they thought best was denied to the teachers in public elementary schools, and considerable pressure was exerted by the State through its Education Department to secure that each child should pass every year through one of the standards laid down in a code whose standards were based on degrees of proficiency in the "three R's." This system led to an extremely stereotyped form of instruction, and has consequently been superseded by "freedom of classification," which in the hands of earnest teachers has proved a great blessing both to teachers and taught. There can be no question that, in the main, the head teacher of a school is better fitted than an outsider to judge what children merit promotion.

Promotion. In considering the question of promotion—from the infant school or kindergarten to the school for older scholars, and from the elementary school to the secondary—regard should be paid to the two important transition periods in a child's life—its second dentition, and its arrival at the age of puberty. The transfer from the infant school to the school for older scholars, involving, as it usually does, a change from less formal to more formal methods of instruction, should not be effected while considerable demands are being made on the child's physical strength. The desire to compress a great deal of instruction within a short period, which is a result of the early age at which children are taken away from school, often overrides the higher considerations of the child's immediate and future welfare; but the gap between the infant school and the "upper" school can be bridged by making the methods of the lower standards of the latter approximate somewhat to those of the former.

The question of the transfer from the elementary school to the secondary is more complex. Provided that a child could remain at the secondary school for a course of five years, there is much to be said for his concentration on elementary subjects till the age of 12 or even 13. But, at present, a stay at school till the age of 17 or 18 is denied most children owing to economic conditions. Even if the parent is willing to continue his child at school during a period when he might be earning wages, the employer is usually unwilling to forgo the time when his prospective apprentice or assistant is found to be more plastic and adaptable. Consequently, the child must start on his course at the secondary school at an earlier age than otherwise would be the case.

A further question remains as to the duration of time a child should remain in one class. Usually the number of forms or classes corresponds to the average number of years in the school life of the pupils. This, of course, carries with it the implication that a child will be promoted once a year; but it will be found practicable at the end of each term to move forward a small number of those who show marked ability. Such a system ensures that the clever child shall not be subjected to the deadening effects of "marking time," whereby interest—the mainspring of industry and effort—is blunted; but, on the contrary, by making him compete with those older and slightly more advanced than himself, it provides him with a stimulus.

There is usually great reluctance on the part of the class teacher to give up his brightest scholars; but in this respect, as in all others, the governing factor should be the consideration that the teacher is made for the child and not the child for the teacher.

The argument which operates for the promotion of those that are fit can be used negatively for the retention for a second year in the same class of those who are not fit to go forward. But the matter again should be considered in the case of each individual from the standpoint of interest and effort. Retention may result in a loss of interest, self-respect, and self-reliance; whereas promotion may provide increased zest. The problem will be much simplified when the mentally deficient are all weeded out of the ordinary schools and taught under special conditions; but, even with the residue, the teacher will find abundant scope in the problem of grading and promotion for the active display of insight and sympathy. A. J. B.

GRADUATE.—The holder of a "degree," that is a certificate or diploma issued by a university and authorizing the holder to describe himself as Bachelor, Master, or Doctor in one of the faculties of the university. Originally the degree endowed the owner with the privilege of teaching in public at the various centres of learning. Thus the Master's degree entitled the holder to take a Master's Chair among other professors, and to embark on a pedagogic career.

GRAMMAR SCHOOLS.—The term "school" comes from the Greek σχολή (*i.e.* leisure). To the Greek mind, "school" represented the acquisition of knowledge, an aspect which our methods of inspection and examination have greatly obscured. The Latin name for a school was *ludus literarius*, which represents the school as a "place of play." But, in the earlier Roman times, the *ludus literarius* was concerned only with teaching the Latin vernacular. By 50 B.C. (*i.e.* about the time of the appearance of Cicero's work on Oratory), the teaching of Greek became a recognized aim of Roman education. The term *schola* came to

represent the higher instruction, which includes the teaching of another and, from the point of view of Literature, a "higher" language; and every vernacular of Europe borrowed and appropriated the term "school" from the Romans, after the latter had adopted instruction in Greek. Thus, in Anglo-Saxon England, the name for a teaching institution is not Saxon, but the Roman-Greek word *school* (as *e.g.* in the Venerable Bede). "School" is, therefore, Greek in origin. This implicit association of the school with Greek culture is still further confirmed by the term "grammar school." When the Romans attempted to assimilate Greek literature, they called in the old Greek grammar, logic, rhetoric, to their aid, and thus these subjects were further developed by the fact that they became comparative studies. The attempt of Rome was to become, educationally, bi-lingual. What Greek was to the Romans, Latin became to the mediaeval and later ages. But the grammar schools of Rome, up to Quintilian's time, regarded "grammar" as including literature. In the Middle Ages, grammar, detached and isolated from all subject-matter, became a fetish with all sorts of logical, rhetorical, and metaphysical implications, abstract and often unintelligible. One of the great objects of the educational writers of the Renaissance was to bring back the old "grammar" in the sense of the rightful analytic and critical help in "the reading of authors," or, as we say, the study of literature.

Early English Grammar Schools. There is a continuity, therefore, from the grammar schools of the Romans. Until the final destruction of the Roman organizations by the barbarians in the sixth and seventh centuries, grammar schools on the pagan model had flourished. In the meantime, the Christian ecclesiastical institutions had developed and included in their educational curriculum the main features of the Roman system. At any rate, by the time of the coming of St. Augustine (*c.* 596) to Kent, grammar schools had been established by bishops in their dioceses; and, after Theodore of Tarsus came to Britain in 668, at least a few diocesan grammar schools were established in Britain. Alcuin is the great educator of the Anglo-Saxon times. The schools were in connection with cathedrals and collegiate churches. In A.D. 826 the Council of Pope Eugenius required bishops to secure that grammar schools should be placed wherever needed in their dioceses. About 994 the *Book of Ecclesiastical Laws* decreed that "priests shall keep schools in the villages and teach small boys freely." In a confirmation by Henry I, the Warwick Grammar School is mentioned, and apparently dated back to Edward the Confessor. Mr. Leach has cited references to Dunwich School between 1076 and 1083; to Hastings Grammar School before 1090; York School, 1075–1090; and from 1100 onwards, documentary accounts of grammar schools became relatively numerous (Leach's *Educational Charters and Documents*). The first time the term "grammar school" occurs in English appears to be in A.D. 1387. Such schools were sufficiently numerous in England in 1439 for William Bynghan to erect a commodious mansion called "God's House," at Cambridge, to *train teachers* for the grammar schools, of which he states that seventy had fallen into desuetude on account of the great "scarcity" of masters. Throughout the Middle Ages, the schools were under ecclesiastical supervision. The earliest types, as already said, were established under the direct guidance of the cathedrals and collegiate churches. These are reckoned by Mr. Leach at 200 in number when the Chantries Act was passed in 1547. Other types besides the diocesan schools developed in the Middle Ages, especially the grammar schools of the chantries (*q.v.*), of the guilds (*q.v.*), and of the hospitals (*q.v.*). The first chantry school in England, distinctly noted as such, was that of Lady Berkeley in 1348, of what was afterwards known as Wotton-under-Edge Grammar School. Mr. Leach estimates the number of chantry schools dissolved by the Chantries Act of 1547 at about 100, of which fourteen were re-founded by Edward VI. The best known grammar school (which by origin was a guild school [*q.v.*]) was that of Stratford-on-Avon. In connection with the old hospitals (*q.v.*), some 750 to 800 in number, before the Reformation there were a number of grammar schools. But the most famous hospital school was established after the Reformation, in 1553, viz., Christ's Hospital. Altogether it has been estimated by Mr. Leach that there were 300 grammar schools in England before the Chantry Acts, and that they thus supplied one school for every 8,300 of the population.

Early Founders. On the whole, the bishops were the predominant founders of grammar schools in the Middle Ages; and, since they were themselves often sprung from the people, the education of the schools was recognized as the direct method for ecclesiastical careers. William of Wykeham founded Winchester College in 1382. In 1440, King Henry VI founded Eton College. In 1484, William of Waynflete erected a grammar school at Waynflete; and, in 1524, Henry Chichele founded the hospital school of Higham Ferrers. To these grand prelates must be added the name of the great Cardinal Wolsey, who not only planned Ipswich Grammar School, but also, in 1528, sent out an address to schoolmasters on the subject of the curriculum and teaching of grammar schools. The duty of provision for education was recognized by the Reformation leaders. King Henry VIII's *Scheme of Bishoprics*, drawn up to re-organize cathedral foundations, made liberal allowances for the grammar schools; and the name given to the men to assess the value of confiscated property included the title of Commissioners for the Continuance of Schools. This document is the first suggestion of systematic provision of secondary education after the Reformation. The Tudor founders were in the main merchants or tradesmen rather than prelates. Amongst the founders were yeomen like John Lyon at Harrow (1571); a mercer like John Pryse at Abingdon (1562); a grocer like Lawrence Sheriff at Rugby (1567); a clothier like Peter Blundell at Tiverton (1599); and a merchant like Sir John Gresham at Holt, in Norfolk. Nor should we overlook the interest shown by women: Mrs. Margaret Dane at Bishop's Stortford, 1579; Mrs. Elizabeth Burbank at Burton Latimer, Northants, 1581; Lady Mary Ramsay at Halstead, Essex, 1594; and Lady Alice Owen at Islington, 1613. Guilds, and especially city companies, municipal corporations, titled gentlemen, and (as before) the bishops were also liberal founders.

Effects of the Age of Intolerance. The highest quality of work done in the grammar schools was reached in the seventeenth century, and the real foundations for their high standard was laid in the sixteenth century. The persecution of the Fires of Smithfield had led to the great exile of some of the

staunchest adherents of Protestantism, determined to think their own thoughts. These exiles, mixing with some of the most progressive and enterprising Continental scholars and thinkers at Strasburg, Frankfort, Zurich, and Geneva, brought back with them intense convictions on the Calvinistic model, and also deeper educational aspirations than had ever permeated a large number of Englishmen at the same time. Puritanism arose at the very moment when it was necessary to combat the prolonged and strenuous training of the Jesuits in the counter-Reformation. Any lack of provision for training in the three "holy languages" of Latin, Greek, and Hebrew would have been fatal. The grammar schools, therefore, served a double purpose. They promoted classical studies, as established by the Renaissance; but, at the same time, they afforded the basis of knowledge for divines, for disputants, and for students of the Scriptures; and the schools in the seventeenth century disseminated national instruction in this learned basis for Scriptural, catechetical, and puritanic subjects, together with more or less of "pagan" classicism, largely as suited the personal predilection of the particular schoolmaster of a school. It will be noticed that, for these objects, a knowledge of Latin was indispensable, because (if for no other reason) the relation with foreign religions and scholars and fellow-thinkers was essential in meeting the common foe—Romanism.

Hence, the returned exiles were keenly interested in founding and governing the schools. Thus, Edmund Grindal, Archbishop of Canterbury, 1575, former exile at Strasburg, founded St. Bees Grammar School; and Edwin Sandys, former exile, Archbishop of York from 1576, founded Hawkshead Grammar School. The learned clergy often took an interest in the schools, especially in the educational interests concerned with the maintenance of Puritanic tendencies. It is to be noted that when the Pilgrim Fathers, in 1620, left the old country, and were perfectly free to discard old institutions and to start educational activities on new lines, they deliberately chose to found grammar schools, to include the study of Latin, the typical school being the Boston Latin School. In 1622, John Brinsley wrote his *Consolation for Our Grammar Schools*, a book especially designed for all ruder countries and places (*e.g.* Ireland, Wales, Virginia, with the Summer Islands)—not for dispensing with Latin, but to teach it more systematically and carefully, "to the perpetual benefit of these our Nations, and of *the Churches of Christ.*"

The fact is that the teaching of Latin as the foundation of the curriculum of the grammar schools was in accordance with the social, religious, national life of the sixteenth and first half of the seventeenth centuries. For it was not only in the public grammar schools, but in the very numerous private grammar schools, that the main emphasis was on Latin teaching. The Admission Registers of St. John's College, Cambridge, and of Gonville and Caius College, Cambridge, show that the number of schools, private and public, preparing in the Latin necessary for the university was much greater than has been supposed.

The Decline after the Restoration. After the Restoration (1660), the old grammar schools declined in classical exclusiveness. The change is typified by the establishment in Christ's Hospital, by King Charles II, of a mathematical school, as alternative with the old grammar school side in that school. The development of relations abroad, and particularly with our own settlements or plantations, brought a more commercial aspect into educational prominence, and led to an extraordinary development of private commercial academies or schools in the eighteenth century. The old Puritanic fervour which had supported the seventeenth-century grammar schools was transferred to elementary education in the charity schools (*q.v.*). Defoe boldly attacked the weakened classical tradition, and declared that, even for the "gentleman," "reading in English may do for you all that you want." "English schools" began to flourish competitively with grammar schools in the same towns and even under the same authorities. Moreover, the excellent all-round education of Nonconformist academies, and of the ministers trained in them who established private schools of general education, helped to thin the *clientèle* for the grammar schools. But the great cause of decadence of the grammar schools in the sixteenth century was from within. In 1795 the Lord Chief Justice Kenyon described the grammar schools of the land as "empty walls without scholars, and everything neglected but the receipt of the salaries and emoluments." Nevertheless, it was in the eighteenth century, amid this dire failure of the mass of the grammar schools, that certain of them rose to eminence, and became the pioneers of the great public schools of the nineteenth century. Vicesimus Knox at Tonbridge, Thomas James at Rugby, Edward Barnard at Eton, Thomas Thackeray at Harrow, as well as John Nicoll at Westminster and Joseph Warton at Winchester, were great schoolmasters, who made their schools successful as "non-local" boarding schools on a classical basis, and combining something of the old chivalric with the classical ideals of education. The Endowed Schools Act of 1869 renewed the energy of the old grammar schools and extended, wherever possible, the use of the old endowments to the secondary education of girls. The Education Act of 1902 has led to the establishment of a thoroughgoing system of municipal and county schools of modern type, alongside of the older endowed grammar schools, all of which, however they may retain their classical specialization, have received both a wider curriculum of non-classical subjects, and a less narrow treatment of classical subjects themselves.

F. W.

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GRAMMAR, UNIFORMITY IN THE TEACHING OF.—The desirability of a uniform system of grammar as a basis for the practical teaching of the structure of different languages is obvious; and the possibility of such a scheme depends ultimately on two facts: (1) The community in the fundamental thought-relations which are expressed in the varying dialects of human speech; (2) the kinship

which exists among the languages of a particular family: for example, those of the Indo-European or Aryan family, which are all closely related in grammatical structure, as descendants of a common ancestor. Yet, from various causes, school teaching has proceeded for the most part in separate compartments, with the result that the task of learning the several languages taught in schools has been greatly complicated; and pupils have failed to recognize a familiar grammatical feature, because it is presented to them in a new dress and a new setting.

A word must also be said as to the importance of uniformity of system to the scientific grammarian. How can he examine the relations of likeness and difference which subsist between languages unless he regards them from a single point of view? This single point of view has, indeed, been taken up in general by most comparative grammarians; but comparative syntax is a field which has hitherto been dominated by a morphological point of view, to the great disadvantage of the study. In proportion as the study of comparative syntax progresses, the need of a common system of classification and terminology will make itself felt more insistently.

Historical Aspect. The idea of standardizing the teaching of the grammars of the different languages studied in schools has long hovered before the minds of educational reformers, but it is only within recent times that steps have been taken towards its practical realization. In the sixteenth century the principle was adopted by Ratke (commonly called Ratich) and Comenius. The poet Goethe tells us that, as a young man, he sketched out a plan of uniform grammars of foreign languages for his own use. In the nineteenth century, Matthew Arnold, in one of his reports as a school inspector (1853), called attention to the injury which is done to the study of English grammar by the use of a multitude of grammars, each following a system of its own; and Professor D'Arcy Thompson gave a wider application to the same principle by insisting that all the languages taught in schools, being members of a common family of languages, might be, and ought to be, so taught as to indicate the affinity of their grammars. (*Day Dreams of a Schoolmaster*, 1864, p. 162, etc.)

Ten years later, the principle of uniformity in grammar was formally endorsed by the Belgian Government in a Ministerial circular (1874). The following quotation states the problem very clearly: "One of the chief causes which retard progress in the teaching of languages is the absence of uniformity in grammatical terminology, in the definitions, in the method of syntactical analysis. As many languages to learn, so many different grammars to be mastered. It is desirable that they should all be reduced to some kind of identical type." And, in 1882, the Government offered prizes for a French grammar and a Flemish grammar constructed on identical principles. The importance of uniformity in the teaching of these two languages in Belgium is obvious; but the principle might have been extended to all the languages taught in Belgian secondary schools.

It was not till the '80's that an attempt was made to solve the problem on a large scale. The impulse came from Birmingham, where a "Grammatical Society" was formed, in 1886, by co-operation between the teachers of the newly-founded Mason College and the King Edward's School. On the basis of the results arrived at by prolonged discussion, a series of "Parallel Grammars" was edited by Professor E. A. Sonnenschein, of the Mason College. In this series, all the languages taught in English and Welsh elementary and secondary schools were included. It is to be noted that this reform was secured without the adoption of any new system of terminology. It was found that the existing terms, if used economically, were sufficient for the purpose; the essential thing was that they should be used consistently, and that the error of refusing to call the same things by the same names should be renounced.

The lead given by England was followed up in Germany by a number of writers who advocated the production of uniform grammars for German schools; and, in 1891, the German Ministry of Education gave its formal approval to this principle in its regulations for secondary schools. [*Lehrpläne und Lehraufgaben für die höheren Schulen*, Berlin.] This movement culminated in the publication of the Frankfort series of grammars (Latin, Greek, French, German, and English) towards the close of the nineteenth century, under the general direction of Dr. K. Reinhardt, of the Goethe Gymnasium in Frankfort. In Holland, uniform grammars of Greek and of Latin were produced by Dr. M. Woltjer in 1892–1894.

Twentieth-Century Developments. The final stage of the movement belongs to the twentieth century, and again the impulse came from England. In 1909, a Joint Committee for the simplification and unification of grammar was inaugurated by the Classical Association, and all the leading language and teaching associations were represented on it. Its final report was issued in 1911. America followed suit, in 1912, with a similarly-constituted Joint Committee on Grammatical Nomenclature: this committee issued a preliminary report in 1914, which was adopted by several educational bodies. The final form of the report appeared in 1919.

The work of the English Joint Committee has already borne fruit in a number of grammars which have adopted the committee's scheme. Most of these works are English grammars; but the Oxford University Press has issued a series of grammars of Latin, French, and English on a uniform basis, and thus carried out the committee's scheme so far as these three languages are concerned. Several examining bodies have also shown their willingness to co-operate with the Joint Committee. The Civil Service Commissioners have expressed their sympathy with the object of the Joint Committee and "their recognition of the admirable way in which that object has been carried out" (13th Feb., 1912). The Oxford and Cambridge Schools Examination Board is prepared to accept the terminology recommended by the committee in answers to papers set by the Board (27th Feb., 1912). The delegates of the Oxford Local Examinations have instructed their Secretary to say that, while they cannot pledge themselves to adopt the reformed terminology, they can promise that candidates who do adopt it shall be at no disadvantage in examinations. Last, but not least, the scheme of the Joint Committee has been adopted by the Superintendent-General of the Cape Province as the official terminology of the Education Department of that Province; and it has been endorsed by the approval of the Government Committee on Modern Languages (Chairman Sir Stanley Leathes) in its Report issued in 1918: "We attach the highest importance to uniform

nomenclature for grammar, and are of opinion that it is more necessary that the terminology should be uniform than that it should be free from all defects" (Sec. 201; Cd. 9036, published by H.M. Stationery Office). The matter is also under consideration by the Government Committees on English and Classics.

Encouraged by these successes a Committee of Orientalists has recently applied the same principles to Sanskrit and some of the modern Indian vernaculars of Sanskritic origin—Hindustani, Gujarati, Marathi, and Bengali. This Report, issued by the Oxford University Press (1918 "On the terminology and classification of grammar"), shows how the whole British Commonwealth may be linked up in a grammatical *entente* which would facilitate the acquisition of Indo-Aryan languages by European students and of European languages—especially English—by Indian students, and thus be a means of strengthening the bonds on which the unity of the Commonwealth depends. At the same time the limitations of the movement are clearly indicated. The terminology proposed is based upon Indo-European syntax as a whole: no attempt is made to include languages of other than Aryan origin. The scheme is thus differentiated from schemes of Universal Grammar, such as those which have been launched without much success at various times during the last century.

It is not impossible that a grammatical *entente* might be established between England, France, Belgium, and Russia, if only to facilitate the acquisition of languages for commercial purposes. But the essential requirement is not that different nations should agree in their grammatical systems, but that each nation should have a uniform system of its own for teaching different languages.

E. A. S.

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Report of the Joint Committee *On the Terminology of Grammar*. (John Murray.)

SONNENSCHEIN, E. A. *The Parallel Grammar Series* (1888-1909), containing grammars of Latin and Greek, and of the following modern languages—English, French, German, Dutch, Spanish, and Welsh by various writers. *A New Latin Grammar for Schools*, 1912 (second ed., 1914). *A New French Grammar for Schools*, 1912. *A New English Grammar for Schools*, 1916.

GRAMOPHONE IN EDUCATION, THE.—Thirty years ago the talking machine was a small hand-driven appliance playing 3-in. and 5-in. discs, reproducing sounds that could hardly be regarded as musical; to-day the gramophone is a musical instrument, playing 10-in. and 12-in. discs that reproduce music. This rapid evolution has been brought about by highly intensified mechanical and scientific study, combined with diligent research.

It is because of the high state of perfection reached in the modern gramophone and record that educationists have recognized these to be indispensable factors in the equipment of scholastic establishments. There are people still prejudiced against the gramophone being used as an aid to serious study of music on the ground that it is a mechanical apparatus. This prejudice is entirely superficial. (The gramophone is no more and no less mechanical than the pianoforte and organ). The manufacturers are relentless in their efforts to improve the gramophone and record. There is no "standing still" in the industry: minor changes towards absolute perfection are being made constantly. It is unlikely that alterations of a dynamic nature will be effected; the co-ordination of "small things" covering a number of years will, in themselves, bring about the desired consummation.

The gramophone can be employed in at least two departments of education: Music (including marching and calisthenics), and Languages.

Use in the Study of Music. School children do not hear enough music. Generally speaking they hear only music played on a pianoforte. (Singing, of course, is a welcome feature of school life, but children do not *hear* much singing while they sing themselves.) The pianoforte is not deprecated in any way, but its limitations hinder an adequate study of music *qud* music. The pianoforte has its own idiom, and to this idiom it reduces all music that is played upon it. Consequently, an orchestral work or an operatic excerpt becomes distorted when played upon the pianoforte. All the tone and colour values are lost. The instrumentation is obliterated; the orchestration and vocalization cannot be studied. The gramophone does give a faithful interpretation of the composers' ideas, and from the record we can study the musicians' intentions. The gramophone reviews for us the whole gamut of musical invention. Examples covering the whole field of musical art can be heard time after time. The gramophone is the teacher that never tires and never varies. The pianoforte (together with the blackboard) must always remain the basis for analytical work in music, the gramophone being used to render the complete composition under discussion. The importance of the teacher is not diminished in any way by the use of the gramophone. In fact, the teacher finds that his or her musical knowledge demands extension as soon as the gramophone is used for illustrating the larger forms of music, such as the sonata, symphony, opera, etc.

For very young children the gramophone can be used for playing the music required in the development of Rhythmic Expression. There are plenty of records to be had of tunes with marked rhythm (regular and irregular). By calling in the aid of the gramophone the teacher can give undivided attention to the class, which is impossible if the pianoforte has to be played by the teacher.

The gramophone is indispensable in the "Appreciation of Music" class. "Musical Appreciation," or aural culture, means the training of the faculty of listening. This branch of musical study is now actively pursued in thousands of schools. There are millions of people who, although they cannot play an instrument, are keenly interested in music. We must provide for this large army of "Listeners," and this is just what "Musical Appreciation" is intended to do. About a quarter of a century ago Mr. Stewart Macpherson, F.R.A.M., and a small body of earnest musicians set about to devise a scheme of aural culture, and despite vigorous opposition (for many years) from executants, these pioneers are building up a public that is *hearing* music intelligently. The "performers" were so short-sighted that they could not see that they would be better served when surrounded by a public trained to *listen* to the music they interpret.

In order to become a trained listener it is necessary to hear much music. It is impracticable to

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have orchestral and other large concerts in schools. The difficulties of taking children to public concerts are very great. There is only one way of bringing real music to the children, and that is *viâ* the gramophone. The scope is unlimited, and the variety is endless. A lecture-concert, dealing, we will say, with a phase of the historical development in music can be given with a gramophone and a few records at a cost that is, comparatively speaking, trifling. And the same lecture can be repeated at will.

It is unnecessary to comment upon the use of the gramophone in school marching, calisthenics, etc.

Use in the Teaching of Languages. The phonetic study of any language is made accessible to every one now that the gramophone record can reproduce speech with the *nuances* clearly defined and standardized pronunciation. Records are in existence of practically every language and important dialect spoken in the world, and these can be brought into the classroom, and repeated as often as required. There are about 1,400 languages spoken in the British Empire; how can the gramophone be ignored?

The gramophone is *the* domestic instrument of to-day. Its use at school (especially for music) must influence the artistic life of the entire nation. Music, being the communal art, does affect the well-being of peoples; good music uplifts them, bad music degrades them. The gramophone is destined to play a large part in the social and spiritual activities of the world. The intelligent and discreet use of this instrument can help to raise the national status through the constant hearing of good music.

Music has many times helped to shape the destinies of empires, kingdoms, peoples, and individuals. Its influence has not lessened. The gramophone has carried music into our homes, and has set up a personal contact with the art hitherto unknown to all but the highly developed executant.

The manufacturers of gramophones have realized the educational value of the gramophone as a means of directing public musical taste. The Gramophone Company, Limited, "His Master's Voice," Hayes, Middlesex, have founded an Education Department, in order to co-operate with educationists in the use of the gramophone in schools, so that the musical horizon of children may be made as extensive and comprehensive as possible. W.Y.

GRANADA, THE UNIVERSITY OF.—Granada, though politically less important than the Christian States of the Peninsula, enjoyed great social prosperity and an advanced civilization. Its population increased enormously on account of immigrants from Valencia, Murcia, Seville, and Jerez, as these towns were conquered by Christian armies. One of its kings followed the example of the Christian King of Castile, Alphonse X, founder of the Arabic College of Murcia, and erected a school for the teaching of Philosophy, which was placed under the great dialectician, Abn Bequer; but its existence was short. Later on, the centres of learning, of which Cairo was rightly proud, extended their influence to Spain, and were responsible for the erection of a university (Madriza) in Granada, organized like the Moorish universities of the East and the actual "Medersseh" of Fez.

The said Madriza of Granada was erected in the middle of the fourteenth century, in the time of Yusuf I, and his Chancellor Reduan, who endowed it very liberally. The university was situated in a magnificent building, close to the main mosque or Aljama, in the place where afterwards stood the Houses of Ayuntamiento (the Municipal Corporation), which were accidentally burnt in 1860. The fire led to the discovery of fine ceilings, marble tablets, and other details which testify how the artistic university building deserved its name of Alhagiba (The Marvel).

The principal studies followed in the university dealt with religious traditions, commentaries upon the Koran; grammar, philosophy, medicine, and jurisprudence based on the Koran.

It is stated that well-known foreign sages from Samarcand and India gathered at Granada, and there was close and continuous communication between the Granadian professors and literary men, and those of Africa.

The work of this university was soon reflected in the growing number of Granadian authors whose names are for ever recorded in the history of literature and science. We can only mention a few: Abuhamu Muza II, born in Granada and brought up in its schools, who wrote *The Necklace of Pearls*, a celebrated book on political science and administration. Abn Aljatib, Vizier of Granada, born in Loja, among whose books is a *Cyclopaedic History of Granada*, a biographical dictionary of the distinguished people who were born or dwelt in Granada. Abn Said el Magrebi, born in Alcala la Real, who wrote more than 400 books, among them *The Cycle of Literature*, which dealt with the history of the Moorish people. Abn Mosdal, too, said to have been one of the most distinguished men of Moorish Spain and perhaps of the world, and author of a collection of more than 4,000 biographies, must not be omitted.

The Granadian School produced renowned jurists, such as Abn Salmun, the Cadi of Granada; and Abn Asem, the Cadi of Guadix: both in the fourteenth century; and their doctrines were accepted in Spain and abroad, and are still quoted in African courts to-day.

(See Article on CORDOVA, THE UNIVERSITY OF, for the special characteristics of the Moorish universities.) C. R. G.

GRANTS, HISTORY OF GOVERNMENT.—From a grant in 1833 of £20,000 for school buildings, the grants for education now reach many millions. The estimates for 1915-1916 made provision for £20,956,239; about £500,000 in excess of the actual expenditure for 1914-1915, and inclusive of some £15,000,000 as an aggregate sum for (i) elementary education and (ii) education other than elementary. For many years, grants were for elementary education only: these have increased from year to year. And, of late, duties have been imposed and powers bestowed upon local authorities which formerly would have been considered outside the range of education altogether.

Elementary Education. There is annually voted by Parliament a sum of money to be administered by the Board of Education. From this sum are paid all grants: the following details give the administrative procedure and method of calculation up to 31st March, 1919—

(*a*) THE AID GRANT. In lieu of certain grants: "... there shall be annually paid to every local education authority out of moneys provided by

Parliament, (i) a sum equal to four shillings per scholar; and (ii) an additional sum of three halfpence per scholar for every complete twopence per scholar by which the amount which would be produced by a penny rate on the area of the authority falls short of ten shillings a scholar" (with a proviso to which reference should be made: Section 10 of the Education Act, 1902).

(*b*) THE FEE GRANT. Payable under the Elementary Education Act, 1891, in quarterly instalments, and at the final rate of 10s. per scholar in average attendance.

(*c*) ANNUAL GRANTS. In respect of ordinary instruction given to children in public elementary schools other than higher elementary schools; "13s. 4d. for each unit of the average attendance of scholars under five years of age and 21s. 4d. for each unit of the average attendance of scholars over five years of age."

(*d*) SPECIAL GRANTS. In respect of areas with small population: not applicable where the population reaches 500 and varying in amount with lower (specified) numbers.

(*e*) SPECIAL SUBJECTS GRANTS. In respect of cookery, laundry work, housewifery, dairy work, handicraft, gardening; for "each scholar who has made the required attendance."

(*f*) ANNUAL GRANTS. In respect of instruction given to children in higher elementary schools: these schools must be organized to give a three years' course of instruction, and its curriculum must have for its object the development of the education given in the ordinary public elementary school. The premises and equipment and staff are all more expensive, and grants are on a higher scale, ranging from 30s. to 60s. per head.

(*g*) MISCELLANEOUS. Grants are given under "Regulations"—to the authorities of day schools and classes and boarding institutions, on account of the education (and maintenance) of *deaf* and *blind*, *defective*, and *epileptic* children. Grants have been paid of late years also to local authorities for the medical inspection and treatment, as well as for the feeding, of school children, not to exceed half the local expenditure, and under proper conditions and "Regulations." With the progressive broadening of the definition of education, there is progressive increase of expenditure, and a uniform tendency to share it between the local and Imperial exchequers. This is true also of forms of education other than elementary; and the details of grants set forth in this article are, therefore, not exhaustive.

But the whole basis of grant for elementary education has been altered. Grants to public elementary schools only were £12,164,000 in 1915–1916: they were not very different in 1916–1917, and the estimates for 1917–1918 showed no great change. At the end of this later financial year, however, a supplementary grant was made—more or less for the specific purpose of enabling, and perhaps compelling, local authorities to increase the salaries of teachers: the additional amount required was £3,420,000, and the grants to public elementary schools for that year thus reached about £15,500,000. The supplementary grant was continued for 1918–1919, but the method of calculation introduced for assessing its amount serves now (Feb., 1920) for the substantive grant, and involves a complex formula. The supplementary grant is at an end: so, also, are the several and separate grants set out above—all disappear, and are merged or lost in the general formula, viz.: (1) 36s. for each unit of average attendance; (2) three-fifths of the salaries of teachers; (3) one-half of the net expenditure on special services—(*a*) school medical service; (*b*) provision of meals; (*c*) schools for blind, deaf, etc.; (*d*) organization, etc., of physical training in public elementary schools; (*e*) evening play centres; (*f*) nursery schools; (4) one-fifth of the remaining net expenditure; the aggregate is reduced by (5) the produce of a sevenpenny rate. Some other factors have to be considered in a possible modification of this final result, and it will be observed that the total grant is paid to the local authority on figures for the area, and not on calculations made separately in respect of the several schools.

Method of payment is changed, as well as method of calculation—and to the advantage of the local authority: twelve monthly instalments are paid during a year current, instead of a full single sum at the end of a year. The exact amount is adjusted when all the necessary figures are received by the Board, and under the condition that grants shall reach an aggregate not less than 50 per cent. of the approved expenditure.[1] In many areas this condition is not important—in some it is: in London particularly. But it is worth observation that in the country as a whole, and for elementary education generally, local rates in 1915-1916 produced £14,266,000, and the Imperial grants were £12,913,000. In 1902–1903 the figures were £6,620,000 and £9,310,000 respectively, so that rates had increased under the Education Act of 1902 by 116 per cent. and grants by 39 per cent. only. It is pretty clear that a larger proportion must be paid by the Board if local enthusiasm in education is not to suffer from some depression. Scholars in attendance at public elementary schools had increased during the same period by 5 per cent. only.

The following figures of an actual calculation will serve as further explanation and illustration of the payment of grant—

		£
Average attendance: 5,759 units at 36s.		10,366
⅗ of salaries of teachers	£22,345	13,407
½ of net expenditure in special services	852	426
⅕ of remaining net expenditure	8,852	1,770
Total net expenditure	£32,049	25,969
Less produce of 7d. rate, viz., 7 × £861		6,027
Total sum by formula		£19,942
Total amount payable, therefore, by way of instalment of substantive grant		19,942
Amount paid on earlier calculation on somewhat lower figures (*i.e.* by monthly instalments—April to Aug. inclusive)		8,150
Remainder (payable by seven monthly instalments—September to March inclusive)		£11,792

The monthly instalment, therefore, is £1,685 for the remainder of the year: the final adjustment is made early in the next financial year.

Secondary Schools. Of late years, and up to and inclusive of an academic year ending 31st July, 1916: "in the case of schools placed on the Grant

[1] This condition is also applicable to grants for education other than elementary. (*See* Section 44, sub-section (5), of the Education Act, 1918.)

List and complying with these Regulations (the Regulations of the Board of Education for Secondary Schools), grants were payable on account of pupils receiving instruction in accordance with an approved curriculum as follows: (*a*) A grant of £2 on account of each pupil who was over 10 but not over 12 years of age at the beginning of the school year, and who had been for at least two years under instruction in a Public Elementary School immediately before entering the Secondary School . . . ; (*b*) a grant of £5 on account of each pupil who was over 12 but not over 18 years of age at the beginning of the School Year "; and (*c*) an additional £1 for each pupil between 15 and 18.

Amounts are now larger, and the method of calculation is modified: (*a*) the £2 grant is retained—for children over 10 but not over 11; (*b*) the £5 grant with (*c*) the additional £1 grant is now a uniform £7 for each pupil over 11 but not over 18. The full grant for the year is paid by two instalments as formerly.

PUPIL-TEACHERS AND BURSARS. Either in secondary schools or in separate pupil-teachers' schools and classes, special grants are given under the Board's Regulations for the preliminary education of elementary school teachers. With conditions and qualifications, pupil-teachers recognized for one year earned £7 10s.; and recognized for two years, £15. For two years earlier, they earned £4 each year in a preparatory class. Bursars—recognized for one year only—earned a grant of £10 beyond their total of £6 as ordinary pupils in the secondary school (above); and the Board gave further grant measured by half the amount of any "maintenance" grant by the local education authority, but not exceeding £5 in the case of a boy and £4 in the case of a girl. There were also small grants, at the rate of £2 per head, "in aid of the general travelling and other incidental expenses of bursars."

These grants have also been modified: *e.g.* (*a*) £3 10s. per annum for the *Pupil Teacher*, with a final £10 on proper qualification: the pupil in the preparatory class earns £6 per annum for one or two years—in rural areas the usual school or centre is not practicable, and the grant may be £8 for each of four years on special conditions, and under special categories; (*b*) a final £10 is given for each pupil teacher qualifying for admission to a training college; (*c*) maintenance grants on a half-share principle may reach £15 for each *Bursar*.

Technical Schools, Schools of Art, and other Forms of Provision of Further Education. The whole system of evening classes throughout the country falls under this heading; and under the Board's Regulations, grants are given with a good deal of elaboration in detail. A Regulation in reference to the School of Art formulates an exceptional procedure: "An inclusive annual grant will be made in respect of every School of Art, and will be assessed by the Board after consideration of the volume, character, cost, and merit of the work done in the school, and by the efficiency with which the work is organized and co-ordinated with that of other Schools and Classes in the locality."

The method of assessment of grant is still generally operative as a first basis of calculation, but by arrangement with local authorities the Board may—and usually do—"pay an inclusive annual grant in respect of the whole recognized work—other than that of a Junior Technical School or School of Art" based on the aggregate grants of 1913–1914 and subject to proportionate variation according to possible variation in "class-hours or other lesson-hours." In the case of junior technical schools, the grant is £3 for a pupil under 13 "on the day preceding the school year" and £5 for an older pupil: with a possible increase to £7 in respect of costly instruction.

Training Colleges. Up to the later years of the war, grants were given on account of "Recognized students who have been trained during each academical year" at the rate of £53 for a man resident student and £38 for a woman, to the governing body of the training college; in other cases, £13 to the training college; and (1) £40 for men and £25 for women to hostels; (2) £40 as "Personal Grant" on behalf of resident members of colleges at Oxford and Cambridge Universities paid to the Elementary Training Department; and (3) "Personal Grant" of £25 (men) and £20 (women) paid to the training college.

The ordinary grant on account of each student for the ordinary course of two years is now (*a*) for "education and training," £20 a year; and (*b*) for "maintenance," £35 a year for a man and £28 a year for a woman in residence at college or hostel, and £20 and £15 respectively, if attending "as a Day Student." There are other particular amounts for variations in "education and training" under specified circumstances and conditions.

BUILDING GRANTS are here given, which may reach (1) 75 per cent. of the cost of the site; and, in addition, (2) (*a*) 75 per cent. of the cost of buildings and preparation of site; or (*b*) a sum calculated on a specified scale for each "place" provided, whichever is the less. A. E. L.

Reference—

IN every case there are appropriate "Regulations"; and inquiry should be addressed to the Secretary, Board of Education, London; *e.g.*—
"Grant Regulations, No. 1."
"Grant Regulations, No. 8. (Elementary Schools Code)."
"Grant Regulations, No. 10. (Secondary School Regulations)."
"Regulations for Technical Schools, Schools of Art, etc."
"Regulations for the Training of Teachers."
All subject to modification from time to time; and all obtainable from H.M. Stationery Office, Imperial House, Kingsway, London, W.C.2.

GRANTS, PARLIAMENTARY.—In the year 1833 Parliament sanctioned a grant from taxation of £20,000 toward the cost of building schools. At that date there was neither Central nor Local Authority controlling public education, so that the grant above-mentioned was administered by the Treasury. It was not until six years later that the interests of the State found expression in the creation of a Committee of Council charged with the duty of superintending the application of moneys voted by Parliament for the purpose of promoting popular education.

From 1839 to 1860 Parliamentary grants were utilized in building, repairing and furnishing elementary schools and establishing training colleges, for augmenting salaries to teachers, and for contributing a small sum towards the cost of school inspection.

The grants during this period grew from £20,000 to nearly £800,000 a year.

The amount now sanctioned by Parliament for this purpose is shown in the Estimates for Civil Services, Class IV, Education, Science and Art, the total estimated amount for the year 1921-22 amounting to £51,014,665. This total, which is an

increase of nearly £6,000,000 upon the expenditure of the previous year is made up as follows—

	£
Administration	524,636
Inspection and Examination	438,569
Grants for Elementary Education	36,998,713
Grants for Training Teachers, Non-L.E.A. Institutions	872,210
Grants for Secondary Schools, etc., Non-L.E.A. Institutions	1,116,200
Grants for Technical Schools, etc., Non-L.E.A. Institutions	142,100
Grants for Higher Education to L.E.A.'s	6,647,000
Pensions to Teachers	1,575,400
Discount on Army Huts	20,000
Aid to Students	192,485
Royal College of Art	17,341
The Victoria and Albert Museum	159,484
Science Museum	57,699
Bethnal Green Museum	10,303
Supply of Casts, etc.	3,700
Higher Education of Ex-Service Officers and Men	2,248,350
Gross Total Estimate	£51,024,190
Deduct Appropriations in Aid	9,525
Net Total Estimate	£51,014,665

There are other grants now made in respect of education, though not administered by the Board of Education. Thus the sum of £375,085 is the estimated payment to the British Museum, and £39,627 to the National Gallery. The sum of £10,844 will be payable to the National Portrait Gallery, £15,612 to the Wallace Collection, £5,882 to the London Museum, £37,170 to the Imperial War Museum. For purposes of Scientific Investigation a sum of £216,931 is set aside, together with £416,023 for Scientific and Industrial Research. Universities and Colleges (United Kingdom) and Intermediate Education (Wales), £1,446,200, and £500,000 for Superannuation Grants to University Institutions. Then there is a sum of £9,375 in aid of the maintenance and education of young Serbians in this country. This grant is administered by the Treasury.

It will be noted that the grants for Universities and for Scientific Research are applicable to the United Kindgom. The other grants mentioned above are for England and Wales. In addition to these there are the grants for Scotland and Ireland, the details of which are outside the scope of this article.

Administration. Full details respecting expenditure on the Administration of the Board of Education can be obtained from the Annual Parliamentary Estimates. It may be of interest to know that the President receives a salary of £2,000 per annum, the Parliamentary Secretary, £1,200, the Permanent Secretary, £3,000, Second Secretary, £2,200, and the Permanent Secretary (Welsh Department) £1,500.

The main grant is the one made on account of Elementary Education. The present year it amounts to nearly £37,000,000.

The development of Parliamentary expenditure to the year 1860 has been briefly described above.

In 1861 the Committee of Council revised their regulations. These were modified in the following year and for several years subsequently Educational Regulations were known as the Revised Code of 1862. This was the code which established the system known as Payment by Results. Under the new rules payment of Parliamentary grants to public elementary schools depended upon two factors: (*a*) the attendance of scholars; (*b*) results elicited by individual examination.

To all day schools which had met not less than 500 times in the year a sum of 4s. per scholar in average attendance was paid, and for every scholar over six years of age who had attended over 200 times (100 times in the case of half-timers) a grant of 8s. could be earned by the scholar passing an examination conducted by Government inspectors. For scholars under the age of six a grant of 6s. 6d. could be claimed, provided the child was present at the inspection. There were small additional grants in respect of results in certain specific subjects.

This system continued until the year 1870. To that date no charge had fallen upon the local rates in respect of popular education. The cost was met by the Government grant and voluntary contributions. But in 1870 Parliament placed Primary Education under popular control, and this was followed in 1871 by what was henceforth to be known as the New Code, where Departmental Minutes were congregated and conditions were set forth governing the payment of Parliamentary grants, and these continued until the year 1883.

But the system of payment on the results of an examination, though modified, was continued; thus a "pass" in reading brought the school 4s., reduced to 3s. in 1875. And there were other payments for grants in primary subjects and in certain class subjects, and special subjects.

It would be impossible within the space available to relate the changes in administrating Parliamentary grants which occurred during subsequent years. The amounts payable and the regulations governing the conditions of payment can be found for any particular year on reference to the Report of the Committee of Council on education for that year, or subsequent to the year 1899 to the Report of the Board of Education, which at that date took the place of the Committee of Council.

The manner in which Parliamentary grants in aid of education are now distributed is of pressing importance, and the Statutory and Departmental Regulations may be summarized as follows (see Civil Service Estimates, 1921-22)—

Elementary Education—Substantive Grant. The grant for elementary education payable to each L.E.A. consists of one Annual Substantive Grant, based upon the Authority's expenditure, the number of children in average attendance at public elementary schools, and the assessable value of the area, in accordance with the following formula—

Thirty-six shillings for each unit of average attendance in public elementary schools maintained by the Authority (not including any schools for blind, deaf, defective and epileptic children), with the addition of the following amounts—

(*a*) Three-fifths of the Authority's expenditure on the salaries of teachers in those schools;

(*b*) One-half of the net expenditure on special services; and

(*c*) One-fifth of the remaining net expenditure on Elementary Education; less the produce of a sevenpenny rate on assessable value in the area.

The grant is not, except as provided below,

allowed to exceed the greater of the two following amounts—

(1) Two-thirds of the net expenditure;

(2) The excess of the net expenditure over a sum comprising the produce of a rate of 12d. upon assessable value in the area, and the grant under the Agricultural Rates Act; and if the grant calculated on the formula exceeds the maximum limit, it is reduced accordingly.

If the grant calculated on the formula is less than one-half the net expenditure, it is increased to one-half.

In those areas in which the grant calculated as above when added to the grant under the Agricultural Rates Act, falls short of the next expenditure by a sum exceeding the equivalent of a rate of the "prescribed amount," an additional grant equal to the "prescribed proportion" of the amount of such excess is payable.

The "prescribed amount" and the "prescribed proportion" for this purpose are subject to periodical revision. In the draft regulations for the year 1921-22 the "prescribed amount" will be 48d., the "prescribed proportion" will remain at one half, subject to the proviso that if in any area the estimated expenditure of 1921-22 exceeds by more than 10 per cent. the expenditure of 1920-21, the Board may exclude such excess expenditure, or any part of it, from the calculation of the additional grant.

The special services referred to in (*b*) are—

(1) School Medical Service, including medical inspection and medical treatment of children attending public elementary schools;

(2) Provision of meals;

(3) School for blind, deaf, defective and epileptic children;

(4) Organization and supervision of physical training in public elementary schools;

(5) Evening Play Centres; and

(6) Nursery Schools.

The remaining net expenditure referred to in (*c*) includes: loan charges, administration, enforcement of school attendance, legal expenses, rent, rates, taxes, insurance, fuel, light, cleaning, caretakers' wages, books, apparatus, stationery, repairs to buildings and furniture, capital outlay when charged to revenue, and other miscellaneous charges.

In addition to grants to Education Authorities for elementary education, grants are payable to public elementary schools not maintained by L.E.A.'s, to Special Schools not provided by L.E.A.'s, as well as grants for Evening Play Centres, Nursery Schools not provided by L.E.A.'s, and there are small grants payable until the year 1924 to certain school managers in lieu of school fees which are now abolished.

Higher Education—Substantive Grants. The substantive grants are those which are payable in respect of Higher Education, *e.g.* Training Colleges, Secondary Schools, Technical Schools, etc. The details respecting grants to training colleges are to be found in the Regulations for the Training of Teachers, and similarly details respecting grants payable in respect of secondary schools may be found in the Regulations for Secondary Schools, published by the Board of Education annually. Grants are made to secondary schools in England which comply with the full requirements of the Regulations at the rate of £7 for each pupil between the ages of 11 and 18, and £2 for each pupil between the ages of 10 and 11 who was previously educated in a public elementary school. Grants at the reduced rate of £4 10s. instead of £7 are made in respect of pupils in certain schools which do not fulfil the requirements. If the payments thus made do not reach a total of £350 the Board are empowered to make good the deficiency. Further, schools on the Grant List receive £2 on each pupil submitted to the first examination and on each pupil submitted to the second examination.

A grant of £450 is also made to schools in respect of each Advanced Course approved by the Board.

In Wales £8 is substituted for the £7 quoted above.

Additional grants are made on account of certain pupils in secondary schools, known as Bursars.

There are separate Regulations published by the Board with regard to the payment of grants to technical schools.

Apart from the grants made to Local Authorities in respect of various forms of Higher Education, grants are made by the Board to institutions not maintained by Local Education Authorities. Thus they are made to Training College Authorities, to certain University Institutions in aid of rent for Hostels, to Secondary School Governors where such schools are not maintained by the L.E.A., and also to the following non-L.E.A. Institutions, viz., Technical Colleges, Schools of Art, Junior Technical Schools, Schools of Nautical Training, University Tutorial Classes, Evening Schools, Technical Teaching in Institutions for Blind Children, Training of midwives and Health Visitors.

It will be observed that Parliamentary grants are payable in respect of both Elementary and Higher Education to Local Education Authorities, and also to the governors or managers of schools or institutions not maintained by the Local Education Authority.

The grants to the non-L.E.A. Authorities are of the amount fixed by Regulation, subject to deduction for failure to comply with the Regulations, or, in other words, subject to deduction if the school be not efficient.

The grants to Local Education Authorities in respect of Elementary Education, if they do not reach 50 per cent. of the expenditure of the Local Authority may, under the provisions of Section 44 of the Education Act, 1918, be increased by what is known as the "Deficiency Grant," so that the total of "Substantive Grant" and of "Deficiency Grant" may equal one-half of the net expenditure of the Local Education Authority in respect of Elementary Education.

If the expenditure of the L.E.A. be severely restricted the Substantive Grant may in itself be greater than one-half the net expenditure of the Local Authority. If, however, the expenditure of the Local Authority be on a more generous scale the Substantive Grant will fall below one-half the Local Authority's expenditure, and the Deficiency Grant will become payable.

With regard to Higher Education it is provided that where the amounts payable in respect of Higher Education to Local Education Authorities under the Regulations of the Board, and also under the Local Taxation, Customs and Excise Act of 1890, do not together bring the State contribution in a given area to one-half of the Authority's net expenditure as recognized by the Board, then the difference between such grant and one-half the net expenditure shall be made good by a Deficiency Grant.

The Substantive Grant and the Deficiency Grant, where the two are payable become a Block Grant payable in respect of expenditure on education, and will thus override all detailed Regulations.

But it should be noted that where a Substantive Grant has been reduced or any portion of it withheld, owing to failure of the Authority to comply with the Regulations of the Board, the loss to the Authority thus sustained shall not be made good by the Deficiency Grant; in other words, notwithstanding the statutory provision that the total grant may be equivalent to one-half the net expenditure, it remains possible for a Local Education Authority to suffer loss of grant, in common parlance, to be "fined" for inefficiency.

If by reason of a failure of an Authority to perform its duties or comply with the Regulations, the Deficiency Grant is reduced, or a deduction is made from any Substantive Grant exceeding £500, or the amount which would be produced by a rate of ½d. in the £, whichever is the less, the Board of Education shall lay before Parliament a Report, stating the amounts and the reasons for the deduction.

It is estimated that for the year 1921-22 the grants payable under the Regulations of the Board and under the Local Taxation Act, 1890, will together exceed 50 per cent. of the net expenditure of all the Local Education Authorities of England and Wales.

It is estimated that the total expenditure from taxes and from rates during the year 1921-22 will approximate to £95,000,000. E. GRAY.

GRAPHOLOGY.—The science of handwriting, and more especially the study of handwriting as an indication of the character. As with palmistry, opinions differ as to the value of this study; but there is no doubt that handwriting, like other physical movements, does give certain indications of temperament and possibly of character.

GRAPHS AND GRAPHIC CURVES.—Graphs, properly treated, are just as important in a general or a mathematical education as in the training of a scientist or an engineer. This does not mean, however, that any appreciable educational value is to be attached to them as frequently taught in schools. Usually the treatment is very restricted, and is often mechanical and unintelligent. There are two main reasons why a broad and rational course of graphical work should form an integral part of mathematical training: (1) The graphical representation of magnitudes is very widely employed in everyday life, and hence it is important that everybody should be able to use the method intelligently. (2) Graphs are an invaluable aid in teaching the conception of functionality, a conception which is fundamental in mathematics.

Groups of figures and equations representing functions fail to convey any meaning to many minds; they are imperfectly comprehended by most. The visual representation of them is of assistance to everybody. It conveys to the mind clearer ideas as to the relations between and the relative magnitudes of quantities; it stimulates the imagination, aids in reasoning and assists the memory; it provokes interest in the subject and induces further investigations.

The teacher must, above all things, realize that the mechanical plotting of the curve is the least valuable part from the educational point of view; indeed, when, as often happens, this is done by obtaining values of the functions corresponding to a few integral values of the independent variable, followed by what is frequently a mere assumption as to the shape of the curve, the work may be distinctly harmful and productive of wrong conceptions. It should be recognized that the drawing of the curve is only the groundwork for reasoning to follow, just as the painter prepares carefully the canvas upon which his picture is to be drawn. The true educational value depends upon the following: (1) The preliminary analysis of the function so as to ascertain beforehand all that can be learnt as to the probable form of the curve, its symmetry (if any), limitations as to the values of the two variables, the behaviour of one variable when the other is very large, possibilities of maximum and minimum values, positive and negative values of the function, etc. (2) The use of the curve when drawn. The pupil will be taught to examine the changes of the function as the independent variable increases, the rate of change, the existence of the turning points and other singular points and their meaning, etc. In some cases, the curve will be used for the interpolation and extrapolation of values. The comparison of related curves is also productive of valuable discussions and instructive reasoning, *e.g.* the connection between the curves of

$$y = x^2 \text{ and } y = \sqrt{x},\ y = a^x \text{ and } y = \log_a x,$$
$$y = f(x) \text{ and } y = 1 \div f(x),$$
$$y = f(x) \text{ and } y = \sqrt{f(x)}$$

Graphs are also extremely valuable at times for illustrating points in mathematical teaching (*e.g.* the meaning of the solution of simultaneous equations, the nature of the roots of an equation, etc.).

Graphs will never be of great educational value if the range of examples is limited to a few functions; in ordinary school mathematics, graphs usually mean the straight line and parabola, with the circular functions added if trigonometry forms part of the curriculum, whereas the pupil should come to realize that every function has its own distinctive graph; that there is infinite variation in the forms and positions of these, though they can be classified according to types of functions. The introduction of a new type of function on the analytical side of the subject should provide interesting preliminary speculation as to the form of its graph. Finally, there is the converse operation; given the graph, determine the equation—a piece of work which is usually entirely neglected. This is soon found to be a difficult problem in most cases, but it will often provide an interesting and profitable exercise. P. A.

GRAY, THOMAS (1716–1771).—Born in London; educated at Eton and Cambridge; travelled on the Continent (1739–1741) and, after a short residence at Stoke Poges, spent most of the remainder of his life at Cambridge. He was a great student of the classics, and possessed immense knowledge. His works are few, but include poetry of the highest kind. The *Elegy*, full of exquisite expression and pathos, has drawn thousands of visitors to Stoke Poges. His odes, *The Bard* and *Progress of Poesy*, and other poems, though unappreciated by Johnson, mark him as the leader of the poets who broke away from the artificial school of Pope.

GRAZ UNIVERSITY.—This owes its origin to a Jesuit College founded by the Archduke Charles of

Austria in 1573, and organized as a university in 1586. It remained under the management of the Jesuits until their Order was dissolved in 1773. The faculty of theology was during that period the most important part of the work of the university, and it was not until after 1773 that faculties of medicine (1774) and law (1779) were added. The Emperor Joseph II reduced the status of the university, and it was not restored till 1817. The university was re-housed in 1895 in new and magnificent buildings including a large library, and the number of students greatly increased. Women who are natives of Austria and over 18 years of age are admitted as hearers under the same regulations as men; may attend the philosophical examinations; and, with certain qualifications, may obtain diplomas in medicine.

GRÉARD, OCTAVE CLÉMENT VALLERY (1828–1904).—" Un moraliste éducateur "; was born at Vire (Calvados); and, after education in a lyceum and a normal school, became professor at the Metz Lyceum (1852). In 1864 the minister Duruy chose Gréard to superintend the administration of the Academy in Paris. While he held this position, his great work was *Le Morale de Plutarque* (1866), which was highly praised by the Academy. In 1866 he was appointed an inspector with control of primary education in the Prefecture of the Seine; and from 1866 to 1870, in concert with M. Duruy and M. Haussmann, he reorganized primary education and carried out an entirely new plan of primary studies in Paris, with improvements in school buildings and material. He familiarized himself with every detail of school life and work by visiting the schools, interviewing the teachers, and taking account of all their needs (which he proceeded to supply). He put an end to the system of " mutual instruction "; grouped children according to age, intelligence, and attainments; brought them under the direct teaching of the master; reduced the sizes of classes and classrooms; and improved buildings, equipments, and methods. He retired in 1902, leaving valuable works on the Education of Women by Women; Education and Instruction; and Primary Secondary, and Higher Education.

GREAVES, JAMES PIERREPONT (1777–1842). —He was in early life engaged in business in London, but failed; and afterwards left England to study the methods of Pestalozzi at Yverdun, in Switzerland. He returned to England in 1825, and became secretary of the London Infant School Society. A few years later he settled in the village of Randwick in Gloucestershire, where he engaged in an industrial scheme for the benefit of the agricultural labourers. Returning to London, he continued his educational work and founded the Aesthetic Society to promote his views on complete education. He thought such a society was needed to promote a study of the intellectual powers and functions, and the human feelings, sympathies, and emotions which originate in a source higher than the intellect. " *Doing* and *Knowing* are fostered to the highest degree, why should the *Being* be systematically neglected ? " He organized a school at Ham, in Surrey, to give effect to his educational views, and spent his last years there.

GREECE, EDUCATION IN.—In inquiring into the present state of education in Greece, two main facts should be kept in view: that the intellectual culture and the physical training of youth has been, from time immemorial, one of the outstanding life-features of the Greek race; and that it preserved the race from extinction, when under a barbarous and crushing servitude, and ultimately proved the chief factor in preparing and achieving national regeneration and freedom.

The present inquiry being confined to the organization of education in the Kingdom of Greece, we need only remark here that the traditional love of the Greeks for enlightenment may be clearly traced as an active force from the Alexandrine epoch onward, through Byzantine times to our own day. Even when the Turkish conquest had apparently stamped out all signs of national consciousness among the Greeks, we find efforts at education resumed, stealthily at first, but with increasing momentum and success, as the power of the Turk dwindled, and as the subject race grew in comparative welfare, thanks chiefly to its commercial enterprise, and the increasing facilities of intercourse with the West.

Schools reappeared wherever Greeks were allowed a certain measure of communal self-government, especially in such centres as the Greek maritime colonies in Venice, Odessa, and the Danubian Principalities which were then under Greek Hospodars. In such centres the " Great Masters of the Race," men of high purpose, self-abnegation, spotless lives, laboured for the spiritual regeneration of the nation and prepared its political redemption from slavery. During the early years of last century two such men stand out prominently, and the revival of education in Greece as a national force is bound up with their names.

Adamantios Coray and George Gennadius. Adamantios Coray, born in Smyrna of Chiot parents in 1748, was educated in Holland and France and lived in Paris to the end of his days in 1830, too frail in body and too independent in mind to submit to the rigours of life under the Turks. The strength he lacked in body was centred in his fiery soul which poured forth those appeals, irresistible in eloquence and persuasive in logic, dictating civic duty, counselling a more efficient method of education, and laying down the principles of a purer style in language.

What Coray did from a distance and by the pen, George Gennadius accomplished at close quarters, carrying on war against the tyrant by word and deed. Coming of an ancient Epirot stock, he studied in Germany. No other great master has left a memory so deeply impressed on the national conscience as he has done by a life-record truly Socratic. The following we quote from Dr. Daniel Quinn's admirable paper on " Education in Greece " (Washington, 1898), p. 290—

" The schools are nurseries of patriotism. The warm though smouldering patriotism which was so instrumental in keeping the schools alive, and which was in turn fostered into intense heat by these same schools, is well illustrated by an event which happened one day in the Greek school at Bucharest. George Gennadius was teaching, and this event is described in the writings of Alexander Rangabes, who was then present as one of Gennadius's scholars. Among the pupils were also the sons of Alexander Soutsos, Hospodar of Wallachia. Gennadius was interpreting Isocrates' celebrated Panegyric. The teacher read to his students the old sophist's description of the glory and splendour of ancient Athens. Becoming

filled with ecstatic fire, he told the students to bar the doors. Then, shut in from all contact with the Turkish world outside, he made a burning comparison between the greatness of the past and the fallen condition of the present. Tears streamed down from his own eyes and every young Hellene present wept and cheered. A few months later many of them followed Gennadius to the war as members of the Sacred Band. Thus it was that the schools which the dull oppressors, if properly bribed, allowed to exist, became each and everyone of them a radiating point whence the hope of freedom glinted out. Indeed it was through the literature and through the schools and through the Church that the flame at last burst out. The young palikars, were fired by the hymns of such as Rhigas, while the more enlightened were whetted with determination by the writings of such as Coray and the teachings of Gennadius."

On the outbreak of the War of Independence (25th March, 1821), the few existing schools in Greece were either closed or completely destroyed. Not so the unquenchable love for learning of the Greek people.

Early in the third year of the war, in the spring of 1823 the National Assembly at Astros voted a resolution calling upon the Government to introduce the Lancastrian method of teaching throughout the country; and later the Assembly of Epidauros, in formulating the first Constitution of Greece, decreed that elementary instruction be gratuitous for all at the charge of the State. It is to be remembered that this was resolved at a time when the whole of the country was a smoking desert, through the devastations of a war of extermination. All available resources had to be devoted to the efforts to free Greece from the Turks, but still local schools for children reappeared here and there, thanks to the efforts of the older men and the priests who could take no other part in the struggle. Thus we find that in 1824 a few young girls were being taught under the very shadow of the Parthenon while their fathers were fighting for freedom.

During that year a fresh effort was made to organize a system of at least primary education. A committee of five drew up a scheme, and as a beginning a model or central school was established at Argos with Gennadius as director. But the vicissitudes of the war compelled its closure before long.

On the arrival of King Otho in Greece, January, 1833, public instruction was organized in a definite form, the following legislative measures having been successively promulgated—

6th February, 1833, on primary or communal education.

10th May, 1834, on scientific societies and antiquities.

31st December, 1836, on Hellenic schools and gymnasia (secondary education).

14th April, 1836, on the constitution of a university.

25th January, 1843, on the constitution of the Rhizaris seminary.

This body of laws has governed to this day the whole educational system of the kingdom, with but few modifications introduced from time to time, as they were found to be necessary. Gradually, provision was also made for technical, commercial and private schools, and other educational institutions.

Present System. The whole system of education in Greece is controlled by the Ministry of Public Instruction, *Ὑπουργεῖον τῆς Δημοσίας Ἐκπαιδεύσεως*, assisted by the Supreme Educational Council sitting in Athens and by the Inspectors of Schools. This system which was based on German models, is divided into three great sections—the Primary or Communal, the Secondary or Middle, and the Higher or University Education—the one leading up to the other, but each self-contained and sufficient for those who do not desire, or need, to continue the next higher studies. The teaching is uniform in each grade throughout the kingdom, and it is practically gratuitous from the lowest step to the highest, the fees payable in the gymnasia and the university being very light. Moreover, there are numerous scholarships provided both from public funds and from very considerable educational legacies. The establishment of private schools and colleges is free and optional, but they are all subject to Government inspection, and the curriculum must be such as to render diplomas granted by such institutions equal in value to those of corresponding public schools. Books to be used in tuition must as a rule, be approved of by the Ministry of Public Instruction. There is hardly any dissent in Greece, yet attendance at the Catechism and the Bible classes is not obligatory for pupils whose parents have a sufficient reason for objecting. In the lower schools the day's work begins after prayer, which is uniform and unsectarian. The scholastic year begins in September and ends in July, but there are short breaks at Christmas and Easter. Moreover, September is generally consumed in examining and verifying the qualifications of new applicants for admission, while the last month is taken up almost completely with the annual examinations. There are also several feast days to be deducted, so that not more than eight months in the year remain for actual tuition. Punishment with the rod is expressly forbidden by the decree of 12th December, 1848; nevertheless it is not entirely absent from the lower schools. Expulsion (*ἀποβολή*) from the upper schools is the punishment inflicted when admonition and reprimand have failed. Admission into some other school is then possible, but exclusion (*ἀποκλεισμός*) shuts all doors to the delinquent, although an appeal to the Ministry is permitted before the enforcement of a decision that can only be taken by the concurrence of all the professors of the schools. Special qualifications are fixed by law and are required for admission to the teaching staffs, as well as for professorial appointments.

Primary Education, known as communal or demotic because of the original dependence of the lower schools from the several communes, is gratuitous and obligatory for both sexes, from the age of 6 to 10. The expense was formerly borne by the communes, with occasional assistance from the State. But, by a later enactment (1895), the whole expense, amounting annually to over 7½ million drachmae[1] is borne by the State, the communes being obliged to provide suitable buildings. Excellent model schools now exist in most towns. The method of tuition is mainly the Lancastrian, and the curriculum of four years' duration includes—

Religious Instruction: (Catechism, sacred history, etc.); Greek reading, writing, grammar; arithmetic and geometrical forms; drawing; simple natural

[1] Drachma is equal to a franc at normal exchange.

history; geography and elementary Greek history; vocal music; gymnastics.

These studies are the same for boys and girls.

Communal teachers Δημοδιδάσκαλοι, both male and female, must have undergone a three years' preparatory course in some training school Διδασκαλεῖον. They were formerly appointed directly by the Minister of Public Instruction, but a recent enactment has transferred all disciplinary powers over communal teachers to a committee of surveillance for communal education, composed in each *Nomos* (province) of the Nonarch, the Gymnasiarch, a Judge and an Inspector of Schools, and this committee has the initiative in proposing their appointment, dismissal or transfer, through the Supreme Council of Education to the Minister, who may veto such proposal, but has now no right of initiation.

The law of 1895 extended elementary education to the remotest part of the country, reaching even the nomadic shepherds of the mountain districts, and introducing, with education, modern hygienic habits. In such places, where it is impossible to maintain a demotic school, a Γραμματοσχολεῖον or A.B.C. school is established, in which the teacher need have no special training, but must be of good moral standing and able to teach "the three R's" and the catechism. He is often the local priest and is subject to the nearest Demodidaskalos.

From the small beginnings already noted, the primary schools in the kingdom increased rapidly in 1860 to the number of 498, in 1868 to 943 with 55,397 scholars of both sexes; in 1895 to 2,119 with 158,640; and in 1910 to 3,550 with 233,164.

Of these latter 1,305 were for boys, 680 for girls, while 1,565 were rural or "agrotic" (A.B.C.) schools attended by 177,396 boys and 82,458 girls. Besides these, there were 128 private primary schools attended by 11,990 children of both sexes. This brings the total number of children receiving a primary education to 271,844, and represents 9·31 per cent. of the total population of the Old Kingdom, to which the above statistics are confined and which show that there was, roughly, one primary school for every 715 inhabitants.[1]

These figures are more eloquent than any comment we can offer.

Secondary or Middle Education. With the exception of primary schools, there was in Greece, at the close of the War of Independence, hardly any establishment in which higher education could be imparted. The Central School of Aegina (1829–1834) had been made, by the unremitting efforts of Gennadius, the centre of such instruction and the nursery of many of the professors and some of the most distinguished civil servants of the future. The lack of qualified teachers had delayed the formation of Hellenic schools, of which only three existed, in Syra, Nauplion, and Patras, when the law of 31st December, 1836, was promulgated.

By this enactment secondary education consists of an "Hellenic" school, which has three forms, and a gymnasium, which has four forms—the complete curriculum thus extending to seven years. Attendance at secondary schools is not compulsory, nor is it obligatory to continue the gymnasium course, after completing that of the Hellenic school, which latter provides a sufficient educational equipment for superior workmen and other such status in life.

[1] The census of 1907 showed the population of Old Kingdom to amount to 2,631,952 souls.

In the Hellenic schools the study of the Greek language in its more grammatical form begins, and the matters taught in the communal schools during the last two years are continued and developed. For Greek the text-books are Aesop, Xenophon (Anabasis), Lucian (Dialogues), Plutarch, Isocrates, Homer, Latin (during the third year), mathematics (algebra and geometry), history, calligraphy and drawing, beginnings of foreign languages (English and French).

A university degree is a necessary qualification for a teacher in a Hellenic school (Ἑλληνοδιδάσκαλος). The number of such teachers in each school depends upon the number of pupils. The head teacher is called Scholarch (Σχολάρχης). The initiative in appointing, dismissing and transferring teachers in the Hellenic schools (as also in the gymnasia) lies with the Supreme Council of Education.

There is now a Hellenic school in every town of any importance, several have two or three. The following statistics refer only to the territories constituting the Old Kingdom of Greece, prior to the war of 1912—

In 1871 there existed 114 Hellenic schools with 238 masters and about 5,000 pupils;

In 1895 there existed 240 Hellenic schools with 660 masters and about 13,490 pupils;

In 1911 there existed 282 Hellenic schools with 900 masters and about 24,729 pupils (of which 3,106 were girls) representing 0·89 per cent. of the entire population. The annual expenditure amounted to 2,503,960 drachmae. Of private schools of this grade mention will be made hereafter.

The gymnasia complete the curriculum of the Hellenic schools and are preparatory for university studies.

Substantially the four years' course includes the higher study of Greek, Herodotus, Plato, Thucydides, Pindar and the dramatists, grammar and syntax, Latin (Nepos, Caesar, Tacitus, Virgil, Horace); mathematics (algebra, geometry and trigonometry); geography and history (Greek, Roman, Byzantine, modern); natural science (zoology, botany, geology, chemistry); foreign languages (French, more or less obligatory, English and German optional).

At the end of the four years' course and after passing satisfactorily a final examination, the student is entitled to a Dimissorial (ἀπολυτήριον), certifying that he has completed his studies. This certificate is a necessary qualification for certain public and private posts or for entry into the University.

The Government bears the annual expenditure for the gymnasia. In 1912 it amounted to 1,066,460 drachmae.

The first gymnasium was established in Athens in 1834 by George Gennadius, having under him some of his own pupils whom he had trained as professors.

In 1838 there were only three gymnasia, those of Athens, Nauphia and Syra.

But in 1871 there existed 15 gymnasia with 94 professors and 1,800 pupils.

In 1895 there existed 42 gymnasia with 245 professors and 5,062 pupils.

A recent law provides for an important modification in secondary education. It contemplates the abolition of the Hellenic schools, their place in tuition being supplied by raising the course of the communal schools to six years (six forms), and by

extending that of the gymnasia also to six years. This enactment, of doubtful expediency or benefit, has not yet come into full operation.

Higher or University Education. The University of Athens was instituted by the Royal Decree of 21st December, 1836, and in accordance with German custom, King Otho named it after himself, "Ὀθώνειον Πανεπιστήμιον." The attempt was criticized by some as premature, considering the want of a sufficient number of qualified professors and the absence of the indispensable equipment; but it was generally welcomed with great joy, as bringing the Muses back to their hallowed home whence they had been expelled for more than thirteen centuries, and as creating a most powerful link of union between Greeks all over the East. The official inauguration took place on 3rd May, in the presence of King Otho and all the authorities. The Metropolitan of Athens blessed the undertaking and the scene was so affecting, after the sufferings of the terrible War of Independence, that the king and many of those present were moved to tears.

The ceremony took place in a private house situated on the northern slope of the Acropolis, but the first stone of a specially designed building was laid on 2nd July, 1839, and on November, 1841, the first wing of the present imposing structure was occupied.

Constantine Schinas was appointed first rector and Dr. Ch. Aug. Brandis drew up the organization of the University, which, after the German model, was divided into four faculties: theology, philosophy, law and medicine.

On the fall of King Otho, the University, by virtue of the Decree of 20th October, 1862, was re-named "National," and by the Organic Ordinance of July, 1911, was recognized, under Government supervision, as independent administrator of its own property, which meanwhile had rapidly grown by legacies and donations.

In 1849, Joannes Dombolis, a Greek merchant in Russia, left his entire wealth to accumulate for sixty years, and then to be devoted to the foundation of a university in memory of Count Capodistria. As it was found neither expedient nor possible to equip adequately two such institutions in Greece, the old and the newly projected universities were, in 1911, merged into one—"the National and Capodistrian University"—the former continuing to receive a subvention from the Government and the latter subsisting on its own resources. The annual expenditure of both together amounted in 1916 to 395,000 drachmae. They are jointly governed by an annually elected rector (Πρύτανις) and a Convocation (Σύγκλητός) of the professors. The Law faculty has been divided into two sections: science of law, and science of politics; while the Philosophical faculty is now composed of three sections: philology, mathematics and physics. The School of Medicine again includes dentistry and pharmacy. Each of the five faculties is presided over by a proctor (Κοσμήτωρ), and all five have seminaries (Φροντιστήρια). The body of professors of each of these faculties propose candidates for the vacant chairs to the Minister of Public Education, who may veto any proposal, but has no right of initiation. Up to 1882 the professors were appointed directly by the Government.

Another class of instructors are the Ὑφηγηταί or lecturers, who occupy a position similar to the *privat docenten* in the German universities.

At the outset, in 1837, the Theological faculty numbered three professors, the Philosophical fourteen, Law seven, and Medicine eight. In 1911 the entire staff consisted of 155 professors and lecturers.

With regard to actual students (φοιτηταί), their number did not exceed fifty-two during the first year; but there were also admitted as students, first, the pupils of the highest class of the gymnasia, and, secondly, persons of repute and of some attainment who were desirous to attend the lectures. These were enrolled as auditors (Ἀκροαταί). The number of regular students increased rapidly; in 1847 they amounted to 250, in 1857 to 490, in 1867 to 1,217, in 1887 to 2,978, and in 1911 to a total of 3,358, of whom 110 were enrolled in the Theological faculty, 252 in the Philosophical, 171 in the Mathematical, 1,819 in that of Law, and 176 in that of Medicine. Of that total number again, 800 came from Turkey, Egypt, and other centres of Greek life in the East; for it must not be forgotten that the University of Athens is the only such institution in Eastern Europe.

When the fiftieth anniversary of the foundation of the University was celebrated in 1887, it was computed that during the preceding half century 14,029 students had been enrolled.

Students leaving the gymnasia with a satisfactory dimissorial may enter the University without undergoing the examination which other candidates must submit to. The principal Greek educational establishments in Turkey, however, have been recognized as of equal grade with the gymnasia and their dimissorials enjoy a like force.

Enrolment takes place at the commencement of every semester, and the complete University course is one of four years. In order to obtain a degree, a student must have followed the so-called "general studies" (Γενικὰ μαθήματα), besides those special to the faculty in which he is inscribed. For examinations in general studies he may present himself after a two years' course.

The degrees conferred in course are those of Licentiate in Theology (Προλύτης τῆς θεολογίας), Master of Philology and Doctor of Philosophy, Law, or Medicine. Those who leave the University having completed their studies but without obtaining a degree are known as Τελειοδίδακτοι.

Honorary degrees are very seldom conferred by the Athens University. Not more than a dozen are recorded since its foundation.

Besides the munificent legacies with which the University has been endowed various donors have established yearly contests, open to all comers, offering prizes for the best treatises on theological, philological, poetic, dramatic and kindred subjects.

The University is richly equipped with the necessary auxiliary establishments. Its library has been merged with the National Library first founded by Gennadius in Aegina and later transferred to Athens. It now contains more than a quarter of a million volumes and is housed in the palatial structure immediately to the south of the University. On the northern sides the superb building of the "Academy" contains the Numismatic collection, which now ranks among the richest in Europe. To the rear of the University two other buildings serve as Physiological Museum and as chemical and scientific laboratories. They are all fully up to modern requirements. The Municipal Hospital in which clinical training is carried on, stands in the immediate neighbourhood,

as also the Eye Institute. The Botanic Gardens are situated in the outskirts of Athens, and the beautiful building of the Observatory, erected in 1842 at the expense of Baron Sirra, a Macedonian Greek of Vienna, stands on the Hill of the Nymphs, west of the City.

A training school (Διδασκαλεῖον) for communal teachers was established in 1834 in Athens, but was abolished in 1864. In 1876, however, it was replaced by the Ecole Normale, founded by the munificence of M. Marasli, of Odessa. Two similar schools, at Trikkala and Corfu, are subordinated to it, and in each a three years' course is prescribed.

The education of women was systematized by the foundation of the Society of Friends of Education (φιλεκπαιδευτικὴ Ἑταιρεία), thanks chiefly to the efforts of Gennadius. At the outset, in 1837, its model school contained only 70 pupils, most of whom became communal teachers. In 1840, when it was endowed by the Greek merchant Arsakes, with a stately building in Athens, the attendance had risen to 250, in 1874 to 1,380, and in 1912 to 1,500. The Society, which is now richly endowed (its budget amounting in 1910 to 515,601 drachmae), has established branch schools in Corfu (1868), Patras (1891), Larissa (1902), and elsewhere in Greece. The curriculum is similar to that of the Hellenic schools and the gymnasia, with special courses for girls.

The Polytechnic School (Πολυτεχνεῖον), tentatively established in 1837, was originally intended to encourage the fine arts; sculpture, painting and architecture, and tuition was given only on Sundays and feast days. Gradually its scope was extended and regular professors were appointed. In 1863 and 1874 it was reorganized as a school of both the fine and the industrial arts. It is now housed in a stately building, the gift of Sturnares and Tositsa, rich Greeks, natives of Epirus, with a staff of twenty-five professors, five assistants, and some 400 pupils.

The first seminary established in Athens was the Rhizarian School in 1842, so called from the two brothers Rhizaris, natives of Epirus, who, on the advice of their countryman Gennadius, bequeathed the whole of their wealth for that purpose. The school has produced some of the most learned prelates in Greece. There are now three other theological colleges with 25 teachers and 127 pupils. In the Piraeus, the port of Athens, there are two excellent evening schools for mechanics, with a three years' course.

In taking stock of educational activity in Greece, mention must be made of six commercial schools with 46 teachers, 366 pupils; of a high school for agriculture in Athens with two others in Larissa and Salonica; of several night schools for workmen; of evening schools for poor children under the auspices of the Literary Society, "Parnassus"; of an Ecole Normale for gymnastics; of a shooting school; and of other such institutions, maintained mostly by private bequests. Mention should also be made of the Odeion, an establishment similar to the French Conservatoire, for the purpose of producing actors, singers and musicians, the latter chiefly as teachers of church choirs and in primary schools.

There exist private schools of all grades up to the gymnasium standard, which are subject to Government inspection. The principal one of these is the Varvakeion Lykeion with 28 teachers and 350 pupils. There are also commercial and nautical schools under private directorships.

The total number of secondary schools amounted in 1911 to 379, with 31,751 pupils (boys and girls), representing 1·21 of the total population.

The foregoing facts and statistics refer to the Old Kingdom of Greece and to the conditions existing prior to the first Balkan War in 1912. The disturbed times which have prevailed since then, the second Balkan War, and the Great War, and the unsettled conditions of this period, during which a large extent of territory and fresh populations have been added to Greece, have not yet rendered possible any reliable statistics to be collected. Numerous Greek schools already existed in those new territories; but the Greek Government have in contemplation the recasting of the whole system of education, both in the Old Kingdom and in the newly formed Greater Greece, so as to supplement deficiencies and remedy wants. Among other developments it is proposed to utilize the large legacy recently left by a London Greek merchant in forming a public school of the genuine English type, with an English director at its head for the first few years. J. G.

GREEK ARCHAEOLOGY.—The word "archaeology," in its original Greek sense, was employed as vaguely synonymous with "ancient history" or the general study of antiquity. But in recent times it has been specialized, more or less arbitrarily, to designate the study of ancient monuments as distinct from the study of texts, which is usually termed philology; so that archaeology and philology become the two main sub-divisions of the whole field of our knowledge of the past. But in regard to Greek antiquity, this distinction does not always lead to a logical grouping of the very numerous special branches of study. The simpler distinction between Art and Literature would lead to a clearer and better classification: for the Greek people used both vehicles of expression with equal intensity and effect; and the thinkers and scholars of antiquity were well aware of this. Herodotus uses the evidence of monuments freely; Aristotle paid careful attention to the different modes of expression in the fine arts; the scholars of the Hellenistic period wrote treatises on art-history, descriptive catalogues of art-objects, and began to make systematic collections of inscriptions. The Italian scholars of the Renaissance were equally catholic in their range; the Greek gem was as ardently desired and as earnestly studied as the Greek text. In our own country, classic scholarship in universities and schools has been less genial in its sympathies, on the whole remaining merely literary or linguistic until recent times; the cause for this may be sought in the influences of the Reformation and of Puritanism, which were hostile to the aesthetic instinct. On the other hand, many of our nobles and gentlemen of the seventeenth and eighteenth centuries were enthusiastic admirers and collectors of Greek and Roman art-objects: many of their treasures formed the nucleus of our great national museums; and many still abide in the comparative obscurity of the country-seats of England and even Wales.

The Science of Greek Archaeology. It may be said that until the latter part of the eighteenth century, there was no critical study of ancient monuments, no science of Greek archaeology. This arose in Germany, and its founder was Winckelmann,

The influence of his work, nobly maintained by German scholarship in the beginning of the nineteenth century, soon penetrated the more progressive lands of culture. In 1801, began those operations of Lord Elgin on the Acropolis of Athens that saved for the world the greatest relics of fifth-century sculpture, and enriched the British Museum with the masterpieces of the Pheidian school, and the Elgin marbles first opened the eyes of modern Europe to the true grandeur and significance of Greek sculpture.

In this century, also, scientific excavation of the sites of ancient art and civilization in the Mediterranean area was initiated and carried through on a great scale. And at last most of our universities, and even many of our schools, have come to recognize that the curriculum of scholarship is incomplete unless it includes archaeology as well as philology. The domination of mere book-learning, of the exclusive grammarian-textual culture, is passing away.

The curriculum of Greek archaeology includes, as its main fields, Greek Art and Antiquities, Numismatics (or the study of coins), Epigraphy, Religion, and Mythology.

Art and Antiquities. The first two of these constitute *par excellence* the province of the archaeologist, inasmuch as archaeology is in a special sense the study of monuments as distinct from texts. But it will be found that the products of each field throw light on those of every other in this region of inquiry. The Greek art-spirit expressed itself with that unique mastery that was the special achievement of this race in the domains of sculpture, painting, design, and architecture; and the same style-feeling, the same temper and modes of expression are found in each of these. The products that are the materials of our study are sculptures in the round and relief; vases, painted *stelae* or grave-slabs, a few frescoes and copies of ancient pictures, mosaics, works of glyptic art (such as coins, gems, treasures of plate with figures inscribed or in relief), inscribed wooden caskets; and, finally, the remains of temples, theatres, walls, and private dwellings. Even the products of the utilitarian handicrafts—armour, clothes, and domesticated utensils—are rarely without interest for the higher art-sense, as this was so all-pervasive in the varied productivities of Greek life.

In regard to the higher art-products that represent certain subjects, the study is twofold: being technical and aesthetic on the one hand, demanding acquaintance with the material and the modes of handling it, or the methods of *fabrique* and the various laws of style that mould it; and, on the other hand, being ideal, and demanding an understanding of the thought of the artist and of the subject which he wished to embody.

Sculpture. The history of Greek sculpture is the special branch of archaeology that has the widest vogue among classical students, and makes the strongest appeal to the lovers of classic culture. It is in the plastic sphere that the formal mastery of the Greek remains unchallenged; and never in the world's history have marble and bronze been handled with such warmth, softness, and delicacy as in the Greek workshops of the fifth, fourth, and third centuries B.C. Starting from rude, almost savage, beginnings in the eighth century B.C.—for the plastic skill of the Minoan-Mycenaean or pre-Hellenic period seems to have passed away without abiding influence—Greek sculpture, by severe schooling and in swift process of development, arrived by the middle of the fifth century at the discovery of an ideal type of human beauty unrevealed before, and retaining its authority for the later ages. This study ranges over many centuries, for the history of Greek sculpture is not complete till the end of Paganism. And the student who desires a complete comprehension of it will equip himself with some knowledge of the adjacent art-worlds of Egypt and Mesopotamia, whose plastic work may at some time have influenced the Greek, and even with the more distant world of Indian sculpture, where an originally Greek tradition became strangely transformed by the Indian imagination. The study of the form and style of Greek sculpture cannot be severed from the study of the subject-matter represented. In respect of the great masterpieces, this was mainly religious and mythological. But its achievements in the human and historical spheres of plastic work are not less striking and distinguished. Deeply concerned from the middle of the sixth century onward with the study of the athletic form, it came to represent the individual athlete according to an ideal that it discovered and maintained as a canon of beauty, symmetry, and grace. Historic portrait-sculpture, the representation in bronze or marble of famous personages—at first working in the ideal style of the fifth century—becomes more realistic in the fourth and in the Hellenistic period; and certain heads that survive reveal the supremacy of the Greek artist in this as in other spheres.

Realistic sculpture, to which historic portraiture belongs, includes also the representation of the forms and types of private and domestic life; and these are presented with rare delicacy and charm by Greek terra-cottas, of which those discovered on the site of Tanagra are the most beautiful, reproducing frequently the style, and inspired with the spirit, of the best sculptors of the fourth century. Another subject of realism in plastic art was the representation of the types of non-Hellenic peoples. Early in the fifth century, Greek craftsmen in terra-cotta, working in Lower Egypt, were reproducing with astonishing skill and fidelity of observation the physical traits of the various races—African and Asiatic, Persian, Arab, and Indian—that frequented the delta. But historic sculpture on a great scale was the special achievement of the Hellenistic age, and notably of the last great school of independent Greek art—the school of Pergamum.

The materials for this fascinating study grow richer every year, and yet nearly all the masterpieces have perished beyond hope of recovery. The student has to be content with ancient copies and works of lesser fame than those which won the eulogies of the ancient world. And part of his study must always be literary: for our knowledge of those masterpieces depends greatly on the Greek and Latin texts of ancient authors who have described them.

Painting. This is still more true of the study of Greek painting. The frail works of the great masters of the fifth and fourth centuries are only preserved in the records of the history of ancient painting, such as the 35th Book of Pliny's *Naturalis Historia*, and occasionally by the reproductions of inferior copyists such as those who decorated the walls of Herculaneum and Pompeii. We have also a few painted grave-slabs of the fourth century, and a series of Greek-Egyptian mummy-portraits. But the chief archaeological material for this study is

supplied by the ancient Greek vases, of which our store is already vast, and each year's excavations bring us new examples.

These works have their place in the chronicle of the highest art of Europe, and the study of modern European painting must begin with them, because, in Greece of the later sixth and earlier fifth centuries, men of genius devoted their lives to the painting of vases before the art of painting had discovered its higher sphere and functions. Apart from their value as works of art, these monuments are of the greatest interest for mythology and religion, for most of the subjects that adorn the vases, after the very earliest period, are derived from these sources. The study has also some value for external history, in so far as the question concerning the sites of the various pottery-fabrics and the routes of trade concerns the commercial and political history of the Mediterranean States.

Coins. But from the double point of view of history and art, the study of Greek numismatics occupies a unique position. It throws clear light on the earliest development of a monetary system, on the early and late relations between Asia and Europe, on the commercial and political alliances of the Greek States; it illustrates, checks, or confirms our literary record, and often fills up important gaps in it, notably in the Hellenistic period. The study is no less fascinating from the aesthetic point of view. Also as most of the coin-types are religious, the masterpieces, such as the Syracusan medallions with the head of Persephone, present to us most intimately the inner workings of the Greek religious imagination. They are of no less value also for the study of ancient portraiture, as many of the coin-types show the heads of notable personages of history.

Gems. Much the same may be said of the study of Greek gems; but its direct contribution to ordinary history is naturally far less.

Architecture. The study of Hellenic architecture stands somewhat apart from the other branches of archaeology. It is the least teachable of the subjects, and it demands varied and extensive travel and laborious technical training and observation. The work of so masterly an exponent of it as Dörpfeld shows what rich results can be gleaned from it.

Epigraphy, or the study of Greek inscriptions, belongs only to a very limited extent to the special field of archaeology; merely in so far as it is concerned with the early stages of the development of Greek writing on stone or other hard material. It includes the early history of the Greek Alphabet, which is a matter of somewhat difficult and minute study; but its most important function is with the subject-matter of the enormous collection of Greek inscriptions that has been accumulated and is constantly increasing. These offer the richest material to the philologist, historian, the student of religion, and of constitutional and economic history. And no one is properly equipped for an original study of these departments of classical scholarship without familiarity with the inscriptional evidence. Therefore, epigraphy cannot be considered a unified or single subject at all.

Religion and Mythology. It is usual to ascribe the subject of Greek religion and mythology to the province of archaeology, but this is a misunderstanding. At least half the evidence is literary, and there is scarcely any writer of antiquity that does not contribute some material. The other sources of evidence are, indeed, monumental or archaeological, works of sculpture, vases, paintings, gems, coins, and especially inscriptions—the last mentioned teaching us most about the ritual (both public and private); the others presenting to us the types both common and ideal of the divinities, and illustrating and revealing to us much of their mythology and religious imagination. Part of the study concerns also anthropology; and the successful student must be versed in ancient literature, history, and archaeology, as well as in the modern methods and results of anthropological research. So deeply interfused was religion with some of the highest products of Greek literature and art, that the classical philologist or archaeologist is liable to serious error unless he possesses a true understanding of it.

L. R. F.

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GREEK, EARLY TEACHING OF.—(See BUDÉ).

GREEK EDUCATION.—We know far more fully what the great thinkers of Greece would have liked Greek education to be than what it really was. Plato, in particular, in the *Republic,* and again in the *Laws,* has left a study of his educational ideals, which is largely a criticism of existing educational methods. It is difficult to know how far the system outlined by Plato corresponded to the reality; and we have, therefore, in attempting a survey of the facts of Greek education, to rely largely upon mere casual literary allusions. A further difficulty is that we have far more information about the fourth century B.C.—during which the City-States of

Greece were already beginning to decay—than about the fifth century, when they were at the height of their power. Fifth-century education, as we shall see, differed very considerably from fourth-century education. Even if we keep the distinction between periods in our minds, we cannot treat Greek education as a unity. Two very different systems were practised in different parts of Greece: the one in Sparta and Crete, and probably in some other Dorian States; the other in Athens, Ionia, and most of the rest of Greece. There were, however, certain features common to both systems. Greek education was essentially a part of the machinery of the City-State, in which, at any rate during the fifth century, the whole life of the citizens was concentrated and expressed. The rise of a more individualistic type of education synchronized with the decay of the City-State; while the City-State retained its vitality, education—like religion, art, and everything else—was essentially civic. This appears most clearly in that part of education which was most alike all over the Greek world. Everywhere, the greatest importance was attached to the development of a healthy and beautiful body. This was hardly less the case at Athens than at Sparta: though, at Sparta, physical education was practised to the exclusion of everything else. In all cases, the main object of this attention to the body was civic. Gymnastic and military training went hand in hand. The Greek citizen was, first of all, a soldier, and the first object of civic education was to train him for the business of soldiering. This was the end of Spartan and Athenian education alike, though at Athens all sorts of other motives entered in and assumed an increasing importance as time went on. At any rate, in the fifth century, the desire to create beautiful and accomplished men was quite subordinate to the desire to create good soldiers.

Sparta. As the Spartan system was far simpler than the Athenian, it is convenient to describe it first. The Spartans hardly had a system of education in the modern sense: the training given to their youth was almost entirely physical, and there were no professional schoolmasters. But, within the limits laid down, there was a rigid system organized by the State with the one object of making good citizens. At the age of 7, boys were taken from home and organized in "teams" (*agelai*), each with its own captain or "team-leader," and each under a young man as supervisor (*eirēn*). These teams, which fed together, were submitted to a vigorous physical education designed to train them to endure all kinds of hardship, and including organized battles between teams. The Spartan system has been compared with the boarding-school system of to-day, military exercises taking the place now mainly occupied by organized athletics. It was, indeed, a State boarding-school system; and it had the effect common to all boarding-school systems, of turning out all boys very much alike. A hostile critic would say that it crushed out individuality, a friend that it developed civic spirit. This system continued till the boys reached the age of 18, except that at 16 they began to feed at the common messes of the men (*syssitia*). At 18, they began their period of "secret service" (*crypteia*), to which we shall find an equivalent at Athens. From 18 to 20, as "crypti," or "secret service men," they passed through a special period of practical military training. The Spartans, it must be remembered, were a people of conquerors, ruling over a conquered country, which they kept in slavery or subjection. During these years of training, the young Spartans did duty as a force for keeping the subject peoples (Helots) in subjection. They were given almost a free hand in preying on the Helots, and were used to stamp out disorder, or to remove by massacre inconvenient subjects. This period over, the Spartan entered into full rights of citizenship.

It is not clear whether there was any organized teaching of "letters" at Sparta, as our authorities differ on the point. In the absence of professional teachers, it seems probable that some rudiments were picked up by casual instruction during the period of training; but there was certainly no organized system of literary teaching as in the rest of Greece. The learning of rhetoric, even abroad, by Spartans was forbidden and punished. An interesting feature of the Spartan system is that there was organized physical training for girls as well as boys. Girls took part in gymnastic exercises, and in dancing, till marriage. Dancing was an important part of education; but it was confined to war-dances and ceremonial dancing. It must be remembered throughout that the Spartan system was aristocratic, and that all Spartan citizens were themselves aristocrats. They were an aristocracy of warriors, and the war-like education described above was confined to them, though occasional outsiders could be admitted. Sometimes an Helot who had received this education was enfranchized; the great Spartan general, Lysander, was of this class.

The Cretan system closely resembled that which was in practice at Sparta.

Athens. The educational system of Athens resembled in its main features that of the rest of Greece, with the exception of the Dorian States. While predominantly civic, too, it included a greater element of individualism, especially in relation to the teaching of literature. It was also, as a system, far more complex; and fell sharply into three divisions, which have been described as primary, secondary, and tertiary education. Of these, however, the first and, to some extent, the third, alone existed till the end of the fifth century. Organized "secondary" education is a fourth-century product.

Organized primary education, we know, existed at an early period, both in Athens and elsewhere. Solon made laws dealing with schools early in the sixth century, and from that time onward we have evidence of their activity. In the latter half of the fifth century, at any rate, the main outlines of the curriculum had become fixed. It consisted of two distinct parts, physical (*gymnastikē*) and literary (*musikē*). At Athens, both were for boys only, and girls did not go to school, though some Athenian women learned to read and write. Primary education occupied the years from 7 to about 14. It was apparently compulsory on all citizens; but the schools were purely private enterprises, and received no aid from the State. As a profession, elementary teaching was ill-paid and little respected.

The physical training of boys at Athens, while it included a strong military element, was not so exclusively military as at Sparta. Wrestling was, perhaps, the favourite form of athletics; but running, jumping, throwing the discus, javelin-throwing, and boxing were also generally taught. This physical education went on side by side with the teaching of letters, a part of the day being given to each. Of course, the physical training, which the Greeks regarded as work, corresponds in some measure to the athletics of a modern school, which are not

regarded as work at all. The object of this training was health—physical, mental, and moral—as well as the training of a citizen army. Physical education of boys was carried on for the most part in the private wrestling-schools (*palaestrae*). The great public Gymnasia were, until a later date, only used for primary education in special cases, as when a specially large space was needed.

Education, in the narrower sense, which the Greeks called *musikē*, went on simultaneously with athletics. It is hard to say exactly how much the average student learned at an Athenian primary school; but the main lines of education are clear. It began with an elementary teaching of grammar, which became more complex as the science developed in the hands of the Sophists. This was followed by the teaching of reading and writing, and at this stage the student got his first elementary acquaintance with literature. The last stage of primary education consisted mainly of acquiring familiarity with the Greek poets, and of learning large parts of their works by heart. Every Athenian could, and did, recite aloud long passages of Homer and other poets. Music was also generally learned, but here class-distinctions begin to appear. A very slight acquaintance with music, which required individual tuition, had to be enough for the poor, while the rich spent large sums on learning it. Playing and singing were necessary accomplishments for every guest at an Athenian dinner-party. Drawing became a school subject in the fourth century. Both music and drawing seem usually to have been taught by special masters. Mathematics of a very elementary type was probably taught in connection with other subjects, especially music and grammar. Such mathematics would be of a purely practical kind. Every Athenian citizen, rich or poor, would pass through a primary education more or less of the above type, though there were differences of class between school and school. It was in the gradual development of a system of secondary education that class differences became really important. This system was the creation of the Sophists (*q.v.*), who both answered and stimulated a widespread demand for a new "culture." Their vogue passed only when they gave place to permanent teachers, who remained in one place at the head of what became, in the fourth century, practically secondary schools. Isocrates was the most important of these later teachers, and his school was a great training-place for future politicians and literary men, who attended his courses from about the age of 15 till the period of compulsory service came round. The most important among the subjects the Sophists and their successors taught was rhetoric, or the art of speaking; but their ranks included teachers of all subjects—from rhetoric and dialectics to physical science, mathematics, and philosophy.

Tertiary education took the form of a period of compulsory military training. At 18, the young Athenian citizen became an *ephebus*, and the State assumed control of him for two years. During the first year, he underwent athletic and military exercises, and with his fellows served as a garrison of the walls of Athens and its harbour, the Piraeus. In the second year, he was sent out to serve as a patrol in Attica, or to garrison the frontier-forts. The whole period served to train the citizens to the use of arms and to endure a campaign. In the fifth and fourth centuries this institution (*Ephebeia*) was compulsory: it subsequently became voluntary; and, when Athens ceased to be a military State, the military elements were replaced by lectures. Foreigners were also admitted, and in Roman times there grew up out of the institution of *Ephebeia* the first university of the Roman Empire. Many leading Romans sought education at Athens. Mention must be made also of the philosophic schools, in some respects the forerunners of the modern university. These schools, of which the most famous were Plato's (*q.v.*) and Aristotle's (*q.v.*), were attended not only by boys between 14 and 18, but also by men past the period of *Ephebeia*. They appealed, of course, only to a limited class, many of whom afterwards became prominent in politics.

It must be remembered, in all our study of Greek education, that even Greek democracy was, to our ideas, aristocratic, in that Greek civilization rested on slavery and exclusion of non-citizens from political rights. There were thus many who were shut out even from the forms of education common to all citizens. In addition, secondary education was closed to all but the richer classes of citizens, and it is doubtful whether *Ephebeia* extended to the poorest class of full citizens. This aristocratic character of education is, however, nothing compared with what some of the philosophers would have liked. Plato's idea was that education is for the few. In practice, all citizens got a good deal of general education in subjects regarded as useful for citizenship. Technical training, directed to the making of money, was not recognized as education by the Greeks, and found no place in their system. Where it was learned, it was acquired through apprenticeship to the business in question. See also ARISTOPHANES; ENDOWMENT OF A FREE SCHOOL AT MILETUS BY EUDEMUS. G. D. H. C.

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GREEK IN SCOTLAND, HISTORY OF THE TEACHING OF.—In 1534, the reformer, John Erskine of Dun, brought a Frenchman, Petrus de Marsiliers, to teach Greek at Montrose. Thence the new learning spread to other schools, notably Aberdeen, Perth, and Banff. The *First Book of Discipline* (1561) ordained that Greek should be taught for four years at school, and afterwards in the colleges; but the regulation remained for long a dead letter, and was never fully put in force. In 1571, James Melville could get no Greek at St. Andrews beyond the alphabet and simple declensions. Glasgow University was the first in which Greek was taught in Scotland. By the end of the century, Greek was established in all the other universities, and was being taught in a considerable number of schools throughout the country.

The following century is remarkable for a prolonged struggle between the universities and the schools for the teaching of Greek. It was alleged that the school teachers were incompetent, but a more probable reason is the one frankly laid before the Privy Council in 1672, that the school teaching of Greek "rendered some of the professors altogether useless." In any case, the Privy Council, "in the interests of the advancement of learning, prohibited entirely the teaching of Greek in schools." This obscurantist attitude on the part of the universities was destined long to hamper the progress of

Greek teaching. Another burning question of the day was concerned with the allocation of the subject to a single teacher within the universities. The old Regenting system, whereby one individual carried a class through the four years of the curriculum, teaching the students all the subjects of the course, was the normal one in all the universities at this time. The attempt to specialize the teaching of Greek was bitterly resented by the Regents. The Privy Council, however, in 1672, decided that a separate Chair of Greek should be established in Glasgow, where Alexander Dunlop was the first professor, being appointed after having successfully analyzed eleven lines of Homer. In St. Andrews, Thomas Pringle was made Professor of Greek at St. Leonard's College (1702), and Patrick Haldane at St. Salvador's in 1705. Professors were appointed in the two colleges of Aberdeen in 1700 and 1717 respectively; and in Edinburgh, William Scott, one of the Regents, obtained a patent from the Crown in 1707, constituting him Her Majesty's sole Professor of Greek.

The standard of Greek was far from despicable. Clenard's grammar was in universal use; and all the chief Greek authors were read, with the notable exception of the tragedians. Composition in prose and verse was practised, and large portions of the orators and poets were committed to memory.

The Eighteenth Century. But in the eighteenth century the professors were largely occupied with teaching the rudiments of the language. The range of reading became very limited, and the degree examinations degenerated into a farce. Yet the attainments of the professors were remarkably high, and their work was effectual with a few chosen spirits.

Modern Developments. The period of the nineteenth century and after falls into three divisions—

(*a*) That including the time up to the 1826 Commission, and the years of transition before the Commission of 1858.

(*b*) That from 1860 to 1889, when the last Royal Commission was appointed.

(*c*) That from 1889 to the present day.

(*a*) The Royal Commission of 1826 discovered that in all the universities the first Greek class was exclusively occupied in acquiring the elementary parts of grammar and reading, a few pages from three or four of the easiest authors. Little more was done with the rank and file of the second year. So humble were the attainments of the Aberdeen "pass" men at this time, that the fables of Aesop and the *Anabasis* of Xenophon were recommended as works worthy of their attention after leaving college. Bad as the system was, however, it is to be remembered that scholars of eminence like Dr. Francis Adams and William Veitch were produced under it, and a little later Professor Lushington of Glasgow (1838–1875) was to send out some of the most eminent scholars of the century.

(*b*) The Universities Act of 1858 retained the Junior Classes in Greek, but permitted students qualified by an examination to pass straight into the Senior. The institution of Honours in Classics multiplied the number of highly qualified schoolmasters, and the work of two men in particular—Professor Geddes in Aberdeen (1855–1886) and Dr. Donaldson in Edinburgh—raised enormously the average attainments in Greek throughout the country. At no time have the Scottish chairs been held by professors more distinguished, for during this period also Sellar and Campbell were teaching in St. Andrews, Lushington and Jebb in Glasgow, and Butcher in Edinburgh.

(*c*) Although the Commissioners appointed under the Act of 1889 did not publish their evidence, it is well known that the agitation that led to their appointment was highly complex in character, which accounts for the fact that their legislation was of the nature of an unsatisfactory compromise and, after a comparatively short existence, was ignominiously obliterated almost to the last letter. Greek was made an optional subject with Latin for the degree of M.A., but was so far protected that Latin and Greek together were included in the three pairs, one of which had to be taken up by the candidate. An attempt was made to bolster up Greek by giving it preferential treatment in the Bursary Competitions, an enactment that proved exceedingly unpopular. Under the provisions of the ordinances, the Junior Classes came to be abolished. Third-class Honours in Classics were instituted, another change of doubtful wisdom. The result was an enormous drop in the numbers of those taking Greek in all the universities.

Two other influences tended to damage the subject. The institution of the Intermediate Certificate by the Scottish Education Department, with science and drawing as compulsory subjects, crowded out Greek in many schools. In 1912, statistics were published which showed that out of 253 schools specially devoted to the higher instruction of the country, Greek was being taught only in 83. It had died out completely in whole counties, and in great historic schools like the Royal High School of Edinburgh, it had become almost extinct. Equally disastrous was the change in the regulations in the Bursary Competitions, which made Greek a direct option for a modern language. One startling consequence of all this has been that the universities, finding in 1912 that "50 per cent. of the students in the Divinity Halls were without adequate knowledge of Greek," were compelled to establish elementary classes in the subject, beginning with the alphabet. That same result, therefore, which was brought about by the sloth and obscurantism of the eighteenth century, has been effected by the short-sighted educational policy of the twentieth. Hope for the subject in the future seems to lie in an enlightened attempt to grapple with the question of options in education—a problem that has been hitherto either shirked or dealt with by fumbling and uncertain hands. J. HARROWER.

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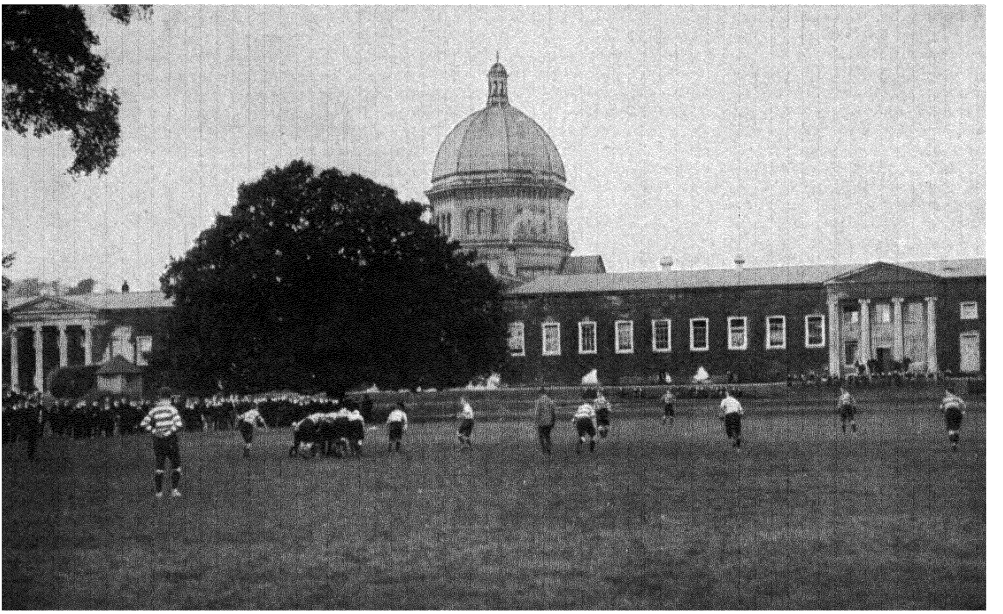
GREEK, THE TEACHING OF.—If Greek is to be taught, we have to decide its relation to the other studies. The scheme of literary work must be planned as a whole, and I take these principles for granted: (1) that English forms the foundation, that it is properly taught, and that it continues to be taught all through the school life; (2) that foreign languages are introduced, one by one, at two years'



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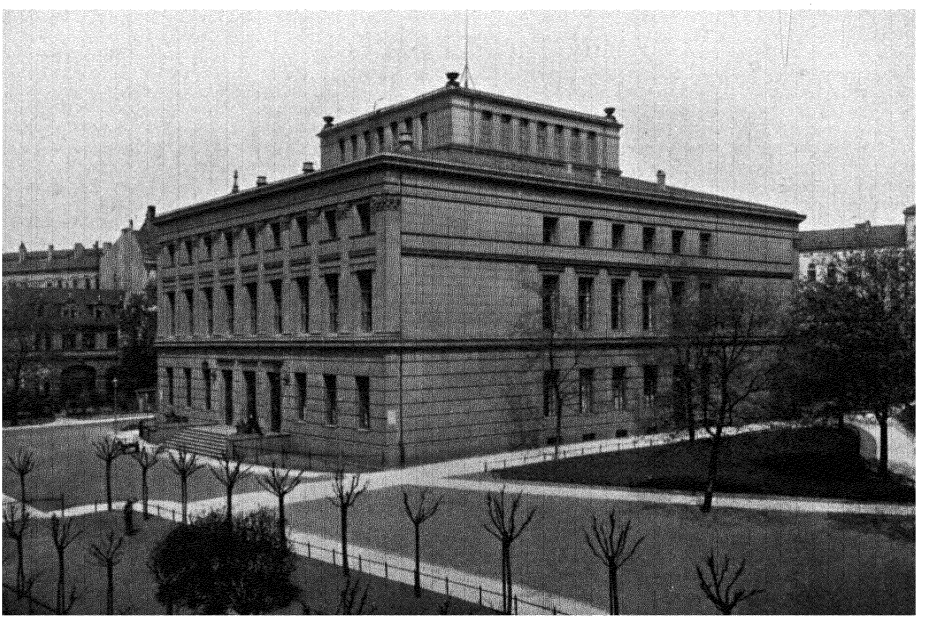

Halle University

PLATE XLVI

interval; (3) and that one lesson a day be given to each. Under these conditions, Greek comes as the third language, following French or Latin, beginning at the stage which the average boy reaches at 14 years. This leaves two years for Greek before the age at which special study begins. But it depends on the method whether or not two years' study of Greek can give an adequate return. If it be taught as it usually is in public schools, the answer is doubtful.

Although it is something to know that the Greeks existed, and had a language, it is not enough for two years' work. It may be safely said that if a boy has not read and understood at least one Greek work, his time would have been better spent otherwise.

But the direct method of teaching, which has long been applied to modern languages with complete success, has lately been also applied to the classics; and by this method it is possible to do a great deal more. Briefly, this method uses the Greek language to teach itself; and thus saves a great deal of time, whilst it has other effects of the first importance.[1]

First Year. Since, by our hypothesis, the pupil has already learnt French for four years and Latin for two years, he knows what an inflected language is; he is prepared to use the grammatical paradigm; and the first attack on Greek need not be exactly like that on Latin. He may safely be given two or three pages of necessary grammar to read, and much of it is like enough to Latin to be easily remembered. The article, the table of the adjective *ἀγαθός-ή-όν* (not unlike "bonus-a-um"), a verbal tense, and a few simple words, give him the means to read a very simple narrative. This must be specially written for him. Each chapter will add a few more bits of grammar, and some new words, until he has a small working vocabulary. The first nouns and verbs should be such as can be explained by a picture, or an act done before him; English may be used where it is necessary, not to translate but to explain; and it is necessary in use of particles like *καί, ἀλλά, μέν, δέ*. So long as the English explanations are kept apart from the lesson, or if they must come in it, so long as English is treated as the foreign language and Greek as the habitual one, no harm is done; and, before long, new Greek words may be explained by Greek words already known. When this is possible, progress becomes rapid, as the pupil is always practising what he knows in endless new ways. The text is read aloud, the master asks questions, the boy asks questions: answers given by the master are repeated by the boy, or by the class loudly and distinctly in chorus; new words are written by the boys on the board and notebook; and thus ear, tongue, eye, and hand are all made to help in fixing the impression.

The effect of this is to keep the boys' attention by giving them something constantly to do or say, or both. It is quite easy for the master to tell if any one is not attending; and, since the boy always is held responsible for asking what he does not know, he soon gets the habit of it, or rather he soon applies to Greek the habit which he has already learnt by four years' work at French and Latin. To make sure that what is read has been understood, it is useful to set for the evening work a written translation of the piece read. In class, no translation will be used, unless here and there the master finds he cannot explain a phrase without; thus the written translation is the boy's own work. It turns out, in practice, that these translations are nearly always correct in the main; there may be mistakes in detail, but there is no bad or unnatural English, and no nonsense. The process under this method is the direct contrary to that which is usual otherwise. The common method aims at accuracy in detail first, and causes mistakes in the general sense, and often nonsense: the direct method aims at accuracy in the general sense first, and in detail by slow degrees. This last is the natural system; this is how we learn our own language, and how, in fact, we learn everything all through life.

Second Year. In the first year, we have worked through the whole Greek accidence, except a few rarities, together with the commonest irregular verbs and all the regular syntax. This may seem a great deal, but we cannot pretend to know it perfectly; we know almost perfectly whatever is commonly used; and we know the rest well enough to remember it when it is brought to our notice, with some help. The accidence is the great difficulty: it is so full, and much of it so rarely used. Syntax presents less difficulty: it is possible to compress the main uses of Greek into a couple of pages of small print. Inaccuracy in what is not common will remain throughout the second year, and it will not finally disappear until the school course is nearly at an end; but experience shows that with boys of ability it is known as accurately in the end as it is known by those who have spent their chief energies in learning it. And our chief energies are given to more important things: the spirit of the language, the idiom, the instant understanding of what is read, the practical application of knowledge.

The second year, then, is given to using what we have learnt: by reading, writing, and speaking.

Here the Reader is discarded, and characteristic Greek works are read. Groups of boys differ in ability, and a less able group, or one that is uneven in attainment, may keep to the Reader for another term, or a piece of simplified Thucydides (such as Rivington's Series), or Sidgwick's simplified plays; but the best groups are ready to begin an author at once. By far the best author to begin with is Lucian. His occasional departures from Attic Greek do no harm, for the boy has a fine power of forgetting what his master lets him forget; so an edition of the Dialogues has been prepared, in which the Attic idiom is not violated, and a few passages not suited to the young are omitted.[1] The *True History* is also an excellent reading book. I never knew this author fail to please. Many of the dialogues are also suited for acting, the boys learning their parts and procuring a few simple properties. They are also useful in teaching mythology. In the other term or terms, something at least is read of first-rate importance: Homer, Herodotus, or Plato. Of these, Homer is the best; and I always read at least one and usually two books: the first book or two of the *Iliad*, or the ninth of the *Odyssey*, which is complete in itself. The Homeric forms give no real difficulty; they are readily understood, and the recurring lines or phrases are a great help—in fact, they give extraordinary pleasure, which helps one to understand why Homer used them for his simple audience.

[1] The method is explained in detail in the *Report on the Teaching of Greek in the Perse School* (Eyre & Spottiswoode, for the Board of Education, 1s.).

[1] *The Dialogues of Lucian*, with Greek notes. By W. H. D. Rouse. (Clarendon Press.)

The Homeric forms are explained in Attic, and the Attic is written down, and the boys have as yet no prose style to "spoil." Herodotus is a good second: his stories are greatly enjoyed, their only drawback at this stage being their length. Only plain texts are used, so the reader not only reads a book or two, but possesses at least half the *Iliad* and half Herodotus, learning at the same time something of the size and character of the whole works. Plato's *Apology* has also been used: it is harder than the others, but its importance makes it worth reading, in spite of the difficulties. This list might be enlarged.

The reading is thus treated. New work is read for the first time in class, and explained by notes rather more full and elaborate than in the first year. The master works into these the syntax constructions he wishes to teach, until they are familiar. These are written down, and the boys must be prepared to give these or similar explanations themselves when asked. This, and the constant question and answer, or the intercourse of daily life, are almost all the composition used at this stage; but it is useful at intervals to dictate or hand round a short English narrative, based on the book in reading, which they are to render into Greek, not necessarily word for word, but freely. Later, they may be asked to give a brief narrative without this help; but this is a much more difficult thing, and is rarely successful in the second year.

Further, English sentences should often be made to illustrate new points of syntax, and translated in other useful ways. This does good and not harm, provided that it is not done too often, and that the boys see why it is useful.

What, then, has been gained by these two years of Greek? For, at this stage, many boys will leave Greek for ever, some going into business, some specializing in other subjects than classics. They have gained a practical mastery over the elements of the Greek language, so that they can express their own thoughts on everyday subjects readily and accurately in speech, and write them down with fair accuracy also. They have read and understood portions of original Greek authors, and got a general idea of their place in man's history. Homer is more than a name to them, and no man can be called educated who knows not Homer; so, too, Herodotus and Plato, perhaps, or Thucydides and Aristophanes, though they do not know them all at first hand. Then they have got hints in passing of others: a proposition of Euclid in Greek is well worth one lesson, or a story from Lysias; and the Reader has given them several pieces of Anacreon, a skolion, a popular song, riddles, and anecdotes of all sorts. Finally, they have read in English the best stories of Greek History, and have heard a lecture or two on what Greek literature really is. No less important, all their memories and associations are pleasant; they enjoy reading of this kind intensely, and much happy banter passes day by day in the classroom. None of the boys who are so taught will carry through life the hatred of Greek which is so often seen in those who have had to study it.

Special Study. Those who make classics their special study will have normally three more years in school, and clever boys will have four. They have hitherto done hardly any set translation from English into Greek, and no verse; their vocabulary is small; their knowledge of grammar, except the elements, not wide. A great gap yawns between these and the boys who can compete for open scholarships.

Nevertheless, it is possible to teach these boys in one class with all stages up to the final stage, a thing which could certainly not be done on any other method. If we keep the first year by itself, both they and the others will probably do better; but if all are taught together, there are advantages. The new boys ask innumerable questions, and the elder boys answer them; so, although progress is slower at first, they soon shake down together, and the final result is quite satisfactory.

In writing Greek, however, a difference must be made. It is useless to set the third year to translate English into Greek; they do not know enough. They are, therefore, directed to write summaries in Greek of each day's lesson. In class two or three hundred lines are read in a double lesson of 90 minutes, and the evening work is for all to read this portion again. The more advanced boys also look up allusions, and work round the subject in all sorts of ways, some of which will be described later; but the third year read the passage through, or as much as they can, and then write in Greek a summary of it as a narrative or otherwise. They do this at first with books open, but are told to wean themselves from this by degrees, doing longer and longer pieces from memory. They do so, strange as it may seem to those who have only taught by driving, if they are reminded of their proper work from time to time. In the fourth year, they do one summary a week of Greek (three lessons), and one piece of English is translated into Greek; in the fifth year, the summary is dropped, and they do three pieces of set translation each fortnight, either prose or verse.

For the verse, a little preparation is useful, but not indispensable. When a verse author is read, say Homer or Sophocles, the scansion of the line is explained, and careful reading soon makes the rhythm familiar. Then, after some hundreds of lines have been read, all are asked to write an imitation on a given theme, which shows at once by its mistakes any metrical points that are not understood. Boys with a good ear will write good verses at once, often with hardly any mistakes at all: others may try again. Next, a piece of English verse is set for translation. A very few exercises are enough to make satisfactory verse writers, while the few who are hopeless drop out altogether. For Greek iambics, it is useful to prepare the way by working a few sentences in each exercise of Damon,[1] to show the structure of the line, which is not so easy as hexameters.

A boy is thus brought up to scholarship standard after having done about thirty copies only of each kind of composition. This means, as will be seen, an enormous saving of time, and it also saves hosts of mistakes, which are always made by those who attempt composition without proper knowledge.

Discussion, question and answer, and explanation go on all the time, continually enlarging the boys' vocabulary and their mastery of the language. I have noted down a large number of things said, and, on analysing them, I found that in four terms more than 2,000 different words were used by members of the class in free, unprompted speech; this does not include all, for I could not note all. Besides this, the boys are encouraged to look up allusions, and to give a short speech on one topic or another for the common benefit in their next

[1] Damon: *The Art of Greek Iambic Verse.*

lesson. They will easily speak for five or even ten minutes, with or without notes. Again, topics of general importance are made the theme for original composition, which is written.

This is not the place to explain in detail how every part of the work is done. We can only give the main lines, the object, and the result. The space that remains may be occupied with a few words on the scope of reading and the moral effect of the whole.

Scope of Reading. The aim of a school classical course is to read thoroughly all the most important authors, and to give a taste of the others. Some authors are not suitable for schools, whether from their subject (as much of Aristophanes) or for their tone (as much of Euripides, whose temper is that of the sceptic). Others of first-rate importance are well suited to the mind of an intelligent boy, and we concentrate upon these. Every boy who spends three years in the sixth form reads the whole *Iliad* from beginning to end, and usually also he reads the *Odyssey*. He reads at least three plays of Aeschylus and three of Sophocles, usually more; two plays of Aristophanes at least; ten speeches of Demosthenes, and several dialogues of Plato; about half Thucydides, and a book or two of Herodotus. These are the staple: they form about two-thirds of the whole reading, the rest being chosen to suit varying tastes or circumstances. This part of the work includes Theocritus, Hesiod, the Anthology, Euripides, Pindar, Lysias, Aristotle, Lucian, and further portions of the authors already named. He will finally read a short history of Greek literature, or learn by lectures something of its full scope. The best boys also read a good deal by themselves. The form library contains copies of all standard texts, enough to enable them to read on the spur of the moment anything that may be suggested by the lesson. Thus, Homer may be illustrated by Plato's *Ion*, Euripides' *Cyclops*, or the *Battle of Frogs and Mice;* Plato by Lucian's *Sale of Lives*.

The boy who leaves school having read these works has a possession for ever; the more so, as he remembers a great deal without taking the pains to learn it. The practice of reading aloud fixes things in the memory in a way which no one would believe who had not tried it. Scenes, passages, stories are always remembered; whole lines are called up to the memory by an allusion; even a strange word once heard is rarely forgotten.

Another effect of reading aloud, with quantities and tonic accents scrupulously observed, is to produce on the hearers the maximum of effect. They have not to puzzle out subject and object, and all the rest of it, and then laboriously to find an English equivalent before they understand: they understand as they go along, and the impression is produced, as it was meant to be, by a series of beautiful sounds calling up instantly a mental image. The points of a sentence, the emotional effect of a verse, the author's surprises are all taken on the instant by a whole class; except, of course, where they depend on some recondite allusion which has to be explained. The demeanour of the boys is enough to show their understanding and enjoyment to any casual observer, even if he does not know Greek; and to those who do, their acute comments and the witty banter which is constantly heard make a Greek lesson a real enjoyment.

What I have said is enough, I think, to show that Greek is worth teaching; further, it can be taught without sacrificing any of the essential subjects of school work, since, in the whole school course, the time given is only about one-sixth of the time given in the ordinary public school. All this is due to method. W. H. D. R.

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DAMON. *The Art of Greek Iambic Verse.*

GREEK VERSIFICATION.—(See VERSIFICATION (LATIN AND GREEK), THE TEACHING OF.)

GREENLAND, EDUCATION IN.—Greenland, so far as its shores are inhabited, is a dependency of Denmark, with a population at the Census of 1911 of 13,517. The largest settlement, Sydproven, had 776 inhabitants; and the smallest, Skansen, had only 46. The inhabitants are almost entirely Eskimos, and great difficulty is found in affording regular instruction on account of their poverty and their wide dispersion along the coast. Various Danish and Moravian missions have attempted the task, and have also tried the experiment of sending orphan boys from Denmark to Greenland, where they have been trained by the missionaries to undertake the duties of schoolmasters and subordinate clergymen to the newly-converted natives. These settlers married native women, and it has been found that their children are far more intelligent, than the pure native population. Natives who showed aptitude for learning were also appointed "catechists" with a salary, and, in the intervals of seal-hunting, assembled children in their own houses for instruction. In 1845 two seminaries were founded for the more systematic instruction of young men for the service of the mission. The greater part of the inhabitants are able to read tolerably well out of every book in their own language, and reading is a favourite occupation. The religious part of their reading is the most common in use. The Eskimo language has always been written with the common Roman letters, and irregularities in spelling have been corrected by a plan introduced by Mr. S. Kleinschmiedt, who has published a grammar and dictionary of the language. At present, all the populous places have schoolmasters who have been trained at the two seminaries, which in 1875 were reduced to one, at Gottlieb. At these institutions most of the usual branches of education are taught, including also the Danish language. The natives readily receive instruction and show much natural talent for music.

GREENWICH, ROYAL NAVAL COLLEGE.—(See NAVAL COLLEGES, ROYAL.)

GREGORY THE GREAT (*d.* A.D. 604)—He belonged to a Roman senatorial family, and at an early age became praetor of Rome; but about the year 575 he gave up his office and his wealth in order to enter a monastery. Bede, in his *Ecclesiastical History* (Book II, Chap. 1), describes Gregory's life as one of exceptional piety and devotion to the task of converting many to Christianity. While in the monastery he met with the British slave children exposed for sale, and endeavoured to persuade the Pope of that time to put

him in charge of a mission to Britain. The refusal of the people of Rome to consent to his departure delayed the mission until Gregory himself became Pope in 590. He had in the interval spent three years in Constantinople, and written his *Moralia*, an exposition of the Book of Job. As Pope, Gregory proved a most able administrator, and his pastoral letters show his personal interest and solicitude in the most insignificant as well as the greatest affairs. He organized very thoroughly the public services and the ritual, and regulated and systematized the sacred chants. In regard to the mission to England, Bede gives instructive specimens of his pastoral advice to his missionaries, and of the answers he gave to their questions on matters of doubt. Many of his pastoral letters were translated into English by Alfred the Great. He also wrote homilies on the Gospels, books of dialogues in which he collected the miracles of the saints whom he had known, or who were renowned in Italy; and useful Synodical books, containing instructions for the use of his bishops on the affairs of the church.

GRENOBLE UNIVERSITY.—This was founded by a Bull of Benedict XII, in 1339, for all faculties except theology. The situation was unfavourable for a university, as Dauphiné was in the debatable land between the Empire and the French Monarchy; and, though the *Studium* was actually established, it was never prosperous, and had disappeared before 1452. It was restored in 1543, and then suppressed in 1565 to be incorporated with the University of Valence by an edict of Charles IX. The present university was established by Napoleon as part of the University of France, and its three faculties of law, letters, and science were re-organized in 1896. There is also a preparatory school in medicine and pharmacy. In 1898 the *Comité de patronage des étudiants étrangers* organized a holiday course in French language, literature, and history especially for foreigners. This consisted of daily lectures and conferences lasting from July to October, but students might attend for one month only. Women may become registered students on the same conditions as men.

GRESHAM COLLEGE.—(See GRESHAM, SIR THOMAS.)

GRESHAM, SIR THOMAS (1519–1579).—The founder of Gresham College and of the Royal Exchange, was the second son of Sir Richard Gresham, merchant of Lombard Street, of the City Council, and of the Mercers' Company. At about 13 or 14 years of age, Thomas Gresham was sent to Gonville and Caius College, Cambridge, where it seems probable he spent three years. In 1535 he was apprenticed to his uncle, Sir John Gresham, for eight years. In 1543, Thomas Gresham was admitted to the freedom of the Mercers' Company. For that Company, Thomas's father, Sir Richard Gresham, had obtained the Hospital of St. Thomas of Acon, and the Company erected on the site the Mercers' Chapel in Cheapside. In 1543, on completing his apprenticeship, Thomas Gresham went to Antwerp on a mission for Henry VIII. He became royal agent or King's factor at Antwerp in 1552, and quickly became the wealthiest English merchant. In 1544 he married the widow of William Read, also a mercer. Her younger sister was married to Sir Nicholas Bacon, Lord Keeper, father of Francis Bacon. At Antwerp, Gresham lived in the house of Gaspar Schetz, a merchant of literary tastes. Antwerp was the greatest trading city of Europe, and, in addition, was one of the greatest centres of intercourse of kings, noblemen, scholars, artists, as well as men of commerce. Gresham, therefore, became a man of culture as well as of commerce. In commerce, he stated the "law" known by his name, "Gresham's Law," viz., that the debased coinage drove out the good coins from currency. He successfully insisted on restoring the good coinage in place of the debased currency, which had been at times established by Tudor monarchs, and he placed Queen Elizabeth's finances on a sound basis. He built the Royal Exchange, planned after the Antwerp Bank, on a site provided by the City of London. He also took an active part in helping the numerous Flemish refugees who came over to London away from the Duke of Alva's persecution. Gresham thus was characterized by his interest in commerce, culture, and in internationalism.

Gresham College. Educationally, he is of importance by his foundation of the Gresham College, an institution established with the object of giving intellectual training to merchants and to their assistants engaged in active pursuits in the City of London, together with the foreigners, especially refugees, who were living in London and wished to pursue studies. In his will, dated July, 1575, he bequeathed his mansion house in Bishopsgate to be handed over, after Lady Gresham's death, to the Mercers' Company and the City Council of London, to become a college. He also left a bequest to provide salaries of £50 a year for seven professors, to be chosen by the two bodies just named, the City of London Corporation choosing the professors of Divinity, Astronomy, Music, and Geometry; and the Mercers' Company the professors of Law, Physic, and Rhetoric. In 1596, Lady Gresham died, and the lectures were begun, each professor lecturing twice every week, in each term, in the morning, between 8 and 9 o'clock, in Latin; and, in English, between 2 and 3 in the afternoon. The Divinity Lectures were to set forth in the confirmation of the "truth of doctrine of the Church of England," to overthrow the "false opinions of the Papists, from Scripture, 'the consort of Antiquity,' and the schoolmen and chief writers." This was entirely in accord with the controversial methods of the Elizabethan Churchmen against the counter-Reformation. The Professor of Music, Dr. Bull, being not able to speak "Latin," was permitted to give his lectures entirely in English. The Astronomy Professor was to lecture on the "principles of the sphere, the theoriques of the planets, and the use of the astrolabe and the staff, and other common instruments for the capacity of mariners, which, being read and opened, he shall apply them to use by reading geography and the art of navigation." The college was designed after the manner of a Cambridge or Oxford College, but with a view to helpfulness to a large city and the active careers of those attending the classes. The professors were enjoined to remember that the attendants at the lectures would be "merchants and other citizens." So close was the connection of the college to be with the City, that the bell which summoned merchants to the Exchange was rung to give notice of the approaching lecture of a professor. It is explained in the early documents that lectures were to be given in Latin on behalf of "strangers from foreign countries."

Connection with the Royal Society. During the Civil Wars, scientific men began to meet at Gresham

College; and, about 1658, Sir Christopher Wren and Mr. Rooke, the professors of astronomy and geometry, invited them to their private rooms after the lectures. These men were, at least, part of the nucleus of scientists who became incorporated as the Royal Society in 1663, and the members held their meetings in Gresham College until 1710.

With the association with the City, with the Royal Exchange, with the Mercers' Company, with the Royal Society, the historian (John Ward) of the Gresham College designates Gresham College in the seventeenth century as "an epitome of the City of London and centre of all affairs, public and private." Such great men as Henry Briggs, Isaac Barrow, Robert Hooker, Petty, Sir Christopher Wren were Professors; and, above all, Sir Isaac Newton (from 1671, a Fellow of the Royal Society, becoming President in 1703), frequented the College. Not only did the Royal Society hold its weekly meetings in Gresham College, but they were allotted provision of rooms for their "library" and "curiosities." Unfortunately, the high reputation of the College was not sustained in the eighteenth century. Between 1738–1768 the revenues of the Trust seriously decreased, and in 1768 the old College buildings were sold. The Gresham Joint Committee have, in later years, by steady effort, built a worthy building for the lectures, and are endeavouring to lead the historic institution to add to its best traditions. F. W.

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GREY COAT HOSPITAL, WESTMINSTER.—(See WESTMINSTER, THE EDUCATIONAL CHARITIES OF.)

GREY, MARIA G. (*b.* 1816; *d.* 1906).—Was the daughter of Rear-Admiral Shirreff, and sister to Miss Emily Shirreff, with whom she worked in close sympathy for women's education. Married in 1841 to Mr. William Grey, she was left a widow in 1864; and, in 1869, became Hon. Secretary of the Charity Organization District Committee in Chelsea. In 1870, Mrs. Grey stood for election to the London School Board, but was defeated after a hotly-contested election by a narrow majority. In 1871, the Women's Education Union was formed with Mrs. Grey as Hon. Organizing Secretary, and Miss Shirreff and Mrs. Henry Kingsley as Hon. Secretaries. The object of the Union was to gather together the friends of women's education and consider places for improving and enlarging opportunities for the education of girls, especially those of the class not provided for by the Education Act of 1870. The Union was dissolved in 1882 after realizing its three main objects: (1) The dissemination of news of, and quickening of interest in, women's education by means of a journal in which Miss Shirreff wrote most of the articles dealing with education; (2) the provision of good day schools for girls above the elementary; (3) the founding of the Teachers' Training and Registration Society in 1876. This society had for its first object the professional training of teachers, and, as an important means to this, a college was opened in Bishopsgate in 1877—afterwards known as the Maria Grey College, and now situated in Brondesbury. One important piece of work, the idea of which is due to Mrs. Grey, was the opening of a department of King's College to women. In this she co-operated with Bishop Barry, Mr. George Warr, and Miss Mary Gurney. The intention was to provide, by lectures and classes, higher intellectual training for women in Arts and Theology; and the response given showed how real was the need of such an organization. Mrs. Grey was active, so long as health permitted, on many committees, notably those of the Girls' Public Day School Company and of the Teachers' Training and Registration Society.

A translation of Rosmini's *Method in Education* appeared in 1887 by Mrs. Grey, the proofs being read by Mr. Thomas Davidson, himself an authority on Rosmini. In 1889 came her *Last Words to Girls.*

Mrs. Grey's work was emphatically that of a pioneer and organizer. Her interests were many and varied: she was an accomplished linguist, and knew a great deal of Continental life and society, notably of that of Rome, in which city she spent many successive winters. She followed with keenest interest social and political movements in England, and her lifelong Liberalism led her to join the Home Rule Party. Her conversation was vigorous, full of thought, criticism, and suggestion. To the end she read solid books, and cared for the things of the mind; nor did she ever cease to hope and believe that women would play an increasing part in public life with lofty purpose and maturing power.

A. J. T.

GRINDAL, ARCHBISHOP.—This Elizabethan Archbishop of Canterbury (1575–1583), in Article VII of the Visitation Articles of 1576, repeated the questions as to education asked by Archbishop Parker (*q.v.*) in Article XXII of his Visitation Articles of 1569. In 1581, Grindal, in response to a request from the Privy Council dated 28th May, 1581, issued directions of inquiry, of which the Seventh Article ran as follows: "You shall inquire, whether any school master of suspected religion, or that is not licensed to teach by the Bishop, or Ordinary, doth teach in any public or private place within the diocese." This proves that the mediaeval practice, which became common in England before the end of the eleventh century, by which the bishop or his chancellor, or some ecclesiastic nominated by the bishop with the consent of the Crown, controlled all education in the diocese or areas carved out of the diocese respectively.

J. G. G. DE M.

GROCERS' SCHOOL, HACKNEY DOWNS.—(See LONDON CITY COMPANIES AND EDUCATION, THE.)

GROCYN, WILLIAM (1446(?)–1519).—A scholar of Winchester and New College, Oxford; visited Italy between 1485 and 1491 to study Greek under Politian and Chalcondylas. He was one of the earliest English students of Greek, and on his return from Italy he lectured on Greek at Oxford, not altogether to the satisfaction of the older divines, who looked upon Latin as the orthodox language of the Bible and Greek as a pagan tongue. Sir

Thomas More was one of Grocyn's pupils at Oxford, and Erasmus made his way thither as the one place in the West of Europe where he could be taught Greek. In 1506, Grocyn became master of All Hallows' College, near Maidstone; and he held that office until his death.

GRONINGEN UNIVERSITY.—(See NETHERLANDS, THE UNIVERSITIES OF THE.)

GROOT, GERALD.—(See BRETHREN OF THE COMMON LIFE; ROMAN CATHOLIC CHURCH, THE TEACHING ORDERS OF THE.)

GROSSETESTE, ROBERT (1175–1253).—He belonged to a peasant family in Suffolk, but was educated at Lincoln, Oxford, and Paris; and became one of the foremost scholars of the period. He taught for some years in the Franciscan school at Oxford; and, after holding lesser offices, he became Bishop of Lincoln in 1235. From this time he was associated with the strong movement for reform in the Church carried on by the friars and supported by many of the bishops. His letters are one of the chief sources of information on the work of the Friars. His own reforms were vigorously carried out, and aimed more at discipline than at doctrine. His constitutions forbade the clergy to haunt taverns, to gamble, to share in drinking bouts, and to mix in the riot and debauchery of the life of the baronage. His efforts were largely nullified by the corruptions of the Court of Henry III and by the patronage allowed to the Pope in the English Church. Grosseteste was at open feud with the Pope for many years, refusing to accept Italian boys whom Innocent IV ordered him to appoint to benefices. He was a friend of Roger Bacon, whom he persuaded to become a friar. He strongly supported Simon de Montfort, his personal friend, in his great struggle against the king. His learning was enormous, and his writings include works on languages and many branches of physical science.

GROTE, GEORGE (1794–1871).—Son of a banker; educated at Charterhouse; an advanced Liberal in politics, and a leader of philosophical reformers who promoted the views of Bentham and Mill in politics. He wrote political articles for the *Edinburgh Review* and *The Essentials of Parliamentary Reform* before, in 1823, he undertook a history of Greece, in which he intended to show the Liberal view of democracy and democratic leaders. From 1830 he was head of his bank, and from 1832 Member for the City of London. He gave up Parliament in 1841 and business in 1843, and devoted himself to his *History of Greece*, which was published in twelve volumes between 1846 and 1856. Grote's history was largely a party pamphlet, but makes the subject alive and turns the writings of the Greek historians into subjects of stimulating interest. Supplementary to the *History*, Grote wrote works on Plato and Aristotle. At his death, he was Vice-Chancellor of London University. He was buried in Westminster Abbey.

GROTIUS (HUIG VAN GROOT).—A Dutch jurist born at Delft in 1583. He was educated at Leyden University under Scaliger, and entered public life at the age of 15. He practised in Holland as a lawyer till 1618, when he was imprisoned for his writings on religious controversies. In 1621 he settled in Paris, and from 1634 to 1645 lacted there as Swedish ambassador. In the latter year he was shipwrecked on his way to Holland, and died at Rostock. His most important writings are on law. He wrote *De Jure Praedae* in 1604, improved and added to it before publishing it in 1625 under the title *De Jure Belli et Pacis*. This work shows the author's profound learning and vast experience of public affairs, and contains a detailed system of rules based on principles drawn from the author's conception of the law of nature. It met with immediate success, and became the standard authority on international law. At the present day, international law rests on the foundations laid by Grotius. Besides a jurist, Grotius was learned as a theologian, a philosopher, and an historian. He wrote a history of the l elgian race (pub. 1657), a series of annotations on both Old and New Testaments, and a treatise on the truth of the Christian religion.

GROUP GAMES, THE EDUCATIONAL VALUE OF.—The term "Group Game" is applied to a game played under a leader according to fixed rules. The great national games of the Anglo-Saxon races, —such as football, cricket, hockey, and baseball— come under this category.

The plays of childhood may be classified under four age periods: 1. (0–7) Experimental, imitative, non-combative play. 2. (7–9) Dramatic, individualistic, combative play. 3. (9–12) Simple competitive games of skill. 4. (12–17) Group games.

An explanation for the existence of such play periods is probably found in a combination of the two great theories for play—the Practice Theory and the Recapitulation Theory. The former suggests that, in play, the child prepares himself for the serious occupations of later life; the latter assumes that the plays of childhood re-traverse the stages through which the race has passed. The group game represents the tribal stage, when the ideals of co-operative work under a leader are superseding the individualism of the earlier race types.

The group game, in its highest form, is found only amongst races which possess the instincts of rivalry and pugnacity in a marked degree, and have reached a definite stage in mental development. The fact that the final evolution of the group game is found amongst the Anglo-Saxon races is significant, and suggests that this form of play has been evolved to satisfy a definite national need.

As a definite educational factor, the group game has been allowed full scope only in our great public schools, where it has produced a remarkable moral attitude which directs our national ideal of honour and fair play, and which we designate "playing the game." The vast crowds that attend a football match suggest that, given the opportunity, the masses would derive benefits from playing these games equivalent to those which have already been attained by the classes which have had unlimited scope for participating in them.

Apart from the moral training derived from the group game, another point of view needs consideration. Psychologists tell us that, unless the crude instinctive tendencies which have to be repressed in civilized life find outlets in other ways, the individual tends to become morbid. It is probable that the group game supplies such an outlet at the critical stage of adolescence.

Thus we may conclude that the group game is of vital importance as a factor in education. It has

been evolved to fit the needs of a warlike and virile race. It appeals to the adolescent because it fits in with the stage through which he is passing, and not only supplies him with a means of training for adult life, but gives him an outlet for his crude instinctive tendencies, which, of necessity, are repressed in civilized life.

It is not too much to hope that advantage will be taken of such a national means of education, and that, in future, training in group games will form part of the curriculum of every school and will not be looked upon merely as a form of recreation.

J. R.

GROUP INSTRUCTION.—Here is a modification of the universal device of *class instruction*. In itself a class is a group and, except by special definition, the terms are interchangeable. But what is meant in this connection by the group is either (1) a sub-division of the class, or (2) a combination of classes. In each case the aim is the aim of the class. By (1) sub-division, we can economize our teaching forces and at the same time focus our effort more exactly upon a small and homogeneous collection of pupils; while by (2) combination, we can still more clearly economize our teaching forces and make the same instruction appeal to a larger number.

The procedure is not indefinitely advisable; we lose the advantage of the class in proportion as the group is (1) too small, gravitating towards the individual unit and becoming uneconomical; or (2) too large, gravitating towards the collective multitude and becoming ineffective. A. E. L.

GRUBE METHOD, THE.—This system of teaching arithmetic was introduced by the author, Grube, in Berlin, in 1812. It may be described as a "concentric" method. The child is taught all number-relations from 1 to 10 in the first circle before proceeding to the larger circle of 10 to 100, and others still larger.

GRUNDTVIG, BISHOP N. F. S. (1783–1872).—In the course of his long life was eminent in several different ways, as theologian and Church leader, poet and historian. But it is as "Father of the People's High School" (*Folkehöjskole*) (*q.v.*) that he claims special mention here. This, however, was not a thing apart from the rest of his activity, but largely conditioned by it, and so some brief account of his career as a whole becomes necessary. Neither school nor university left special mark upon him; but in the seven or eight years that intervened between graduation and ordination he won distinction by his poetry and by his researches into Scandinavian mythology. In 1811 he was ordained and became his father's curate. A severe spiritual crisis he had passed through the year before his ordination made him dissatisfied with the cold rationalism of the time. His indignant protest made itself heard even in the trial sermon that preceded ordination. Such outbursts made preferment almost impossible for him; and, after his father's death in 1813, eight years passed by without any fixed clerical employment. But his pen was busy. For some years he was occupied in putting Snorre and Saxo, the early chroniclers of Norway and of Denmark, into an attractive modern dress. He hoped by the recital of the deeds of their fathers to raise his countrymen, amid their national losses, to fresh exertions and new hope; but he had after some years to confess that the end was not to be achieved by the printed page. From 1821 to 1826 he was in clerical employment again, but this was followed by a still longer break than before. He had sharply challenged the work of a young theological professor, urging him either to give up his position in the State church or conform to its teaching; and he did this in a way of his own. He declined to discuss with him the date or the authenticity, or the interpretation of this or that book of the Bible. With such questions, the ordinary man, whom he especially wished to strengthen and help, was by his training little qualified to deal. He fastened instead on the leading Christian doctrines as set forth in the answers to the baptismal questions, which have come down from earliest times, and which he regarded as given to the disciples by Christ Himself in the great Forty Days. This he called the living word, the word of Christ Himself, that goes from heart to heart; whereas every printed word could be only a dead word. Such living winged words, rather than the printed book, became the chief instrument in the People's High Schools twenty years later. The young professor, however, declined to dispute with him, but sued him for libel. Grundtvig had to pay a heavy fine; and, worse still, all he wrote must in future be submitted to the Censor. Finding public opinion against him, he resigned his post in the Church, and was almost forced into nonconformity. It was not until 1839 that he resumed full pastoral work.

Grundtvig in England. The long interval was rich in experiences. With help from the King, he made three visits to England; wrote a History of the World; and made notable additions to church song and ballad literature, besides performing the duties of a Sunday afternoon lectureship. The visits to England in 1829, 1830, and 1831 were for the purpose of studying the Exeter Book and other Anglo-Saxon MSS., which at that time were so totally neglected that he issued proposals for printing them. But there were other matters in England that proved of even greater importance to him. He found us in the midst of our Reform agitation, and was much impressed by the energy and activity of our political and business life. Such energy he wished to see in his own country. But his method of producing it was not ours. He was, indeed, a great and successful advocate of freedom in Church, and school, and Press; but he had no desire to win the franchise for his countrymen nor to transform the Danish king, from whom he had received much kindness, into a constitutional monarch. When that change came in 1849, he acquiesced in it rather than promoted it. His own remedy was to erect a school—a boarding-school—for men of eighteen years and upwards, in which history, with literature and song, should be the chief subject.

Educational Work. The school was to be a "school for life"; the subjects were to be taught in such a way as not to make the pupils dissatisfied with the work from which they had come, but determined to engage in it with fresh skill and added courage. His experiences and studies had made him an eloquent advocate for what were long regarded as visionary plans. His first utterances on the subject were made soon after his third visit to England; and these were developed in pamphlet after pamphlet in the succeeding years. In 1844, through the efforts of Professor Christian Flor, a beginning had been made, in a private way, by opening a school at Rödding. (See PEOPLE'S HIGH SCHOOLS.) But

Grundtvig was already over sixty years of age, and deeply interested in the community he had gathered round himself in the chapel of the alms-house called Vartov, in Copenhagen, which was the scene of his labours for the last thirty-three years of his life. He was thus unable to direct any one of the People's High Schools himself. None the less, was he the undisputed head of the entire movement, ever guiding, inspiring, and helping. His bishopric was titular only, without diocese or income. The title was given him in 1861, fifty years after his ordination. Before his death, eleven years later, he saw High Schools springing up not only in many parts of Denmark, but also in Norway and Sweden.

J. S. T.

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GUARINO, DEI GUARINI (1370-1460).—A native of Verona, hence known as "Veronese"; studied Greek at Constantinople under Chrysolaras, and afterwards taught that language at the great universities of Northern Italy. He laboured to effect the revival of classical studies in Italy, and wrote Latin and Greek grammars. Classical students owe much to his services in establishing the texts of Pliny, Livy, Catullus, and Plautus. (See also RENAISSANCE, THE.)

GUATEMALA, EDUCATION IN.—Education is compulsory and public schools are free. Liberty of choice is allowed to parents to send children to public or to private schools. Public schools are State-aided and under Government inspection. There are about 1,400 elementary schools, and also a few schools for teaching trade and industrial subjects. For other branches of education, there are a few secondary schools for both boys and girls, normal schools, a school of law, a school of medicine, a national school of handicraft for women, and a school of art.

GUERNSEY, EDUCATIONAL SYSTEMS OF.—Although Guernsey retains, in its official language, rural *patois*, laws, traditions, and customs, many interesting evidences and relics of its former associations with the Dukedom of Normandy, its educational organization and methods are modelled almost entirely on English lines. Enjoying a generous measure of practical autonomy in its public affairs, Guernsey has remained remarkably uninfluenced by Continental tendencies, and its schools and colleges exhibit essentially English characteristics.

Elizabeth College (*q.v.*) for boys and the Guernsey Ladies' College provide for higher education. The former, founded in 1563 by Queen Elizabeth, occupies an imposing building erected in 1826; it prepares for the Universities, Army, Civil Service, and learned professions, and is well endowed with scholarships to Oxford. It has contributed a relatively unusually long list of men distinguished in the public services of the Empire.

The Ladies' College was opened in 1872 under a board of directors elected by the shareholders owning the school. Although technically a "private school," it successfully fulfils its founders' purpose of providing, on reasonable terms, the sound education that is indispensable for daughters of middle class families. Both colleges receive annual subsidies from the States of Guernsey.

In 1872 the Island authorities decided to provide an education superior to that of the primary schools, but less expensive and advanced than that at Elizabeth College. The States accordingly established the "École secondaire" for boys, and twenty years later, a similar institution for girls, both now called States Intermediate Schools. States scholarships are awarded from the primary to the Intermediate schools, and thence to Elizabeth College and the Ladies' College.

The elementary schools were originally purely parochial, receiving unsystematic aid grants from the States. From 1870 to 1880, some schools in St. Peter Port were visited by English inspectors; but eventually this arrangement lapsed, and the Island endeavoured to conduct educational affairs unaided. In 1893 all the public elementary schools were placed under the States' supervision; and, in 1898, Sir T. Godfrey Carey (Bailiff of Guernsey) carried a resolution in the States for a complete re-organization of the whole system of public primary instruction, under a specially appointed superintendent. The States Pupil-Teachers' Centre was established; new or enlarged schools were built, their equipment was thoroughly modernized, and compulsory school attendance enforced. The educational law was revised and amplified; the status and qualifications of teachers improved; and the curriculum and the children's attainments were brought up to the English standard. Since 1914, the Board of Education has lent its officers for the inspection of the elementary schools.

Generally, Guernsey elementary schools resemble those of England, except that religious instruction and French are compulsory. Expenses are defrayed equally by the States and the parishes, the former contributing one half in the case of voluntary schools.

In 1915 the States passed a measure having for its object the unification of authorities and of the numerous school committees of the Island.

Early in 1920 arrangements were made by the authorities to extend to Guernsey the benefits of the English Teachers' Superannuation Act of 1919.

A small Technical and Art School exists, but all attempts to establish an effective system of technical education have hitherto proved unsuccessful. The Island authorities generally desire to keep abreast of modern educational ideals, but there has hitherto been a pronounced reluctance to vote the money necessary to attain to the level of educational efficiency obtaining in Great Britain. J. A. M.

GUILDS, EDUCATION IN MEDIAEVAL.—The word "guild" has come to be applied primarily to the special type of association evolved by the mediaeval craftsmen for the regulation of their calling. In the Middle Ages, the term had a far wider meaning, and was used generally to include all the various types of voluntary organization for social purposes which were characteristic of mediaeval life. Every aspect of life that required common action among individuals came within the province of these guilds or fraternities: differing widely in the objects which they had in view, they were all alike in possessing a religious basis, and in that some form of religious observance formed a part of their established usage. These bodies played a very important, though obscure, part in the development of mediaeval education. Among their commonest attributes was the maintenance of a priest, with

the duty of providing, by singing and prayer, for the spiritual welfare of the members. As in the case of the chantries, these priests often came to possess educational functions, doubtless on a small scale at first, but of growing importance. Sometimes the duty of the guild priest was to provide schooling for the sons of the members of the guild; sometimes the guild endowed out of its funds, or out of some special bequest made to it for the purpose, a free school or grammar school in the town in which it was situated.

Guild Schools. Many records survive which clearly connect existing schools with guilds of the fraternity type, and some which show a connection between schools and the craft guilds. Many of these guild schools were clearly of very great antiquity, though no definite date of foundation can usually be assigned to them. The Guild of the Holy Cross, Stratford, is found keeping school through its priest as early as 1402, and builds a special school-house in 1427. In 1482 its guild school is endowed as a free grammar school, still under the control of the guild. The guild school at Wisbech, in Cambridgeshire, was founded under Richard II, and is found possessing a schoolmaster-priest under Henry VIII. Other guild schools of very great antiquity are found at Burford, Oxfordshire, where the school seems to have been founded by the Gild Merchant of the town; at Worcester; and in the Bablake Hospital, near Coventry, which still preserves much of its old character. Schools definitely connected with special craft or trading guilds, or companies, include one at Farthingoe, Northants, owned by the Mercers' Company; Horsham Grammar School in the same hands; the Goldsmiths' Grammar School at Stockport; and schools under the Drapers of Shrewsbury and the Merchants of York. The late A. F. Leach, in his *English Schools at the Reformation*, gives a list of thirty-three schools definitely under guild control.

Development. It is easy to see how this close connection of the guilds with education came about. Just as the priest employed in a chantry to say masses for the soul of the dead donor might be, and often was, more profitably employed for part of his time in keeping school, so the priest, maintained out of the common fund of the guild, might be turned to additional use for the education of the members' children. Possibly one of the reasons for our inability to give any dates for the foundation of these guild schools is that no definite act of foundation took place. They may well have started in a very small way, as places of education solely for the children of members, and then have grown by endowments and bequests into the free grammar schools of the Middle Ages. This growth may often have been accomplished by a series of steps such as we can trace in the case of the school at Stratford. There is enough evidence to show that the number of these mediaeval schools was very considerable : indeed, it would appear that, until quite recently, the educational facilities that existed in the Middle Ages were greatly underestimated. Schools in connection with cathedrals, churches, religious houses, hospitals, chantries or guilds must have existed in every centre of importance; and, especially in the smaller corporate towns, the guilds were undoubtedly responsible for a large number of these. Of the type of education provided in them we have little knowledge; but probably it bore a close resemblance to the teaching which prevailed in our grammar schools down to the last fifty years, except that the teacher was always a priest and the education more theological in character.

The confiscation of guild property which took place at the beginning of the reign of Edward VI included educational endowments; but provision was supposed to be made out of the confiscated endowments for continuing existing educational foundations, at least in the case of the grammar schools. The special Commission entrusted with administering this part of the Act, however, did not live up to its promise; and to secure the continuance of an endowment it was regarded as necessary not only that the educational use of the endowment should be specially mentioned in the deed of foundation, but also that a school should be actually in existence. By taking these two inconsistent positions, the Commissioners were able to confiscate many endowments which satisfied one, but not both, requirements. The grammar schools which bear the name of Edward VI are, for the most part, merely re-foundations under his auspices of guild or other long-established schools.

Thus, at the close of the Middle Ages, education, as well as industry, passed out of the hands of the mediaeval type of voluntary association. That the change was inevitable, we may admit: that it was good, is more doubtful. Be that as it may, the passing of the old type of organization rendered a new system necessary in education as elsewhere.

Craft Guilds and General Education. Of close relation between the craft guilds and general education, there are few traces. The craft guild took no cognizance of the young till they came to be apprentices at an age when the recognized time for schooling had gone by. Sometimes we find it definitely mentioned in deeds of apprenticeship that the master should provide not only for the technical training, but also for the education, of his apprentices; but this probably requires to be interpreted loosely. The education ordinarily afforded by the craft guilds was technical training, unless we include the moral supervision and instruction of the master as a part of the apprentice's education. That the technical training given was usually thorough in character, we have ample evidence. The Elizabethan Statute of Apprentices (155) enforced a seven years' apprenticeship on all trades, and this was only a compulsory extension of what had long been the custom of London and other big towns. It was only with the growth of capital that increasing sub-division began to set in among the crafts, and to make technical training less truly a form of education. Throughout the Middle Ages, the craft guilds can fairly claim an educational value as the training schools of the craftsman. General education ordinarily fell outside the province of the craft guild : the craftsmen's children would share in the educational facilities of the town in which they lived, and the craftsmen themselves might often be members also of other guilds which possessed schools and educational endowments.

G. D. H. C.

GUIZOT (1787-1874).—A French historian who as Minister of Public Instruction (1830-1840), established a system of primary schools in France, and promoted secondary and university education. He wrote several great works on general history, French history, and on the Great Rebellion and the Revolution in England.

GUTHRIE, THOMAS (1803–1873).—He was a minister of the Old Greyfriars Church, Edinburgh; and afterwards of St. John's Free Church. In 1847 he advocated ragged schools in his *Plea for Ragged Schools*, and by his efforts one was founded on Castle Hill. He also laboured against intemperance and other vices, and in favour of national and compulsory education. He was a most eloquent preacher and wrote a large number of educational works on religious subjects.

GUYAU, JEAN MARIE (1854–1888).—A French philosopher and poet; was trained in his youth by his mother, the author of various works on education, and his stepfather, M. Fouillée, one of the most remarkable of modern French philosophers. At the age of 19, M. Guyau wrote a volume on the utilitarian moralists from Epicurus to Bentham and the Benthamite school. Portions of this work were afterwards expanded into two treatises. At the age of 20 his health broke down, and he spent the rest of his life quietly on the shores of the Mediterranean, writing largely on the leading problems of philosophy, and composing the poems entitled *Vers d'un philosophe*. His best known work, so far as England is concerned, is *Heredity and Education*, in which his point of view was that the ultimate good of society is the one standard by which to estimate and regulate all educational aims and methods. He gives first place, in order of value and in order of treatment, to moral education, sharply separating impulsive morality from the morality of insight. The work of education is to create impulses towards morality and to prepare for the morality which is based on insight. Guyau believed that the good of the individual is only to be found in social activity, and that every healthy child has a natural disposition to be active for the sake of being active. Hence physical education is second in importance only to moral education, for on it depends the general health and vigour of the race. Guyau emphasized the claims of aesthetic and literary culture, believing that art and literature bound society together, but he deprecated the training of the intellect at the expense of bodily health.

GUYENNE, COLLÈGE DE.—A famous college at Bordeaux. This city is associated with the name of Decimus-Magnus Asonius, in the fourth century (*c.* 310–393), where he taught, first, grammar, then rhetoric, and became a conspicuous writer of Latin verse. In the fourth and fifth centuries, the Bordeaux school was famous. The University was founded in 1441. It was only in 1533 that, at Bordeaux, the Collège de Guyenne was founded. The first Principal (M. de Tartas), with whom Sturm (*q.v.*) had taught in Paris, and who had also lectured at Louvain, planned courses for fifteen "reports" and three public lectures. In 1534, André Gouvéa, a Portuguese, head of the Collège de Sainte-Barbe at Paris, was called to the headship of the Collège de Guyenne, to preside over fourteen professors, including Nicolas de Grouchy in the Chair of Dialectics, and Antoine de Gouvéa, brother of the Principal. Gouvéa proclaimed a welcome to students, whatever their creed. He brought into the staff, Claude Budin and Maturin Cordier (Corderius), both Protestants. In 1536, Cordier left the Collège de Guyenne, and became a schoolmaster under the direction of Calvin at Geneva. The rules of Gouvéa for the government of the College evidently influenced Cordier in his position at Geneva. The education was Puritanic, but tolerant and, in the South, parallel to the schools of the Brethren of the Common Life in the North. No other language but Latin was to be used by teachers or pupils, except by the Abcdarians —whose teachers should speak Latin, but explain it in French. The distinction of the staff in Gouvéa's time—George Buchanan belonged to it, and Montaigne was a pupil—was acknowledged everywhere; and, in 1550, the scholar Muretus was a teacher. In 1552, three sons of Julius Caesar Scaliger became pupils; and a report of 1554 says: "Joseph will become a man of learning (*homme scavant*) before all others." In 1562, Élie Vinet became Principal, and the College reached its highest glory. From 1627 onwards, the Collège de Guyenne declined before the rising Colleges of the Jesuits. It survived till the French Revolution, and then was changed into the Collège National. Its brilliant period is characterized by its tolerance and freedom from religious tests. F. W.

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GUYOT, ARNOLD (1807–1884).—A Swiss geographer, and colleague of Agassiz (*q.v.*) at Neuchâtel (1839–1848); went with him to America (1848); and was Professor of Physical Geography and Geology at Princeton (1854). He wrote *Earth and Man* (1853), and a *Treatise on Physical Geography* (1873).

GYMNASIUM.—The word "gymnasium" was originally applied to the school in which competitors were trained for the public games in Greece. It was a school for physical exercises only in the first instance, and devoted to the training of adults. As such, it was distinguished from the palaestrum, the school in which boys were taught physical exercises. At Athens the gymnasium and its training were matters of public interest, and the organization was regulated at various times by laws laid down by Pausanias, Solon, and Cleisthenes. The training was in itself a form of careful education, and the gymnasium did not long remain an athletic school only. The Greeks quickly saw the importance of physical culture in regard to health and the fact that no system of education is complete which does not include physical training. It soon came about that a great part of education was given in the three gymnasia of Athens. Philosophers and sophists who had trained in them, assembled there again to dispute and to teach. Plato established himself in the suburban gymnasium named after Academus, and so gave the word "Academy" as the name of a school, Aristotle at the Lyceum, and the Cynics at the third great gymnasium known as the Cynosarges. The gymnasium as a training school of physical culture was never popular at Rome, where it was thought that the Greek system led to effeminacy and weakness. Nero was the first to build one in that city. The name gymnasium, as indicating an educational institution, has never

become common among the modern nations of Europe, and is met with only very rarely in the works of educational writers before the Reformation. After the establishment of the gymnasium at Strasburg by John Sturm (*q.v.*) in 1538, the name was taken up in Germany, and from that time has been used to denote the great classical schools of the country. In England the name, in this sense, has never been popular; and a gymnasium in this country is not a school, and is not considered the most important part of a school. Pestalozzi and Froebel emphasized the importance of systematic physical training, and their followers have endeavoured to include it in the curricula of all schools, with or without the aid of a gymnasium.

GYMNASIUM, THE BUILDING OF A.—(See BUILDINGS, SCHOOL.)

GYMNASIUM, THE USE OF THE.—A gymnasium is generally a large room containing such apparatus as is necessary to carry out some system of gymnastics.

A convenient shape is that which gives a length equal to twice the breadth, the size depending on the number of pupils to be accommodated (*e.g.* 60 ft. × 30 ft. for a class of thirty). Lighting should be along both long walls and one end, but is best left in the hands of a specialist who understands working conditions. Good cross-ventilation must be provided, and a system of warming in winter.

There are two modern types of gymnasia, the German and the Swedish.

In a German gymnasium the apparatus in general use usually takes up a large part of the floor space. This type is gradually being superseded by the Swedish type, in which the apparatus is so arranged that the maximum floor space is always available. In a Swedish gymnasium the floor is the most important piece of apparatus, and is made of the best material obtainable. The boards are narrow, of hard, close-grained wood, and set very closely. In order that the foothold may be firm for jumps, etc., along the length of the room, the boards run across the width and not longitudinally. *Wall bars* are placed round the walls so that at least half the class may use them simultaneously. Shelves above the bars accommodate the *stools* when not in use. *Beams* are of various kinds, a characteristic being quick erection and removal. *Beam saddles* fit on the beams and enable certain vaults to be done at greatly varying heights. *Benches* are low and long and can easily be turned upside down, when the narrow longitudinal bar beneath the legs can be used for balance exercises. They have also leather-covered hooks at one end which will fit over the wall bars or beams, thus converting the benches into inclined planes. *Ropes* are fixed in convenient positions, to be used in conjunction with other apparatus—beams principally.

Speaking generally, the apparatus in a Swedish gymnasium is such that at least half of the class may work simultaneously. Tricing-lines raise ropes and movable ladders so that they do not cumber the floor space, and all other apparatus is packed away. Scrupulous cleanliness is demanded, some teachers using a moist swab over the floor before each session, to remove the dust.

Both sexes use the same apparatus, the difference between the courses of training being rather of *degree* than of *kind*. This is characteristic of the Swedish system—it can be so arranged and controlled as to fit the different needs of different ages of either sex.

The pressing need of carefully organized exercise will never adequately be met until each school, or at least each block of schools, has a gymnasium at its disposal. This could be used by classes in turn: it would provide a suitable well-ventilated, clean place for exercise in bad weather, and would enable greater variety to be given to the lessons. Where there is a school gymnasium, there should be a trained teacher, for the Swedish system depends for its efficacy upon the ability and experience of its exponent. A good clean floor and a capable teacher make a Swedish gymnasium in embryo, for these are the two essentials, fresh air being taken for granted. The comprehensive variety of the modern English modification of the Swedish system must appeal to all educationists; and the appearance of a good Swedish gymnasium is always such as to silence the criticisms so often levelled against the old-fashioned "gym," which was so frequently a repository for many old and dusty secrets.

One of the essential advantages of a Swedish gymnasium is the fact that, at very few periods of the lesson are any individuals of the class standing idle; while the principles of the system, in conjunction with the special apparatus, offer facilities for an almost perfect method of gradual progression in difficulty and in the effect produced, thus reducing undue strain to zero. Swedish apparatus work is not a *test*, but a course of training—this is a statement which does not hold good of German apparatus work.

To get the best results, a trained teacher should always be in charge of the class, so that he may conduct the lesson on scientific lines. Competitions and races are easy of organization, and are a powerful instrument in the hands of a capable organizer. Such arrangements, however, as leave these competitions in the hands of a few picked performers are to be discouraged, nor should such performers be looked upon as objects for particular care on the part of the instructor. Rather should he devote his special attention and care to the weaker ones, without appearing obtrusive.

A Swedish gymnasium offers much scope for girls and women, whose training ought to be in the care of a capable woman. Their work is similar to that of boys and men, but the effort required is reduced, and those exercises which require great strain (*e.g.* "heaves") are used sparingly and only where good will result.

The special apparatus of a medical gymnasium for the treatment of structural defects, etc., has the special character which such individual treatment necessitates. This work is in the hands of medical men and very highly trained Swedish gymnasts. "Swedish" principles modified by special medical knowledge govern the treatment.

The physical exercises taken throughout the public elementary schools of Great Britain are based on the Swedish system and its principles. The Board of Education has issued a syllabus containing a full course for boys and girls from 7 to 14 years of age, composed only of free standing exercises, to suit the conditions of these schools. (See also GYMNASTICS.) H. M. C.

Reference—

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GYMNASTICS.—In the modern sense of the term, "gymnastics" is any system of movements or exercises (with or without apparatus) which has among its chief aims the educational and aesthetic development of the muscular system and the promotion of good health.

In athletics, the primary object is to train the physical capabilities so that they may be applied with the best possible result upon some *outside* object. All other effects are secondary, though some of these secondary effects are of high moral and educational importance. For instance, the dexterous handling of a cricket-bat, tennis racquet, or hockey stick is striven for only in so far as its effect upon the ball, in each case, is profitable in accordance with the rules of the game. That other considerations are secondary is easily shown, *e.g.* both cricket and lawn-tennis are one-sided, and hockey is full of necessarily bad postures.

In modern scientific gymnastics, the essential and primary aim is the educational and hygienic effect upon the actual performer.

In athletics the requirements of the game or race are the sole determinants of the resulting psycho-physiological development, whether it be beneficial or not. In gymnastics, the effect of each movement is previously known, and hence control of the total effect is exercised by careful selection of *beneficial* movements which will produce just those effects needed by the pupil.

The above shows the essential difference between gymnastics and athletics. It makes no attempt to enumerate their common aims, or to weigh the values of their several effects.

Little need be said of the Greek system. It was principally "athletic," and it gradually met the fate of most similar systems: it became professionalized. It and the Spartan system, the latter purely military, are of historical interest. The German system founded by Jahn and the Swedish system founded by Ling are the only modern systems of any importance.

German System. The exercises are almost invariably performed with apparatus and in a gymnasium. Movable apparatus is used in dumb-bell, bar-bell, wand, and sometimes Indian-club exercises. These are performed by the whole class at the word of command or more commonly to music. There is also a class of exercises called antagonistics, such as fencing and wrestling.

Among the "fixed" apparatus of a German gymnasium there should always be horizontal and parallel bars and a vaulting-horse, but the following may also be found in use: Trapeze-bar and rings, climbing-ladders and ropes. Here most of the work is individual, while the remainder of the class look on. Alertness, courage, confidence, and skill are required in German apparatus work, but much of it consists of spectacular "tricks." The form of the apparatus has decided the form of the exercises without reference to their real suitability from an educational or physiological standpoint. There is too much strain upon the arms and shoulders, and no provision is made for all-round development. Speaking generally, there is no scientific progression with regard to the effect upon the body.

Swedish System. Here the exercises are carefully graded, the sole basis of arrangement being the effect upon the body and mind. The degree and kind of effect of each movement is known; hence a teacher, by careful selection of exercises, is able to produce whatever effect is needed. This strict control of effects is common to all parts of the system, but when applied to abnormalities is embodied in that section called Medical Gymnastics. Another section deals with Military Gymnastics; but the third is probably the most important, namely, Educational Gymnastics. This latter is divided into—

1. TRAINING WITHOUT APPARATUS. This comprises free exercises of all kinds, including those movements known as "Swedish movements" and running, jumping, dancing, and gymnastic games. This should be taken in the open air, where possible.

2. TRAINING WITH APPARATUS. A lesson (with or without apparatus) consists of a carefully chosen series of exercises (a "Table"), arranged to give all-round development, and also so that the effort required from heart and lungs *gradually* increases to a maximum and then *gradually* decreases to normal. Successive lessons are also progressive. Apparatus work is never taken throughout a lesson; it is interspersed with free standing exercises. The apparatus used is such that a greater range of effect may be produced in the exercises. It either increases or decreases the degree of effort and, therefore, the effect. Special training is required for a teacher of apparatus work.

The apparatus used includes vaulting-horse and box, boom or beam (a heavy beam of wood capable of adjustment to twenty or thirty different heights), saddles to fit on this beam, rib-stalls or wall-bars (like broad vertical ladders about 8 ft. or 9 ft. high), ladders of various kinds, benches, and jumping apparatus. No spring-board is used as in a German gymnasium.

British System. The old British system of games and athletics (football, cricket, hockey, lawn-tennis, races, etc.), whose great defect has been shown above, has recently been strongly reinforced by the adoption of the Swedish system in schools, Army, and Navy for formal exercises. Our ancient games and athletics are unsurpassed in the production of excellent moral, social, and nutritional effects; while the Swedish system supplies corrective, educational, aesthetic, and hygienic effects. This new British system is still in embryo, but promises to develop into the finest system in the world. H. M. C.

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GYMNASTICS, REMEDIAL.—This is a branch of Physical Therapeutics, and the name denotes a system of bodily exercises performed with the special purpose of remedying disease or deformity. They are usually accompanied by massage, and thus the name has come to include massage. The treatment dates back to the beginnings of medicine, and occupies a wide field in modern therapeutics; but for school purposes it is applied almost exclusively to conditions such as spinal curvatures, round shoulders, defective development of the chest, various paralyses (particularly infantile paralysis), flat foot, and some forms of malnutrition which are not due to improper or insufficient food.

The system of remedial exercises commonly used in the medical treatment of children is a development of the work of P. H. Ling, a Swede; and is

closely allied to the system of educational gymnastics popularly called "Swedish Drill."

Apparatus. The remedial exercises utilize the essential apparatus of the educational exercises—wall-bars, beams, stools, and ropes, and, in addition, require high and low plinths, peg-post, and poles.

Classification of Exercises. The exercises are classified into active and passive movements.

A. ACTIVE MOVEMENTS are those which the patient endeavours to perform

(1) without resistance (*i.e.* unaided, or, in the case of very weak muscles, with the assistance of the gymnast);

(2) with resistance (*i.e.* where the gymnast resists the patient in the performance of the exercise, or the patient resists the gymnast).

B. PASSIVE MOVEMENTS are those in which the patient is passive, and the gymnast either moves a joint or manipulates the tissues.

The muscular work involved in active movements may be (1) concentric, (2) excentric, or (3) static, according as the main muscle group involved is shortened, lengthened, or immobilized during the exercise. This can be illustrated by a simple example. In raising a weight in the hand, the biceps works concentrically; in lowering the weight, it works excentrically; and in holding the weight with arm bent, its action is static.

The range, or path, of contraction of a muscle is divided into (1) an outer, and (2) an inner, half. Thus, when the fully-extended arm is bent at the elbow, the flexors of the forearm are said to act in the *outer* half of their path of contraction up to the point at which forearm and upper arm are at right angles, and in the *inner* half between that point and the position of full flexion. Activity in the outer half of its path ultimately produces permanent lengthening of a muscle, and exercises involving such activity play a large part in the treatment of shortened muscles; prolonged activity in the inner half causes permanent shortening of the muscle, and is used in the treatment of weak and over-stretched muscles. The application of this to a lateral curvature of the spine, with shortened muscles on the concave side and lengthened muscles on the convex side, is obvious.

Application. By using an exact terminology, "Prescriptions" of exercises can be written for each case, so as to be understood and applied by any qualified person. Each treatment occupies about thirty minutes, and most cases require the undivided attention of the gymnast. Treatment should be under medical supervision, and the decision as to the suitability of each case for treatment must rest with the doctor. Serious risks and disappointments are incurred in the indiscriminate employment of the system.

Every well-equipped gymnasium contains most of the apparatus needed, and every well-trained gymnastic teacher is qualified to treat, under medical supervision, the commoner deformities of children. Special efforts should be made to utilize remedial gymnastics in connection with school clinics (*q.v.*). A. MACKENZIE.

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H

HABIT.—It is a commonplace that an action becomes easier the oftener it is repeated. When we first attempt a new game of skill, such as golf, we perform the motions required awkwardly and with difficulty, but as we become accustomed to them, they become easier and, finally, almost automatic. A bodily action, however simple, involves the co-ordination of various muscular movements, and this, in turn, involves a co-ordination of nervous impulses which cause the muscles to act ("motor control"). The first time we perform an action, we have to control and co-ordinate these nervous impulses more or less consciously; but each time the nervous energy is caused to flow along a particular set of fibres, the easier it becomes for it to do so on a future occasion; and hence each time an action is repeated, the easier it becomes. This is the basis of habit—the fact that all nervous co-ordination becomes easier on repetition. The immense importance of habit in motor control is well illustrated by the great difference between the right and left hands commonly found in adults, although small children—even when naturally right-handed—use both hands almost equally. The question of the advisability or otherwise of teaching children to write, and do all other actions needing delicacy and precision, with one hand only, does not come within the scope of this article; but the fact that most adults are incapable of using the left hand for such purposes illustrates forcibly the great effect which habit has on the co-ordination of motor impulses. Habit, however, involves much more than the control of muscular movements, for all nervous impulses seem to take place more easily the oftener they are repeated in the same manner. This is equally true of sensory stimuli: our sense-organs become habituated to certain impressions, and respond more readily and delicately after training than they did previously. The sensation of touch is much more highly developed in a man accustomed to fine work than in a labourer, and the tea-taster trains himself to detect differences of flavour not appreciable to other men. In the case of sight, even if the eyes are equally good by nature, it is possible to accustom one to act more perfectly than the other, as may happen in the case of a microscopist who gets into the bad habit of always using one eye only for his work. The training of the senses is thus hardly less important than that of muscular movements. Further, if the nervous system is accustomed to receive a certain stimulus at certain times, it comes to expect the stimulus at the usual time and to feel discomfort at its absence: for example, we train

ourselves unconsciously to feel hungry at certain times of day, and the man who habitually smokes after meals feels uneasy if prevented from doing so.

Complex Habits. Most of the cases of habit mentioned above are of a comparatively simple character, and involve only relatively simple sensations or nervous co-ordinations; but, even in such cases, the importance of developing right and useful habits from early childhood is obvious. In its more generally important aspects, however, habit usually consists in something more complex, not merely involving motor or sensory impulses, but including actions in which, in the first place, the will and the choosing of alternatives play a predominant part. By nature, we are inclined to choose the pleasanter or easier way, unless some definite stimulus drives us in the other direction; and to overcome this tendency at first requires considerable effort. Many boys find difficulty in compelling themselves to work even when some considerable inducement is offered, and the struggle to resist more positive temptation is often very severe. When, however, the disinclination or temptation has once been overcome, the effort needed on subsequent occasions is less intense, and becomes still easier with repetition. These more deep-seated actions thus resemble simple ones in becoming easier with habit, for the reason that both mind and body are accustomed to them, and the initial effort to " make up one's mind " to them is no longer needed. Similarly, bad habits become more nearly automatic with frequent repetition, and to overcome them becomes correspondingly more difficult. A confirmed habit thus comes to resemble an instinct, in being an action performed almost automatically in response to a definite stimulus. Instinct has been described as " inherited habit "; and without entering on the vexed question of the evolution of instinct, we may agree that a confirmed habit closely resembles an instinct in its action. It will thus be seen how fundamentally important is habit in all departments of life: for good or useful habits involve enormous economy of effort, while a bad habit causes perpetual strain in the attempt to eradicate it. While it is important to avoid allowing a child to grow up a mere creature of habit, it must be remembered that acting by reason rather than by mere custom may itself become habitual; and while the importance of developing right habits in all directions can hardly be overestimated, the most important habit of all is that of acting according to reason and not simply mechanically. L. DONCASTER.

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HAILEYBURY COLLEGE.—The main buildings of Haileybury, situated about 2 miles from Hertford, were erected in 1809 by William Wilkins, R.A., architect of the National Gallery and University College, London, as an institution for the training of Honorary East India Company Students (cadets). But in 1858, after the Indian Mutiny, the functions of the company were taken over by the Crown, and the college came to an end. The buildings were used for a short time as barracks, but, being found unsuitable, the place again became empty, and a proposal was made to turn it into a workhouse. This was averted by the public spirit of a number of Hertfordshire and Bedfordshire gentlemen, who established in 1862 in the old college a new public school, which was incorporated by royal charter two years later and limited to 500 boys.

The school consists of ten " houses," nine contained in the college and conducted on the hostel system, and one boarding-house. A reduction of fees is made in the case of sons of the clergy and boys nominated by Life Governors. There are sixteen entrance exhibitions of £70 and under, some being restricted to sons of clergymen, and six grants are made to sons of clergymen who do not reach exhibition standard but require pecuniary assistance. There are five leaving exhibitions of £60–£20, tenable for three years, awarded yearly.

The work of the school is, as usual, carried on on two sides—Classical and Modern; the latter includes a division preparatory to engineering, and there is a workshop equipped with forges, lathes, a gas-engine, and a dynamo.

Haileybury is very strong in games.

HAITI, EDUCATION IN.—Education is in a backward state, its progress having been retarded by frequent revolutions. Free education, and the establishment of schools by local authorities, were provided by law in 1860, and about 500 elementary schools have been established. In the towns the course of instruction includes technical subjects. A number of schools and orphanages in charge of the Christian Brothers and various sisterhoods are supported by the government. In the chief towns there are secondary schools and a number of business colleges, and at Port au Prince schools of law, medicine, and art.

HAKLUYT, RICHARD (1553–1616), while at Westminster School, eagerly took up the study of voyages and travels, and, after a university course at Oxford, became lecturer there on geography. He introduced into English schools the use of the globe and other geographical appliances. In 1582 he published his first series of accounts of voyages of discovery to America. He continued collecting materials on this subject with the assistance of Sir Walter Raleigh, and in 1598–1600 he published two hundred narratives under the title *Principal Navigations, Voyages, Traffiques and Discoveries of the English Nation.* Froude calls this collection " the prose epic of the modern English nation." New editions were published in 1809–1812 (5 vols.) and in 1903–1905 (12 vols.), and the collection is included in the *Everyman Library* (8 vols.). Queen Elizabeth rewarded him with a prebend in Westminster Abbey, and in 1616 he was buried there.

HALF-TIMERS.—The minimum school-leaving age is 12 years: it was 10 in the Acts of 1870 and 1880; was raised to 11 in 1893; and to 12, except for agricultural employment, in Mr. Robson's Act of 1899. But local bye-laws may intervene and raise the maximum age to which compulsion may be applied to 14 years, and this age is now very commonly adopted. The Board of Education have issued model bye-laws for the guidance of local authorities, which—with more or less of qualification—have been generally followed. Exemption from school attendance may be granted on certificates of proficiency. It is here that the " half-timers " come in, for they may attend five times only " in each week in which the school is open "

on similar certificates, and for the purpose of being "beneficially employed to the satisfaction of the local authority": the "standard" of proficiency should be lower than that for total exemption, and not lower than the "4th" as prescribed by the Code for the time being. In the case of "half-timers," too, a (prescribed) certificate of attendance is to be accepted in place of the certificate of proficiency: that 300 attendances have been made "in not more than two schools in each year, for five preceding years, whether consecutive or not."

Educational opinion is generally agreed that the "half-timer" should be abolished; and this was one of the aims of Mr. Runciman's Education (School and Continuation Class Attendance) Bill of 1911, which, however, never became an Act.

The Education Act of 1918 does away with the "half-timer," and raises the minimum school-leaving age to 14: the appointed day, however, has not yet been fixed for the particular clause 8 which, therefore, is not yet operative. A. E. L.

HALLE UNIVERSITY, in Prussian Saxony, was founded in 1694 by Frederick I of Prussia. After being suppressed by Napoleon in 1806, and again in 1813, it was re-established in 1815 and incorporated with the University of Wittenberg. At first it was the chief seat of the pietist school of theology, but subsequently became the headquarters of the nationalist and critical schools. Its early history is associated with the activity of Francke (*q.v.*). At present it possesses the four faculties of philosophy, law, medicine and theology, and confers the degree of Doctor. The students usually number about 1,500, and women are admitted by the special permission of the Prussian Minister of Education.

HALLUCINATION AND ILLUSION.—The distinction between the terms hallucination and illusion is based upon the fact that an illusion is a misinterpretation of a sensation produced by an object actually present to the senses, while an hallucination is a false perception in which the origin of the stimulus is either organic or imaginative. In practice, however, it is impossible to draw a distinct line between the two. In an hallucination there is often some slight external stimulus which gives rise to the subjective conditions producing it, while an illusion frequently contains some of the elements of an hallucination.

Both hallucinations and illusions are classified according to the sense organ affected. Illusions are common to all the sense organs, while hallucinations are chiefly found in connection with the senses of sight and hearing. There are also motor illusions and hallucinations in which the idea of movement is the predominant factor.

Pure illusions (*i.e.* those in which no element of hallucination is present) may be collective, but it is very doubtful whether any evidence of collective hallucination exists.

Hallucinations and illusions are specially characteristic of certain forms of insanity, of various disorders of the nervous system, and of the action of special drugs. Dream experiences are to a large extent illusions, while hypnotic phenomena partake more of the character of pure hallucination. Both forms are found in normal persons, but in these illusion is much more common, and is more often than not produced by a predisposition to apperceive a presentation in a certain way. Aristotle's historic experiment in which an object placed between the crossed first and second fingers appears double, well illustrates such a case. Here in their normal position the outer side of one finger and inner side of the other cannot touch the same object. Hence a predisposition is formed to apperceive in the normal way. This produces the illusion. Another source of false perception is the influence of unusual circumstances upon the interpretation of a presentation. Thus a soldier on the watch for the enemy tends to interpret any movement as a sign of his presence, although under other circumstances he would apperceive the same movement in a different way.

Many theories have been advanced to account for the phenomena of hallucination and illusion, but no really adequate explanation has yet been advanced. This is probably due to our very limited knowledge of the physiological concomitants of the higher mental processes. It is probable that there is some organic cause for every hallucination, and the cerebral process arising from this is identical with that produced by the sensory stimulus of an illusion. Further research is however necessary to elucidate these points. M. J. R.

HAM, HORACE. — (See UNITED STATES, EDUCATION IN THE.)

HAMILTON, SIR WILLIAM (1788–1856).—A brilliant professor of logic and metaphysics in the University of Edinburgh from 1836–1856; was a great teacher of philosophy. Hamilton's devotion to truth-seeking, the glow of determined research, and the passionate desire to clothe in accurate and worthy style the outcome of thought on profound subjects, render Hamilton of special interest to educationists. His encyclopaedic erudition is exceptional in the modern professor; it combines scientific with literary historical research. A critic has said: "There seems to be not even a random thought of any value which has been dropped along any, even obscure, path of mental activity, in any age or country" which he does not seek out for effective illustration and of psychological and logical development. He unites certain aspects of Berkeley in style and Scaliger in erudition, and yet possesses a forceful independence. As well as a philosopher, he is a littérateur, historian, scientist, and, particularly, an educationist. His specifically educational contributions are contained in the *Discussions on Philosophy and Literature, Education, and University Reform,* 3rd edition, 1866. His suggested reforms in the English universities have been substantially accomplished, and remain as specimens of successful pleading for educational progress. But his essays on the *Epistolae Obscurorum Virorum,* on the *Revolutions in Medicine* and the *History of the Instruction of Deaf and Dumb* are still important for the student of educational history; whilst the essays on the *Conditions of Classical Learning* and the *Study of Mathematics as an Exercise of Mind* ought not to be overlooked by educational theorists, even to-day. F. W.

References—

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HANDICRAFTS, THE TEACHING OF.—The movement towards the introduction of more manual work into both elementary and secondary schools has been one of the most prominent of modern times. But, despite the progress made, a consideration of handicrafts in relation to school work must embody a justification of their inclusion in the curriculum: we have still to meet hostile argument as well as to adduce reasons in support.

The opponents of manual work in the elementary school urge that to introduce vocational exercises prematurely is to trespass on the domain of the technical school. The province of the elementary school is to provide the basis of a sound general education, and enable the individual child to live its life well. We are not agreed as to the definition of a general education. For a secondary schoolboy, it is no longer necessarily linguistic in essence. Far less, then, should the general education of the elementary school, where the vast bulk of the population receives its sole formal training, be set down rigidly as a thing of words and fancies.

Of Aristotle's three sources of virtue—nature, habituation, and education—habituation enters largely into the processes of the elementary school. Children come at 4 or 5, and school and home go hand in hand to form their habits. In some cases, the home influence is bad, and must, as far as possible, be countered by the teacher. Thus, a natural atmosphere, charged with interests appropriate to the children, is vitally necessary.

The charge of trespassing on the domain of the technical school comes from a confusion of ideas. The technical school trains industrial leaders—not the rank and file. There is no similar institution in which the latter may acquire the habits which practice in the use of tools tends to inculcate—patience, foresight, diligence, definite thought, and, above all, honesty.

The Educational Value of Handwork. The cardinal beliefs of Rousseau, Pestalozzi, and their disciples and elaborators, Fröebel and Montessori, are singularly in accord with the findings of modern experimental psychology and the evidence of practical teachers. "I hate books!" Rousseau cries; "In the first activity of the intellect, the senses must be the guides. The child's book is the world, and facts are the objects of instruction." Pestalozzi founds his principles entirely on the following of Nature, holding that that alone can be considered of educative power which influences all the faculties of man's nature—heart, mind, and hand. On the other hand, any influence which deals with only one of these faculties disturbs the equilibrium of our forces, and leads to an education which is contrary to Nature. Fröebel's kindergarten is but a particular development of Pestalozzi's general scheme. Montessori goes further and on more extended ground.

Thirty years ago, C. G. Leland, an American apostle of manual training by way of art-craft, declared that "from 7 to 14, a certain suppleness, knack, or dexterous familiarity with the pencil, or any other instrument, may be acquired, which diminishes with succeeding years"—a dictum which has been verified by ample experiment. But the physiologist goes further, and claims that manipulative exercises give an intellectual stimulus. In support of this claim, a concrete example may be given, the more important because it shows the result of an experiment, not during the years when a child is acquiring the most elementary command over organs of speech and movement, but at an age of more perfected development; and because handwork was tried only after the more formal curriculum had failed.

In a fairly large boys' school, in a slum district of a seaport town, there are to be found, from many causes—shifting of homes, malnutrition, want of decent sleeping accommodation—in short, from the very nature of the population—a considerable number of children who are much below the average in intellect and attainments. These boys are, to their great good fortune, made the subjects of an ably conducted physiological experiment. Coming, say, into Standard II at an age proper to Standard IV, and at a stage of mental development which would be almost below the normal in the senior portions of an infants' school, a boy is transferred to a class of comparatively small size, working under a curriculum with a strong manual bias. Half of each working day is given over to some form of handwork, the other half to what are termed the essentials of the curriculum: reading, some form of written work, and arithmetic, the standard of these being adapted by the teacher to each boy's progress and awakening alertness. Further, there is, so far as may be, an interweaving of these subjects with the various forms of handwork. In some cases, there is little success: either the right note, to awaken a response, does not happen to be struck, or the boy is congenitally mentally incapable and irresponsive; some, in fact, on whom the experiment has been tried have been classed by the doctors as seriously defective. In quite a fair proportion of cases, however, the boy's intelligence is to such an extent awakened through manual work and its connection with other subjects, that after a time he is found capable of taking his place in the standard proper to his age, and in other cases the boy is able to work through the school and reach the second class from the top before leaving.

The result of an experiment of this kind fortifies belief in Stanley Hall's argument that "the motor areas are closely related and largely identical with the psychic, and muscle culture develops brain centres as nothing else yet demonstrably does." Confidence is further strengthened by the experience of schools for the mentally defective, and there seems good reason to expect that even more valuable evidence will follow the establishment of schools or classes for backward children.

Before proceeding to the discussion of individual subjects and modifications of their treatment, it would be well to give some attention to certain general considerations with regard to the teacher, the teacher's methods and material.

The teacher should cultivate all Pestalozzi's sympathy of approach, and remember that sympathy in his case triumphed over serious personal defects. Personal magnetism and a kindly stimulus to inquiry will accomplish much where chiding will spoil all. Encouragement should be freely given, for in manual work faults are all too obvious, and the child's punishment lies in the inevitably visible consequence of transgression. Elaboration, even in the first instance neatness and accuracy, matter little in comparison with earnest purpose. Apparatus need not be more than makeshift, nor material more than an improvisation, for a child's toy kingdom is full of improvisation and makeshift.

The selection of particular branches of handwork must be governed by many considerations—the taste of the teacher, the age of the children, the type

Photo by Aerofilms, Ltd.

Harrow School

PLATE XLVII

of home from which they come, the locality of the school, the space and apparatus available.

Correlation. Manual work may be employed to illustrate other subjects; it may be, in itself, useful or productive of useful things; it may be simple toy or puzzle construction for fun. But whatever the direction taken, it is important that due regard is paid to the inclination of the teacher. Lack of sympathy in the teacher begets lack of interest in the child.

In illustrative work, handicraft is doing much to expel the old geography with its interminable catalogues of negligible rivers, its drawn-out recitatives of capes and bays, and its endless marchings and counter-marchings over parti-coloured county maps; with the cathedral cities, even so unimportant as St. Asaph or Truro, marked by huge crosses; and the highest mountain ranges indicated with only slight approach to accuracy by some irregular clouding of the colour-scheme. Handwork readily illustrates the physical basis, and the child is able to build up the contours in plastic material and to learn from them true geography, bridging easily the gap between the two-dimension orographical map and the necessary three-dimension conception of what it represents. For anthropological study, illustrative models of dwellings, boats, or weapons may be made, and fleeting interest may be recaptured. Similarly in history, William the Norman, read of in a book as landing at Pevensey, rouses but a languid regard; but if he lands in the school playground, clad in correct armour which the onlookers have forged in cardboard and aluminium paints, as pictured in the Bayeux tapestry, he comes to life; or if his operations on Senlac Hill are conducted by match-stalk knights and men-at-arms on a mound of plasticine, then a vivid impression is produced.

The connection of handicraft with physical science has a value extending far beyond its uses for purposes of illustration. So many of the necessary instruments and pieces of apparatus may be improvised in simple form, that a whole series of lessons in mechanics, hydrostatics, sound, light, heat, and electrical science may be made to turn upon a year's simple constructive work; and valuable insight may thus be given into the application of principles to the phenomena of everyday life. But, beyond that, we have to remember that in this industrial age it is vital that an important side of the continued education we desire for all should be technical. The difficulty has been to bridge the gulf between the elementary school and the Polytechnic. It is not bridged by day trade schools, which touch the merest fringe; nor by preliminary industrial courses in evening continuation schools. A foundation is necessary on the near side from which the bridge may take its spring, and that foundation must be, and can only be, laid in the elementary school. The child passes on naturally enough to a literary or commercial course; it must be enabled to pass on just as naturally to an industrial or technical course.

The Utilitarian Handicrafts. Of the definitely utilitarian handicrafts, domestic work for girls comes most obviously to view. It has its detractors, but few will deny the soundness of the ideal of making good housewives; in no way can the future welfare of the race be better secured. Accordingly, we have courses in cookery, laundry, and combined domestic subjects. The last is of greatest benefit when, as in an increasing number of schools, it is carried out in a real dwelling-house in which the girls work in batches for a month without a break. Needlework, of course, has been so long accepted as an essential of girls' school curricula, that it passes without comment—for girls.

But, if these subjects have a value for girls, surely that value extends in some aspects to boys also. We scarcely claim to prepare a boy to be a good housewife, though such a preparation would have no small value in an emergency. But "stitchery" affords a boy the stimulus of manipulative exercise; experience shows that it arouses his interest more infallibly even than more normally masculine pursuits; and nothing could contribute more definitely to self-respect than to set a ragged boy patching his garments where patches most are needed, darning his stockings, repairing his boots, or replacing by buttons the pins that hedge about his person.

In rural districts it is now recognized (1) that an effort should be made to keep alive an interest in the land and in the life of the countryside; and (2) that this interest is more likely to be stimulated if we show by education in the elementary school that horticulture and agriculture are skilled occupations, and that science is the soul of them all. The lead in this line has been taken by the Colonies, notably by Canada; but our own county councils have not been idle; and rural teachers have shown by their ingenuity and initiative that the instincts of the pioneer are still alive in us. But let us consider also the case of a seaport town. Here comes in quite naturally the prompting to give a nautical bias to the training in schools where many of the children come of the seafaring class. That any line of life should be taken up with zest is to the good, and courses in simple cookery and laundrywork for boys have turned their thoughts towards the ship's galley, have given them a chance, and done something to improve the conditions of life at sea.

Quite apart from special considerations of this kind, work—real work—is good for every one. We have just spoken of what some people would call girls' work for boys. It is equally good for girls to learn to drive nails and screws, to use a plane, and to shape wood.

In the heavier forms of woodwork for boys, the teachers in the centres should work, as far as possible, in close collaboration with the class-teacher; for as much illustrative work for history and geography can be done as in the preparation of plane-tables, sextants, and other apparatus for essays in physical science. A notable section of this work, as well as of the work with lighter materials, should be the construction of toys and puzzles. Many of these are handed on to the infants and younger children, and thus generosity and kindliness are inculcated in the elders; while the youngsters receiving something that works, feel the stirrings of a prospective interest. Gardening may well find a place in favourably-situated suburban schools, and a new stimulus is provided when the child finds how bountifully Nature repays earnest effort. With young children, and, failing the provision of workshops or domestic centres, with children of all ages, much valuable work can be carried out at the ordinary school desk with simple apparatus and easily handled materials—light wood, cane, raffia, cardboard, metal, paper, clay, etc.

But, be the material what it may—be the product utilitarian, artistic, or purposely provocative

of fun—the manipulative exercise should be reconciled in harmonious proportion with the linguistic and theoretical side of the curriculum, as Plato would have reconciled athletics with philosophy. So long as the teacher accomplishes this, so long as he omits no effort to generate and develop within the child the natural desire to do something, so long as he admits no limitations, and is ever keen to encourage the expansion of aspirations—he advances step by step towards the appreciation of the maxim that education includes all influences brought to bear upon the soul. J. G. L.

HANDWORK.—Two different forces, representing two distinct principles, led to the introduction of handwork into courses of education for children of school age. Into infants' and kindergarten departments, handwork found its way largely as a result of the teaching of Pestalozzi and Froebel; but it took a place in the work of the upper forms as part of a movement for supplying more effective technical instruction. It was not, however, until the part which motor activity plays in the learning process became more fully understood, that serious attempts were made to bridge over the gap which still existed between these two periods of school life; and courses of handwork, continuous throughout the school, were given a place in the curriculum.

During such a period of experiment and development, widely divergent views about the scope and aims of handwork were put forward. For a time, the influence of the trade workshop was strongly felt. Accuracy of finished product and rate of work, matters of prime importance to the artisan because they directly affected his earning power, were only too frequently given a foremost place amongst the aims of manual work in school. In other words, "hand and eye training" represented correctly the main object of such work. Where these were the aims, there came into existence formal schemes of work, in which great stress was laid upon the grammar of the subject, and equal importance was attached to directions for the correct use of tools. Since everything had been stereotyped, there was little scope for the play of the child's imagination, and no room for the exercise of his originality. Under such conditions, the zeal of the children gradually waned for lack of interesting problems and of opportunities of applying to some useful purpose the skill acquired. There were even courses which afforded only practice in the making of the various joints employed by woodworkers. It must be said in favour of the Sloyd system, however, that every object in the course was complete and ready to serve the purpose for which it had been designed; and, in the country where this scheme originated, these objects entered into the child's life because they were part of his environment. But when such a course was transplanted bodily into an English school, this merit vanished, and the work remained to a large extent separated from the general interests of the pupil.

Of a similar character were the elaborate and extended courses of paper-folding and cutting which were provided for younger children. Such incidental operations failed to sustain interest for any length of time; and the artificiality of the schemes, and their necessary isolation from the general work of education in the school, led ultimately to their revision or disappearance.

Gradually it began to be recognized that the interests of the child and its motor activities are intimately connected, and that, if the full value of handwork were to be secured, this relationship must be maintained. The teacher observed two sets of interests in the activities of his scholars: those aroused by school lessons, and others stimulated by the out-of-school life of the pupil. Handwork was employed in the teaching of such subjects as geography and history, and in correlation with the other subjects attempted; and practical work was allowed to play a part in the acquisition of new ideas.

This movement towards a liberal and more extended use of handwork in schools owed much to the teaching of Dewey. Influenced by the study of anthropology, courses of handwork were arranged in which the activities of the child ran along the main lines of racial development, and some of the industrial occupations of primitive races supplied ideas for school work. Again, there were courses arranged by those who, attaching great importance to environment, took as their starting point the chief classes of modern industrial work and, influenced more or less by local conditions, sought to reproduce the essentials of these operations in the school. But modern industrial processes are characterized more and more by subdivision of labour and the employment of machines and tools of increasing complexity. They are thus far less fertile in suggestions for the teacher than are the operations of the older craftsmen, who expected a range of work from one man which, in these days of specialization, would necessitate the employment of many.

As handwork of this character was largely individual, there was a danger lest the child, deeply interested in his task and depending largely upon his own unaided efforts, should become too self-centred and non-social. In order to correct this tendency, and at the same time give play to the social instinct, group work has been introduced, in which each child has a definite part allotted to him, upon the completion of which the success of the whole depends. With the energies of several workers directed towards a common aim, it will be possible to undertake the construction of models which would require a more sustained effort than could in reason be expected from one child.

This extension of the scope of handwork necessitates the employment of a variety of materials and tools for the successful attainment of its aims. The younger the children, the more does the element of play, with its immediate and transient appeals to the mind of the child, become a prominent feature of the handwork they do. Incapable of sustained effort and attention, a variety of occupation and changes of material are a necessity in the lower classes; but, at the same time, this choice is restricted by the limited muscular strength of the children. They may be able to manipulate such materials as clay, sand, paper, and raffia, but they find considerable difficulty with more resisting substances like wood and metals. Frequently such materials are supplied in a semi-prepared form like bricks, or in long strips, so that the work of reducing them may be of the simplest. It is usual to continue this variety of materials through the school until the child enters the upper classes, when it becomes advisable to concentrate more and more on fewer materials.

At the period of pubescence a change slowly comes over the attitude displayed towards practical work. Gradually the child becomes aware of the imperfections of his own work, especially as he compares it with that done by older and more

experienced workers. There arises out of this the desire to acquire a greater degree of skill, and the child shows a willingness to submit to systematic training to attain these ends. The courses of work for such children are justifiably more formal, and are arranged more logically than those for younger children. At the same time, coming events cast their shadows; and the business of life begins to appeal to the child. His lessons must take on the appearance of work, and lose the elements of play. It is, of course, too early for that specialization which will be necessary when he later enters the ranks of labour. The work must still be of a broad and general character, for it is not until the fourteenth or fifteenth year that it can be said whether a child has crossed the threshold of performance and attained that degree of technical skill which justifies his entrance into the ranks of skilled labour.

Bryan and Harter, in their study of the training of telegraphic operators, observed that the threshold was often crossed as the result of some considerable effort or exercise of will, which at once raised permanently the value of their performances. This improvement also took place after a lengthened period where little or no change occurred in the quality of the work done. In such cases, interest in the task continued; but those who failed to cross the threshold after several fruitless attempts, recognized the mediocrity of their work, lost interest, and eventually passed on to some other occupation.

All who have had long experience in handwork instruction will be able to confirm these observations from knowledge of their own pupils.

Handwork courses for children at this age usually are differentiated on account of the sex of the pupils: and there are generally arranged, for the girls, courses of instruction in needlework and garment-making, laundry work, housewifery and cookery; and, for the boys, woodwork, metal work, and, perhaps, boot-making or tailoring. The attention which of late has been given to the teaching of Nature study has led, where conditions are favourable, to courses in gardening and horticulture; and, as is evident in these cases, the customs of adult life do not lead to a reservation of this work to either sex.

Although in many respects the handwork differs at each stage of school life, there is ever present—in all that is undertaken—a purpose, an object to be attained, for which the child is striving. Sometimes he is stimulated by observation of the activities of others, sometimes by conversation with his teacher or his fellows; often it arises out of the child's own thoughts. In all cases, it will bring with it problems to be solved—so that he may, for example, play his games or learn his lessons—and there will be difficulties in working material and in manipulating tools which will require him to recall his experiences, and decide which are helpful in the present circumstances. Such work never sinks to the level of subconsciousness, but requires the full play of mental activity, without which it is outside the sphere of educational processes.

There will also result from the acquirement of ability to manipulate skilfully tools and materials, a feeling of confidence and satisfaction, together with a sympathy towards other workers, which will be of considerable value to the future citizen, irrespective of the actual part he may play in the activities of the State. He acquires also the habit of passing judgment upon the products of his labour, since he must observe whether the object he has made serves the purpose for which it was intended. He is the more readily enabled to do this because he can apply physical tests, and so depend less upon the decisions of his teacher than is necessary in the more abstract work of the school.

Courses of Work. It has been shown by Lukens, in his study of children's drawings, that the motor activities of childhood are divided into two periods. During the first of these periods, which generally ends about the fifth year, the actual operation of drawing appeals much more to the child than does the finished product of his labour. In the second period, however, which terminates about the tenth year—and which has been called by Lange "the period of artistic illusion"—the child draws crudely not from objects placed before him, but, by preference, from his own ideas and mental images. The fact that these drawings from his own fancy are so imperfectly executed, that it is often a matter of difficulty for his teacher to discover their meaning, does not seem to diminish the pleasure the child derives from them.

It will be at once recognized how these general principles bear upon the character of handwork as it is provided for in the several classes of a school. In the first period, demonstration by the teacher and observation of the activities of his fellows arouse the child to action. It is not so much the purpose which the object will serve that appeals to him as the actual movements of construction which he is observing. The stimulus is an immediate one. In the second stage, however, a desire to express his ideas will be apparent; and it will be noted that they are in connection with those things he knows best, and in which he is most interested. Throughout the work of the first stage, there is a strong element of play; and, although this factor is less prominent in the second period, logical and stereotyped courses confined strictly to one or two materials are yet out of place. The things he desires to make will be varied in character, often complex in construction, and frequently quite beyond his powers to execute well; but he remains quite contented with the very imperfect results of his labour. It will be desirable, therefore, to provide a variety of tools and of materials; and the teacher should adopt the attitude of a helper rather than of an instructor who rigidly directs the work. The objects which the child makes may, on the one hand, be connected with his school lessons, and serve in the development of ideas; or, on the other, form part of his hobbies and play. The employment of handwork by the teacher when giving lessons in such subjects as geography and history has done much to present the handwork as a help to mental development, and the term "correlation of handwork" with subjects of the curriculum is now a familar one. There is a danger, however, lest the connection should be strained, and a helpful servant become a bad master.

The handwork activities which have found a place in schools for juniors may be arranged in groups corresponding to the broad representative classes of industrial work: pottery manufacture, weaving, production of goods from leather, cloth, paper, cardboard, wood-working, metal-working. Suggestions for giving simple activities in these substances with a distinct sociological aim may be obtained from a study of the experimental work of Dewey.

Towards the close of the second period, it may

be well to introduce gradual changes in the character of the work undertaken; and increasing attention may be paid to good workmanship, since with advancing age has come added muscular strength, and the child now shows a greater susceptibility to the imperfections of his work. There is a tendency to avoid courses confined to one material, and to seek a closer connection of the handwork with the one or two subjects of the curriculum in which the pupil shows interest and ability. He may be encouraged, for example, to make some of the apparatus he will use in applied geometry, surveying, map-making, or in the study of physics and practical mechanics.

There is also often a strong utilitarian basis in courses that make a successful appeal to children at this stage; and a greater degree of concentration upon the handwork activities, such as are implied in courses of cookery, housewifery, bookbinding, shoemaking, gardening, often increases the enthusiasm of the child arising out of all practical work. There is a need for the systematic collection and arrangement of experiences gained in working with materials and tools. In some branches, this leads in a subsidiary manner to lessons on mechanics and properties of materials.

For constructional work in which shapes and sizes of objects of three dimensions must be recorded, it is soon felt that written language is cumbrous and involved, and it becomes advisable to provide a course of instruction in drawing. Where a copy has to be made of some object which can be referred to at any time, there is little or no need for a knowledge of drawing; but, should the object be at a distance, some method of recording measurements and shapes as an aid to memory becomes a necessity. If a photograph or simple perspective drawing is available, it will admit of measurements being recorded, and the addition of a few written notes will supply all that is necessary. But ability to make quickly good perspective drawings from it requires some practice, and the introduction of a mechanical use of the ruler in the production of "Isometric" drawings helps children to secure a good substitute for the perspective view. An advantage of such drawings is that one drawing may be used to represent the length, breadth, and thickness of a solid object. Their use is restricted, however, since it is a difficult matter to deal with curved figures; and, should curves be represented, their shape gives no correct idea of their true form. In these cases, separate drawings or projections are employed, and plans, elevations, and end views of the objects are made. It now becomes necessary for the person who is looking at a set of such drawings to bring about a mental fusion before the form of the solid object is known to him. This difficult mental operation makes this kind of drawing unsuited for the use of young children. It is often an easy matter for them to copy drawings so made, but there is great danger in assuming that the drawings are, in consequence, of real use to them.

The Teacher. The qualifications of the successful teacher of handwork at one or other of the three stages of school instruction that have been referred to are many and varied. Of necessity, he must have such a knowledge of the principles and practice of education as will warrant the care and training of children during their school course being entrusted to him, and he must be able to deal with children not only individually but in groups. Moreover, he should, in his study of the principles of education, have given attention to the place which motor activity occupies in the education of the young.

In addition to this, his skill and dexterity as a craftsman should enable him to demonstrate with effect before his pupils, and so stimulate them in their endeavours to overcome the difficulties they encounter. One writer has given a fourfold classification of the qualifications of the craftsman: (1) Ability to grasp an idea and embody it; (2) a wide repertory of methods, devices, recipes, discoveries; (3) knowledge of the history of his craft; (4) skill in technical processes.

It is evident that the importance which will be attached to the several attainments will depend largely upon the age of the pupils and their stage of development. For the teacher of very young children, skill in technique is of secondary importance, and the same may be said in a general way for the teacher of children under 10 or 11 years. It is a rather different question with the teacher of older children, where a degree of specialization is occurring in their studies. Specialized courses in cookery, laundry-work, and woodwork, for instance, will necessitate the employment of teachers whose technical knowledge of those subjects is considerable; but the experience of Sweden when it introduced courses of woodwork into its schools, should not be forgotten. It will be remembered that the first teachers were selected from amongst the artisans of the towns and villages—men who possessed ample technical skill, but who were less efficiently equipped in their knowledge of the principles and aims of education. It is no ground for surprise that they experienced difficulty in realizing the difference which existed between the functions of the school and the trade workshop. They were replaced, at a later stage, by class teachers, who had undergone a supplementary course of training in the branch of practical work they undertook to teach; and, although it was noted that the children showed a falling-off in technical ability, the general opinion was in favour of the change.

In order to provide a hall-mark for those who wish to undertake the teaching of manual subjects, there are several authorities which conduct examinations and grant diplomas. The City and Guilds of London Institute conducts examinations for teachers in woodwork and metalwork. The Board of Examinations for Educational Handwork grants certificates in a number of branches, and the National Froebel Union awards diplomas for teachers of kindergarten and infants' schools.

Besides evening classes for teachers, several summer courses are held at some seaside and inland health resorts. These provide opportunities for the busy teacher to acquire further skill in, and information about, developments that are made from time to time.

In addition to a mass of general literature, there are the educational weeklies and monthlies, one or two of which (*e.g. The Manual Teacher* and *Educational Handwork*) devote the whole of the space to handwork.

Materials and Tools. Many of the activities in courses of educational handwork are examples in simplified form of those great industries that make up the bulk of the nation's commercial activity. Some of those operations, like the smelting of ore and the rolling of steel, must be carried out under conditions very much unsuited to school work, and so it becomes necessary to use materia

which has undergone some amount of preliminary preparation.

Timber has been felled, seasoned, sawn into boards, and sometimes even planed, before it enters the school workshop; pulp has become paper, and been embossed and stained, before it is used in bookbinding; and cotton and wool have likewise been spun into yarn. Yet these materials still permit a wide range of operations to be carried out with them before they are made into useful articles. Where those operations are suitable for the conditions of the school, there can be no objection to the employment of such partly-prepared material. The choice of such materials is an extensive one, and in making a selection it is well to be guided by the experiences of others. The special knowledge of the teacher may render possible the employment of some material that could not be recommended for general use; but amongst those substances finding approval are sand, clay (or one of its artificial substitutes), raffia, wool and cotton strands, paper, cardboard, wood, tinplate, wire, and other forms of brass and iron.

The child in his own home can rarely secure such materials in an unused state, and is compelled to obtain his wood and cardboard from empty packing-cases, sweet-boxes, and cigar-cases. In order to familiarize him with such sources of supply and show him the possibility of employing such material in constructional work, a certain amount of experimental use of it in schools has been made. Whether children require such reminding is open to question; but there can be little doubt that good material gives much more pleasure than second-rate, and points to the use of such discarded material being carefully limited.

Children's environment supplies them with many instances of the use of tools, and familiarizes them with a considerable number. With some (like knives, scissors, and needles) they will have done work out of school hours, but it will be noticed that the opportunity of using a fresh tool never fails to arouse interest. The observation of its use in the hands of another is all that the child feels to be necessary to enable him to undertake the same operation. Should the teacher decide to enter upon a discussion of the construction of the tool, and give minute directions for its correct use, the enthusiasm of the child sinks, and gives place to indifference and inattention. Upon the actual use of the tool he applies the whole of his energy, and there is no lack of interest until he has mastered the various unexpected difficulties that are invariably encountered. It is at this stage that advice from a more experienced worker receives his attention, and continues to hold it until his mastery is complete. When the control has become so established as to sink almost to a subconscious level, the educational advantages of that stage are almost exhausted, and it becomes necessary to seek further opportunities where the skill acquired can be applied. The construction of the object selected now affords that mental exercise which the first use of the tool provided.

Experiences which the child will collect during a course of handwork from his use of tools like knives, scissors, needles, shuttles, chisels, planes, hammers, mallets, saws, files, pincers, and vice may be made to supply the groundwork for a short series of lessons on the elements of applied mechanics. These experiences should also have enabled the worker to recognize when a tool is out of condition, and he should be able to do this from observation of the instrument itself, or of the quality of the work it does. The course of instruction will also explain to him how the necessary adjustments are made, and, in as many cases as possible, he will be permitted to carry these out himself. J. KAY.

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HANDWORK AS A FACTOR IN EDUCATION.—School handwork, as now understood, is a product of the last fifty years. Previous to 1870, even kindergarten occupations were almost unknown. Froebel (*q.v.*) did not establish more than eighteen kindergartens, and the attempts made in Germany by his followers to adapt his methods for older pupils failed. In Finland, however, Uno Cygnæus introduced, about 1866, a system of handwork which he called Sloyd. It did not really embody Froebel's principles, nor did it represent either in scope or aim what is nowadays known as Sloyd, for, in addition to woodwork, it included weaving, basketry, and saddlery, and was carried out with a view to promoting home industries.

Sloyd. The Sloyd movement began in Sweden in 1870, and Herr Otto Salomon established his school at Nãas in 1872. The department for training Sloyd teachers, which he opened two years later, provided courses which were attended by many of the pioneers of the Manual Training Movement in Europe and America. After a visit paid by Herr Salomon to Finland in 1877, the Sloyd system was restricted to woodwork, and purged of its industrial taint. It no longer meant making things that would sell, but was designed simply and solely to educate.

Pioneer Work of Germany, Russia, and America. This commercialism vitiated the home-industry schools founded in Germany about 1875. Many have now ceased to exist; some have specialized as reformatories or schools for the blind; the rest have been modified so as to conform more strictly with real educational aims.

If any one country can claim precedence in the inception of the Manual Training Movement, that country is Russia. In addition to the impulse that came from Finland, another strong impulse emanated from Moscow, where school workshops were started in 1868 under the direction of M. Victor Della-Vos. The success of this enterprise inspired Dr. J. D. Runkle, the pioneer of Manual Training in America, to open similar workshops at the Massachusetts Institute of Technology in 1877. The next step was taken by Dr. C. M. Woodward, whose efforts led to the opening at St. Louis, in 1880, of a Manual Training School in connection with the University of Washington. This type of school became known as a Manual Training High School, and is peculiar to America. The name, which in Europe would undoubtedly have killed the enterprise, served in America to popularize it. Within the next few years similar schools sprang up in Chicago, Baltimore, Toledo, Philadelphia,

and Cleveland, and the number has been steadily increasing ever since. They are well-equipped secondary schools, in which the ordinary branches are taken, but from three to six hours per week are devoted to manual work.

Three great Americans have helped to keep the flame of enthusiasm burning. Professor William James, of Harvard, has eloquently preached the importance of the active side of human nature; Dr. Stanley Hall has emphasized the large place taken by muscular experience in both life and education; and Professor John Dewey, of Chicago University, has not only formulated original views as to the educative function of handwork, but has put them to experimental proof, the records of which have become standard references. No man has done more than Professor Dewey to place the pedagogy of handwork on a scientific and philosophic basis.

The American public or elementary schools soon caught the contagion, and the process of providing manual occupations from infancy well into adolescence has been extending ever since. In Washington, the chain is complete; but in most places there are, as with us, many missing links.

Pioneer Work in Great Britain. In England, the first authority to move was the School Board for London. In September, 1885, a woodwork class for senior boys was formed at Beethoven Street School, Paddington. But difficulties arose with the Treasury, and not till the Technical Instruction Bill passed in 1889, had the Board a free hand to develop its scheme. Woodwork centres began to spring up everywhere, and soon nearly every boy in the elementary schools of London received a two years' course of instruction in woodwork. There was also a fair sprinkling of metalwork centres.

The London School Board was imitated by provincial Boards. Though there are still areas without handwork, more than half the number of children over 12 do bench work in wood or metal.

Secondary schools have not fared so well, except in Wales, where county schools are fitted up with good handicraft rooms. In the great public schools there is an unfortunate tendency to regard the subject as a refuge for dullards who fail to cope with the classical curriculum.

Up to 1908, the manual needs of the child between 8 and 11 had been singularly neglected. The defect is being remedied; improvement has taken place in all important education areas.

Meanwhile, similar changes had been going on in Germany, France, and Russia. In Germany, the Association of German Teachers for Manual Instruction was founded in 1886. By 1903, handicraft was taught in as many as 885 schools. A most interesting educational enterprise was the organization in Bavaria of a system of schools based on the principle of learning through work.

In France, and later in America, the work of Dr. Edouard Séguin (*q.v.*) had far-reaching consequences. His "physiological method" of dealing with the feeble-minded, based on the cultivation of motor activities as a preparation for direct intellectual training, has been adopted throughout the civilized world. The same method, modified so as to conform with the results of more recent research, has formed the staple of the system which Dr. Maria Montessori has so successfully applied to the teaching of young children in Italy. As for manual education in general, no country has shown a fuller recognition of its importance than France, for ever since 1882 handwork has been obligatory in all her primary schools, though difficulties of accommodation and equipment have prevented the regulation from being universally carried out. In the higher primary schools, handwork is taken by all the pupils, the allotment of time to the subject being based upon their prospective callings.

In Russia, Della-Vos's system of teaching the mechanical arts spread so rapidly, that by 1878 it was adopted by all the technical schools of the empire. But, though there were, in 1904, nearly a thousand schools in which handwork of some form was taken, it was regarded as an "extra," and was taught out of school hours. In the matter of training their ordinary teachers in the theory and practice of handwork, however, Russia is by no means behind.

The main desideratum in England is either a few officially recognized colleges for training handicraft teachers, or else adequate provision at the training colleges for teachers to specialize in this subject. Not till 1914 was handicraft definitely included by the Board of Education in the schedule of subjects of instruction for teachers in training. In France and Russia, manual training has for some years figured in the curriculum; and in America and Germany, colleges are specifically furnished for training handicraft instructors. In England, we have had mainly to rely on evening work at technical institutes, or brief courses at summer schools, at most of which places the pedagogy of the subject is inadequately dealt with.

Parallel with the development of woodwork and metalwork centres for boys, there has been a development of cookery, laundry, and housewifery centres for girls; and in the case of the younger children, the handwork course is nearly always common to both sexes.

Aims and Ideals. This expansion of practical pursuits is the outward sign of certain ideals and aims which have risen into prominence and seem to be constantly competing. The aim in starting has generally been utilitarian: it has produced articles for sale, or has prepared the pupils for some definite industry to be pursued in after life. Such was the original form of Sloyd; such were the occupations in the home-industry schools of Germany; such was the nature of the woodwork started in London in the '80's. They differed but little from trade employments. Then there arose a reaction against this bread-and-butter education, with a swing to the opposite extreme. The work was now to be purely disciplinary. Its purpose was to produce skill. What was made did not matter: it was the making of it that was important. Innumerable joints were made—and then thrown away. But it was not long before it was realized that the same result could be obtained in a better way; it was realized that the pupil is much more interested in making complete objects which can be put to some practical use (especially if it is for his own use); and it was found possible to devise a scheme of models forming a series of gradually increasing difficulty, which would give him the sense of doing something that was worth doing, and at the same time secure the wide and general training desired. This is Sloyd as conceived by Herr Salomon; and it must be admitted that the most general form of handwork in all countries to-day consists of Sloyd woodwork adapted to meet local needs. The tools peculiar to the system have been discarded, the construction of some of the

joints has been improved, and the models have been more closely associated with working drawings; but in all essential principles the dominant system is Sloyd woodwork. Finally, there arose in America, mainly under the influence of Dewey, the doctrine that handwork may be made the central and co-ordinating factor in a system of cultural studies; and that, failing so revolutionary a change, it may, by simple correlation, be made a very potent means of vitalizing the ordinary branches of instruction. This has been the controlling spirit in the introduction during recent years of varied types of handwork into the middle classes of the elementary schools.

Of all these systems, the only one that seems to be quite dead is that which consists solely of disciplinary exercises. The others survive either in their original or in slightly modified forms. The "expression" and "interest" factor finds its most congenial home in America; the rigid scheme, and the vocational bias, in Germany. Even in America, the vocational claim still conflicts with the claims of a wider culture. But the problem no longer takes the form: should the handwork course aim at a wide and general training, or at a specific preparation for some kind of industrial pursuit; but rather: at what stage in the pupil's career should the former aim be superseded by the latter? And this is a real and vital problem which educationists of all countries will sooner or later have to face.

P. B. B.

HANDWORK ASSOCIATION, EDUCATIONAL. —This association was formed in 1904 by the amalgamation of the British Sloyd Association and the Educational Handwork Union. Its objects are to serve as a means of intercourse between members and others interested in educational handwork; to make educational handwork better known, and to show its importance as an essential factor in education by means of lectures, pamphlets, practical demonstrations and discussions; to promote the introduction of educational handwork into all primary and secondary schools; and to encourage and assist, wherever possible, in the provision of special training of teachers. Certificates are granted in the various branches of the subject, and summer schools are held annually in England and Sweden for teachers. A library is open from August to May for the use of members and books can be borrowed.

Educational Handwork, the journal of the association, is published monthly.

HANDWRITING.—Handwriting may best be taught with the tool which evolved the characteristics of the letter-forms we still retain in our print, but have degraded in our pen-work. Like other crafts dependent upon tools it cannot safely disregard man's experience and selection of that by which it has been developed. This tool was a comparatively broad and stiff edge, not a pliable point. And degradation is due to the variations introduced by the pliable point since the invention of printing, and to the neglect of relation between our every-day writing and printed types. Before the invention, handwriting had all literature to itself: a stately method for books and a speedier for common use, many degrees of finish and pace separating the two ends of the scale, which may be generalized as "formal" and "cursive"; the more formal forgoing something of speed for beauty of detail, the cursive of finish for speed's sake. The same traditional standard of form, however, applied to all; and, broadly speaking, the same characteristics of craftsmanship, uniformity (or order), and contrast (or variety) of thick and thin strokes, with gradation from one to the other, a characteristic introduced by the reed and perpetuated by the quill pen, cut broad to be firm and regular in action. But when books came to be printed, and the consummate hand-making of written letters fell into disuse, cursive lost sight of its relation to the printed substitutes, bereft of the former steadying, standardizing influence of a contemporary formal hand, and became the prey of carelessness, caprice, or dexterity of display; the methods of mechanical reproduction and in particular the copper-plate engraving of copy-books, adapted less for teaching children writing than for the ostentation of engravers, assisted the degradation, to which a national loss of taste with regard to this as other handicrafts has also contributed, and latterly the hurry of commercialism.

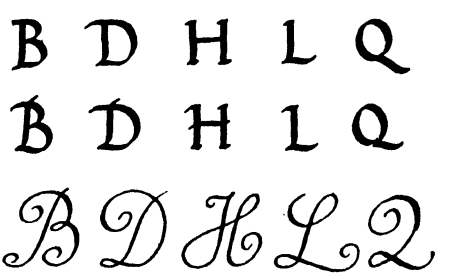

FIG. 1.

We have only to compare these formal and cursive letters of the fifteenth century with those of our copy-books to recognize the futility of the pliable pen. Our printed forms have not been so corrupted.

The remedy lies in a return to the tool and the standard evolved by many centuries' experience, and the method achieved by the fifteenth century in Italy; a method which, on its introduction into our country in the sixteenth, has always been associated with the name of Roger Ascham, and in its purity is inseparable from our present standard of printed types, which is likewise Italian in origin.

Tool, Purpose and Style. Respect should be given to the history of this tool, and in particular to the characteristic of contrast arising inevitably from its broad edge, and fostered through the ages by its association with parchment. We possess the work, both formal and cursive, of the Italian scribes, and can study the dependence of the latter upon the technical authority of the formal, and what is discarded or modified for speed's sake. In both we find the delight in contrast and a certain roundness of form, the pen preferring the ease of curves as the chisel the definition of angles. The cursive quickened the making by the omission of certain neat extra touches given to heads and feet, and substituted rapid little hooks; it reduced the roundness to ovals, and often to up-and-down diagonal strokes, and, adopting a rather more pliable pen, applied a slight pressure to the down-stroke, releasing this on the up-stroke, so making the former still thick but the latter thin, and also easing certain connections. It took few liberties with the standard forms, however, other than these adjustments

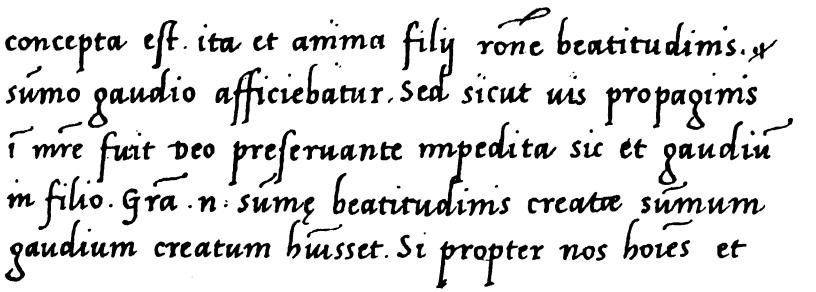

FIG. 2.

involved. For its influence on the development of form seems to have ceased long before that time. But after the invention of printing and the removal of the habitual restraint of formal practice all bounds were disregarded to the looping and superfluous flourishing of pens cut ever more finely and pliably. And the legibility of handwriting became rapidly other than the legibility of books. (See Fig. 2.)

The broad pen precludes all such trivialities, and more readily produces uniformity and dignified contrast. It renders all downstrokes equal without the varying uncertainty of added pressure; and the child is at once interested in observing that it makes thick and thin strokes " of itself " according to the direction of its movement, and moreover those surprisingly smooth gradations from one to the other which seemed so inimitable; his instinct for craftsmanship is aroused. The broad pen also dispenses with a continuity of connecting string. This may well be employed where convenient, not otherwise. In the Italian hands the letters were more often combined by clamping as they were formed one after the other. A continuous string running through the words does not necessarily make for speed, and certainly not for clearness. Indeed many writers drop it for speed's sake.

Forms. The following alphabets may assist in the use of the broad pen and the standard advocated. They are drawn from the writing books of the

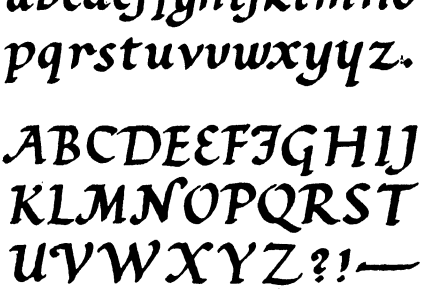

FIG. 3.

sixteenth century, and that of Palatino in particular. An example of their use in combination is also given(Fig. 4).

The pen is the great matter, and now that many makers sell broad-edged pens the cutting of quills is no obstacle. But beyond the pen there are three elements to consider for any sort of good writing—clearness, beauty, speed, in due proportion; and together with these fair arrangement. Clearness

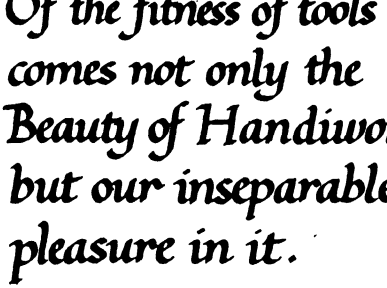

FIG. 4.

comes of customary forms, sufficient difference of the letters for easy recognition, sufficient uniformity, and compactness. Beauty comes of simplicity, proportion, and appropriate penmanship; speed of regularity, simplicity, and use of method and form.

With one thing the child need not be troubled, and that is " character." A character of craftsmanship should be fostered indeed, but that is not personality. Personality can but be provided with a reasonable means of expressing itself.

For young children a tube of water-colour lampblack with water makes good and harmless ink.

G. H.

HAPPY EVENINGS' ASSOCIATION, THE.—(See PLAY CENTRES.)

HARLEIAN LIBRARY.—(See LIBRARIES IN THE EIGHTEENTH CENTURY.)

HARRIS, WILLIAM TORREY (1835–1908).—An American schoolmaster, superintendent of schools and, from 1889 to 1906, Commissioner of Education in the United States. As a student of philosophy he was a follower of Hegel, and wrote *Hegel's Logic*. For twenty-six years he edited the *Journal of Speculative Philosophy*, and he was also editor of the *International Education Series* and Webster's *New International Dictionary*. Hegel taught that the child has a right to be educated, and that education is the discipline or process by which a child is enabled to outgrow his subjective and negative moral condition. According

to Harris, the function of education is "to correlate the child with the civilization into which he is born," and the branches to be studied will be determined by the demand of civilization. In his view the child begins with an ignorance of civilization and must be taught everything. Family life should teach good habits, school life should teach civil relations, love of order, industry and many virtues. In regard to intellectual education he says: "cultivate the humanities first, and afterwards the industrial faculties." Harris's writings comprise many volumes on educational subjects, and reports on American schools.

HARROW SCHOOL.—In 1571, John Lyon, of Preston, a hamlet included in the parish, secured a royal charter to found a free grammar school at Harrow. He had long been paying for the education of thirty poor children, and evidently planned an extension of the work during his lifetime and its continuance on a larger scale after his death. Lyon is modestly described as a "yeoman," but he was clearly a gentleman of property and social connections. The ordinances and statutes which he drew up for the school provided that within six months after his death, or after his wife's death if she survived him, the governors should meet and appoint a schoolmaster, not less than M.A., and an usher, whose stipends were to be £20 and £10 a year respectively if Lyon left an heir, or 40 marks and 20 marks, with 5 marks each extra for firing, if there was none, as was the case. These were small salaries, even for those days when money had so many times greater a purchasing power than it has now. The rules appended to the statutes, therefore, extended the scope of the foundation, and permitted the schoolmaster to receive "foreigners" (non-parishioners), of whom he "might take such stipend and wages as he might get." No accommodation was provided for boarders, and the two masters had only a room each in the schoolhouse, so the "foreigners" were probably local, but extra-parochial, boys; boys of the parish were to receive free education. Four leaving exhibitions were provided, of the annual value of £5 each—two at Oxford and two at Cambridge—the latter being confined to Gonville and Caius, probably on account of Lyon's friendship with Dr. Kaye or Caius, master and second founder of the college, who resided at Ruislip. The governors were directed to accumulate the income of the endowment for three years so as to provide £300 with which to build the schoolhouse: it actually cost twice as much. Lyon died in 1592, and his wife in 1608. Soon after her death, building began; it was interrupted by litigation; and not until 1615 was the school at last opened. It contained forty free scholars; the number of paying pupils is unknown.

From Grammar School to Public School. The curriculum laid down shows plainly that it was then exactly what its founder meant it to be: a mere country grammar school. Not for more than half-a-century was it to begin to develop into the great public school as we know it. To a succession of Etonian head masters, beginning with William Horne in 1669, Harrow owes its remarkable growth. Contrary to the statutes, Horne was allowed to marry and to rent a house in the village, in which he took boarders. He governed 120 boys, and there were other boarding-houses kept by "dames," as at Eton. In the eighteenth century the Duke of Chandos, who lived at Canons, brought a number of boys of good family to the school. Thackeray (great-grandfather of the novelist) and Sumner came from Eton and raised the tone of the school. On Sumner's death, Samuel Parr, second master, claimed the headship; but the governors appointed Heath, an Eton master. There was a school rebellion; the school was closed for nine days, and a number of boys were expelled. Parr opened a private school at Stanmore with about forty of the boys, but it lasted only five years. Heath proved an excellent head; and under his successor, Drury, the school rose to 350; among Drury's old boys were four Prime Ministers—Peel, Palmerston, Aberdeen, and Goderich. Then came the first of the Butlers, George, who was followed by Longley and Wordsworth: under the last two the school declined rapidly and fell to sixty-nine. The creator of the modern Harrow was Charles John Vaughan, who brought from Rugby Arnold's public school system depending on "the principle of graduated ranks and organized internal subordination." The monitors were entrusted with authority in questions of "manners," the masters taking care of "morals" and work. Vaughan raised the attendance in fifteen years to 469. He was succeeded by Montagu Butler, Bishop Welldon, and Dr. Joseph Wood. The school is at present governed by the Rev. Lionel Ford, and contains upwards of 600 boys.

Modern Harrow. The school buildings are scattered all over the town. The Old Schools, containing the original building, now called the Fourth Form Room, are near the top of the hill; and close by are the Chapel, the New Speech Room, the Library, the Science Schools, the Museum, and the Music School. Masters' boarding-houses are at various distances; each contains about forty boys, the head master's about seventy, and half-a-dozen "small" houses each accommodate nine. There are a few "home-boarders," but the Lower School of John Lyon, an entirely independent day-school, now represents the founder's original scheme for the education of boys of the district.

Organized games are, of course, a prominent feature of the Harrow system. Cricket comes first, the season culminating in the annual match against Eton at Lord's. There are magnificent playing-fields, such as the Philathletic and Nicholson grounds. Harrovian cricketers have been for many years the backbone of English county cricket. Football flourishes, and there is a peculiar Harrow game played with a rather heavy ball called "Larry"; Rugby is also cultivated, and Association, too. At Racquets, Harrow was long pre-eminent, and is still most redoubtable; Fives and Squash Racquets are also much played. There is no river, so there is no rowing; but bathing in "Ducker" is very popular. The Rifle Corps is large and efficient; its shooting is excellent, and the Ashburton Shield and the Spencer Cup have both been repeatedly won at Bisley.

In school, there are three divisions: Classical Side, Modern Side, and Army Class. Greek is confined to classical boys; the rest do German. Latin, History, Divinity, French, and Mathematics are common to all, and moderate specialization is permitted, especially in Science. A feature of Harrow is its singing: its school songs are famous all over the world.

The Harrow Association keeps Harrovians in

touch with one another and with the School; Founders' Day and Lord's also bring them together.

HARTLEY, DAVID (1705–1757).—A Cambridge scholar who studied for the church, but, dissenting from some points in the Thirty-nine Articles, gave up his intention and took up the profession of medicine. He became eminent as a physician, but is chiefly famous for his *Observations on Man* (1749), a treatise on the constitution of the human mind, and on religion and morals. In relation to the human mind, he discusses the theory of nervous action analogous to the propagation of sound, and known as the Doctrine of Vibrations. This theory supposed that when one of the senses is affected, vibratory action is set up in the nerves which carry the sensation to the brain, and similarly that impulses are carried from within by vibratory motion along the nerves. He also was the first to demonstrate that the principle of Association of Ideas explained the faculties, powers and feelings of the mind. His views roused much opposition, because they were generally supposed to favour a belief in materialism.

HARTLEY UNIVERSITY COLLEGE.—(See SOUTHAMPTON UNIVERSITY COLLEGE.)

HARTLIB, SAMUEL (? 1600–1670).—The chief educational publicist of the Commonwealth times, was the son of a Polish merchant of Elbing. The son came over to England about 1628. For his public services in England he was awarded, in 1646, a pension of £100, which was afterwards raised to £300 a year. He was associated with John Dury as early as 1633. In 1644, Milton addressed his *Tractate of Education* to Master Samuel Hartlib, and states that he had written it "at your earnest entreaties and conjurements." His writings consist of thirty-two treatises on most varied subjects, mostly short pamphlets or mere tracts. He lived at one time near Angel Court, Charing Cross; at Duke's Place, Holborn; and at Axe Yard.

The Office of Address. He apparently had no settled profession or trade, but made himself "acquainted with the literary, scientific, theological, and political information of the day." He was an amateur director of educational inquiries, longing to become the head of an officially recognized national Bureau of Education, whose functions should be concerned with universal knowledge, and not merely with narrow educational information. He wrote *Considerations tending to the happy accomplishment of England's Reformation in Church and State*, which he presented to Parliament in 1647. In this treatise, Hartlib suggested a registry to help the poor to employment and to distinguish the industrious from the idle. He is thus the first publicist in England to suggest registries for the unemployed and bureaus of labour. His further suggestion of the Bureau of Education is very wide in its scope. In religion, the "Office of Address" is to endeavour "to facilitate the means of rectifying mistakes, and of promoting the increase of decisions about matters of dispute." In education, the Director of the Office is (1) to put in practice Francis Bacon's suggestions; (2) and to help to perfect J. A. Comenius's undertakings, chiefly in the method of teaching languages, sciences, and ordinary schools for all ages and kinds of scholars. He further suggests a Patent Office for all inventions, not so much to safeguard rights as to disseminate information as to discoveries for the good of all. He suggested that one of the Oxford Colleges should be utilized (together with the revenues) for the Office of Address, and interchange of knowledge be established from it not only throughout this kingdom, but with foreign nations as well. In 1649, Hartlib issued his *Further Discovery of the Office of Public Address*. No effective response was provoked at Oxford; and, in 1652, Hartlib wrote again on the subject under the title of *The Reformed Spiritual Husbandman*, giving up the Oxford idea and containing a "Memorandum" pleading for the appropriation of Chelsea College (*q.v.*) for the furtherance of his suggestions in the *Considerations*, now slightly modified. Hartlib's proposal was for a "public centre of good intelligence and correspondence with foreign Protestant churches in the cause of religion and learning." He proposed the continuance of the old number of "native" fellows, and, in addition to them, one fellow of every Protestant nation of "different language," whose duty should be to conduct foreign correspondence with his own "native church." Hartlib was thus often associated with unsuccessful projects. The chief projects fell through. There can be little doubt that it was through Hartlib that Parliament had previously considered the allocation of Chelsea College for Comenius's attempt to open a Universal College, "solely devoted to the advancement of the sciences," in September, 1641—a scheme frustrated by the opening of the Great Civil War.

Educational Schemes. Hartlib wrote on various aspects of education. In 1637 and 1639, he presented accounts of Comenius's educational opinions. In 1642, his treatise, *A Reformation of Schools*, further described Comenius's views. In 1648, he gave an account of Dr. Cyprian Kinner's practical endeavours to conduct school in accordance with the principles of Comenius. In these expositions of Comenius's views, together with the description of the work of an *Office of Address*, it is clear that Hartlib worked in consultation and harmony with Dury and Comenius; and the frequent allusions to the aim of the "advancement of learning" show how consciously the efforts of all three were primarily based on Francis Bacon. Hartlib, in 1651, advocated an Agricultural College in his *Essay for Advancement of Husbandry learning; or propositions for the erecting a College of Husbandry; and in order thereunto for the taking in of Pupils or Apprentices*, etc. Nor was he without interest in the general educational current from the Renaissance, including the great problem of language teaching. He edited extracts from Lubinus, Richard Carew, and Montaigne in 1654 under the title *A True and Readie Way to Learn the Latin Tongue*. Among the educationists whom he encouraged to publish their views, besides John Milton, John Dury, and Comenius, may be named Abraham Cowley, John Evelyn, John Hall, Sir William Petty, George Snell, John Webster, and Hezekiah Woodward. He entertained Adam Speed, a writer on husbandry, whilst writing one of his works; and considerably helped Gabriel Plattes, a writer on chemistry; and showed himself a benefactor to the poor mathematician Pell, who died in want in St. Giles, Bloomsbury.

Hartlib's favourite scheme was that of the *Macaria*, published in 1646, which was to bring about happiness in a community. It professedly aimed at the "reformation of the whole world." It was an attempt to make practical the social side of the educational Pansophia of Comenius. In

religion, Hartlib identified himself with Dury as a strenuous advocate of the union of all Protestant Christendom.

Hartlib is supposed to have died in 1662, after four years of sad poverty. Unfortunately, a fire burnt a portion of his papers and MSS.

The best description of Hartlib is by David Masson: "Everybody knew Hartlib. By the common consent of all who have explored the intellectual and social history of England in the seventeenth century, he is one of the most interesting and memorable figures of that whole period. He is interesting both for what he did himself, and also on account of the number and intimacy of his contacts with other interesting people."

F. W.

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HARUN-AR-RASHID.—(See MOHAMMEDAN EDUCATION.)

HAUY, VALENTIN.—(See BLIND, EDUCATION OF THE.)

HARVARD, JOHN, was born in Southwark in 1607, and went to New England in 1637. He died in 1638, and bequeathed his books and a sum of money to assist in the founding of a college for the education of English and Indian youths "in knowledge and godliness." The college was founded in the same year at Cambridge, Mass., to train men for the Puritan ministry, and was named after Harvard. (See also HARVARD UNIVERSITY.)

HARVARD UNIVERSITY.—Harvard College was founded, in 1636, by a vote of the General Court of the Colony of Massachusetts Bay, granting "towards a school or college" the sum of £400. During the ensuing year, twelve of the most eminent men of the colony, among them John Winthrop and John Cotton, were appointed to "take order for a College at Newtown." The name of the village was, however, soon changed to Cambridge, because so many of the colonists had been educated in the English University of Cambridge.

In 1638, John Harvard, of Southwark, England, who had been only one year in America, bequeathed to the College half of his estate and his library of 300 volumes. This made possible the immediate opening of the College, which was appropriately named after its first benefactor.

In 1642, by an Act of the General Court, the government of the institution was placed in the hands of a Board of Overseers, composed of the Governor and Deputy-Governor, all the magistrates, and "the teaching elders of the six adjoining towns."

In 1650, a Charter was granted making the College a corporation administered by the President, four Fellows, and a Treasurer—a self-perpetuating body to be known as the President and Fellows of Harvard College; their acts to become law, however, only when sanctioned by the Board of Overseers. This Charter, confirmed and somewhat amplified in 1780 in the Constitution of the Commonwealth of Massachusetts, remains to-day the guarantee of the rights and privileges of the University. The Governing Boards retain their original titles and duties; though there have been successive changes in the constitution of the Board of Overseers, until now its members, thirty in number, are elected by the whole body of graduates of the University. There is no restriction as to religion or place of residence.

During the seventeenth century and a good part of the eighteenth, Harvard College had to struggle for existence. Even with the generous gifts of such men as Thomas Hollis, of London, its financial condition was precarious, and its teachers ill-paid or not paid at all. Religious issues caused infinite trouble. The stricter Puritans, including such men as Cotton Mather, endeavoured, unsuccessfully, to suppress freedom of thought, and founded Yale College in 1701 as a protest against the growing liberalism of Harvard. Succeeding presidents, however, exercised their authority with prudence and foresight, and were usually loyally supported by the colonial magistrates. Harvard was already turning out men who were to take first place in the councils of the nation.

The range of subjects covered by the curriculum was, at first, necessarily small. Great stress was laid on Biblical study; in addition, there was work in Classics and Mathematics, with the gradual introduction of Hebrew, Philosophy, and, finally, Modern Languages; but before 1800 the work of the College might better be compared to that of an English public school than to that of a university. The entire course was rigidly prescribed until 1824. From that time on, the influence of such men as Agassiz, Prescott, Ticknor, Everett, and Bancroft brought rapid changes. Many of them had studied in German universities, and had gained a sense of the meaning of scholarship. The changes were, nevertheless, slow; and it was not until the administration of President Eliot (1868–1908) that Harvard developed into a great university. Under Mr. Eliot, the requirements for admission were raised and broadened; instruction in the College, as in the Graduate Schools, was expanded; and professional training was raised to the dignity of graduate work.

The first class to be graduated from Harvard College, that of 1642, had nine students. By 1700 the College had about seventy students in all. In 1800, forty-seven men were graduated, and the lower classes were somewhat larger. At the beginning of President Eliot's term of office, there were 1,051 in the whole University; when he resigned there were 4,012. In 1915 there were 5,226 students, and the teaching staff numbered 892. The graduates of Harvard University up to 1915 numbered 37,500, of whom about 23,000 were then living. Harvard is no longer the largest American university, nor is it ambitious to regain that eminence; but, excluding extension work, it still has the largest enrolment of resident male students. As might have been expected, the number was more than cut in half when the United States entered the European war, as most of the able-bodied students volunteered for service.

Departments of the University. Of the various departments of the University, HARVARD COLLEGE is the largest, and, as President Eliot said, "the oldest, the most essential, and the most beloved department." It is governed by the Faculty of Arts and Sciences, which controls also the Graduate School of Arts and Sciences and the work of University Extension, including the Summer School. The membership of the Faculty is composed of all administrative officers and teachers in these departments, who hold more than annual appointments—177 in all. It meets fortnightly for discussion and settlement of questions submitted by Divisions, Departments, or Administrative Boards. The Administrative Boards, appointed by the President, have charge of all disciplinary matters, only the most serious being reported to the Faculty for ratification of the action taken. There are eighteen Divisions, of which several—those of Ancient Languages; Modern Languages; History, Government, and Economics; Philosophy; Physical Sciences, Biology, and Geology—are sub-divided into Departments, covering separate fields of instruction. In 1916, the Faculty of Arts and Sciences had under it 3,117 resident students—2,519 in the College and 598 in the Graduate School.

To obtain the degree of Bachelor of Arts or Bachelor of Science, a student in Harvard College must pass sixteen full courses of elective work, a prescribed course in English, and one in French or German, if he has not presented both languages at entrance. A course consists of three lectures, or two lectures and a conference with the instructor, each week throughout the college year, with such written work and prescribed reading as may be demanded, the whole tested by three-hour written examinations at the Mid-Year and Final periods. He must also pass an oral examination in French or German, and be able to use written English to the satisfaction of his instructors. The unrestricted freedom of choice over the whole field of courses which existed under President Eliot has, however, been abandoned. Although without prescription of specific courses, the work of every student is guided by a Faculty adviser. The student must elect a field of concentration in (1) Language, Literature, and the Fine Arts; (2) Natural Sciences; (3) History, Government, and Economics; or (4) Mathematics and Philosophy. Within one of these groups he must take at least six courses—not more than two elementary in character, four of the six within a more restricted field (*e.g.* French, Chemistry, American History, or Psychology). Furthermore, he must distribute six courses through the three groups in which he is not concentrating. The purpose of this, in President Lowell's words, is that "a student, on graduation, shall know one subject well, and something about several other subjects."

In the educational world the graduate departments of Harvard University constitute its chief claim to distinction. The GRADUATE SCHOOL OF ARTS AND SCIENCES, most closely affiliated with the College, has 598 students, of whom 28 are from foreign countries, and the rest from 176 different American colleges and universities. This School grants the degrees of Master of Arts, Doctor of Philosophy, and Doctor of Science: the Master's degree after a year of residence and the completion, with credit, of four allied courses; the Doctor's degree after a minimum of two years' residence and the presentation of a thesis which must be "an addition to human knowledge." Standards for this degree are higher than in the German universities and, in some fields, tend to equal the standards demanded for the degree of *Docteur-es-Lettres* at Paris. The School is not strictly professional, but a large proportion of students look forward to teaching as a career. On this School depends largely the scholarly reputation of the University.

The MEDICAL SCHOOL, situated in Boston, is the oldest graduate department. It was organized under a separate Faculty in 1816, but did not become a distinctly graduate school until toward the end of the century. It grants the degrees of Doctor of Medicine and Doctor of Public Health, and in 1916 had 336 students. The course covers four years, and most graduates take a year or two of hospital work in addition. Its equipment is perhaps the best in the University, and about its buildings are grouped most of the important hospitals of Boston.

The LAW SCHOOL, with 789 students in 1916, was established in 1817, and is the oldest, as it is universally admitted to be the best, in America. After the appointment of Professor Langdell in 1870, the Law School gave up the old lecture and text-book method of instruction and adopted the case system, by which students are made to work out legal principles for themselves. The School has grown steadily in strength and numbers, even though the standards have been often raised and the work made more severe. The library of the Law School is probably the finest legal library in the world.

The GRADUATE SCHOOL OF APPLIED SCIENCE is the most advanced Technical school in America. Its laboratories have the finest modern equipment and it plans shortly to erect buildings with equal facilities for other scientific work. Large revenues, high ideals, and an admirable staff of teachers, should make this one of the best schools of advanced technical education in the world.

The non-sectarian DIVINITY SCHOOL shows, also, a fine spirit of co-operation in admitting to its courses, without charge, students of the various theological schools in the vicinity.

The new GRADUATE SCHOOL OF BUSINESS ADMINISTRATION, with 182 students from all parts of the country, aims at training men in the more technical aspects of business. Only college graduates are admitted, and the students, after taking certain general courses, specialize in that branch of business which they expect to enter.

The University has also a SCHOOL OF ARCHITECTURE; a SCHOOL OF APPLIED BIOLOGY in the Bussey Institution; a SCHOOL OF DENTAL MEDICINE; and a GRADUATE SCHOOL OF MEDICINE, where young doctors may take highly specialized work. It controls the work of the Blue Hill Meteorological Observatory, the Astronomical Observatory, the Arnold Arboretum, and the Botanic Garden and Herbarium. The University Museum contains remarkable archaeological, botanical, zoological, mineralogical, and geological collections; and there are also separate Semitic, Germanic, Social, and Art Museums, the last-named having a specially notable print department.

The University Library, recently installed in a new building, contains the best, though not the largest, collection of books and pamphlets in America. All but one of the original volumes bequeathed by John Harvard were burned in the eighteenth century, but from that meagre nucleus the collection has grown until it now numbers

675,000 volumes and 433,000 pamphlets in the central library; the books and pamphlets in the various departments of the University bring the total up to 1,883,000. With its unrivalled special collections, the Harvard Library is the resort of scholars from all America.

The aim of Harvard University is to hold high the standards of scholarship, to depute its teachers to instruct those who cannot attend the University, to send forth every year a body of graduates capable of improving and eager to improve the life of America—graduates of the College who have sound moral and intellectual foundations on which to build—graduates of the Professional Schools with the most thorough technical training.

W. R. C.

HAVERFORD COLLEGE, Pennsylvania, was established in 1830 as a school by the Society of Friends for the education of children of members of the Society. In 1856 the school became a college, and obtained authority to grant degrees. It has about 150 students and 24 professors, and grants degrees of A.B., B.S., and M.A.

HAWTREY, EDWARD CRAVEN (1789–1862).—Was educated at Eton and Cambridge, and was so impressed by the roughness of Eton, that, on becoming a tutor there, he undertook the refining of the school, which was the chief reformation that he effected. He became assistant master at Eton in 1814 and head master in 1834. His influence gave a great impetus to the work of the school, increased the spirit of manly religion among the boys, and put an end to the use of the birch as the sole incentive to work.

HAZELWOOD SCHOOL, conducted by Thomas Wright Hill and his six sons at Edgbaston, was highly distinguished among English schools in the past century for the number and importance of its new departures in Education. These are set forth in *Plans for the Government and Liberal Instruction of Boys in Large Numbers; as practised at Hazelwood School* (p. 348), reviews of which may be found in Thomas de Quincey's collected works and in the *Edinburgh Review*, January, 1825 (by Captain Basil Hall). Of the second edition, which appeared in 1825, there was a reprint in 1894.

The real author of these "Plans" was the third son, Rowland (afterwards Sir Rowland, better known as the Postal Reformer), though his elder brother Matthew Davenport, afterwards K.C. and Recorder of Birmingham, gave his constant assistance in discussing them and committing them to writing. Their father from his early association with Dr. Joseph Priestley, had developed a great interest in natural science and in speculative inquiries; and this interest he transmitted to his sons. Rowland had from early years shown great skill in making models and scientific apparatus, and was already displaying his marvellous powers of organization; and from an equally early date he had been attracted by the writings of Maria Edgeworth and her father.

Methods and Subjects. By far the most important of these "Plans" is that providing for the self-government of the school. The masters ruled in the classroom; the boys ruled elsewhere, through a committee chosen by themselves, in which one master was present more for the purpose of joining in the discussion than of voting. This committee drew up a code of laws, each of which had to receive the consent of the principal before it became operative, a consent (as it happened) never withheld; appointed the officers of the school; established a jury-court; and administered rewards and punishments by a system of counters or school currency. Rewards and fines thus dispensed made it possible to abolish corporal punishment and impositions. It was all terribly complex, but in the hands of the inventors it worked; and the sense of responsibility steadied the character.

But the subjects and the methods of instruction were also remarkable, as compared with those prevailing at the time. For instance (*a*) languages, ancient and modern, were taught by what was at any rate an approach to a natural method; (*b*) in the teaching of the mother tongue much attention was paid to composition and a clear, effective elocution; (*c*) full importance was given to the mathematical side (not until the middle of the century could this be said of Winchester and the Public Schools generally); (*d*) unusual attention was paid to natural science and (*e*) to manual occupations; (*f*) every piece of voluntary work, done in the pupil's own time, and of course chosen by himself (*e.g.* an etching, composition in prose or verse, a part learnt, a book read, a model made), received its meed of marks in currency, and so was linked up with the ordinary school work.

The school by this time had become famous. It was visited by Wilberforce, Grote, Jeremy Bentham, Bishop Maltby, and many other men of note, and drew pupils from the ends of the earth. A branch establishment was formed at Bruce Castle, near Tottenham, which was conducted for three or four decades by Mr. Arthur Hill. A corresponding school was set on foot in a S.E. suburb of Stockholm. Of this we have a history much more complete than that of the parent school, under the title *Hillska Skolan* 1830–1846, by Harold Ericsson, p. 164 (Stockholm, 1885). It gives the history year by year with full lists of the teachers, the shareholders, and the pupils from first to last—nearly 400 in number. It might well have existed to the present day, had the Swedish Government possessed as wide an appreciation of educational research and experiment as it has shown for the last two generations.

To such an extent had Hazelwood died out of memory that in Mr. R. H. Quick's *Educational Reformers* it is not so much as mentioned; and yet the least reflexion will show how far-reaching was its influence in modernizing secondary education in England. The "Plans" were published when Arnold was still at Laleham, and when he went to Rugby, five or six years later, they were in everybody's mouth. It is impossible not to believe that he was greatly influenced by them in adapting the methods he was familiar with, as a boy at Winchester, to Rugby requirements. J. S. T.

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HEAD MASTER.—The title in general use in England for the principal teacher in charge of a school. The title applied by the Board of Education to such a person is head teacher, and to each of his subordinates the name "assistant teacher" is given. The name "master" alone was used until recent times, and the assistant teacher was known as an usher, and never as a master. The principal

of a secondary school is known as its head master, and the title is also applied to some principals of public schools. But in many of the chief colleges the title "head" alone is used, or a different title, such as high master at St. Paul's School, London.

HEAD MASTERS, INCORPORATED ASSOCIATION OF.—Founded in 1890 as the Head Masters' Association and incorporated in 1894. Membership is open to Head Masters of Secondary Schools under public management in England.

The original purpose of the Association was to take united action or to make recommendations in public and professional matters. Its council has entered into communication with the Board of Education and with the Universities of Oxford, Cambridge, London, etc., and many of its members are also members of the Education Committees of County Councils. With other educational bodies, it has formed a federation of associations for secondary education, and has secured a systematic recognition of secondary schools, and a definite provision for the public supply of secondary education.

The Association originated the Joint Scholarships Board and through it has established a scheme for the award of County and other scholarships.

It holds an annual general meeting in London on two days in January of each year.

HEAD MISTRESSES, THE ASSOCIATION OF.—Founded in 1874 by the late Miss Frances Mary Buss (*q.v.*) who was its president until 1894, and incorporated in 1896. Head mistresses of approved secondary schools with more than fifty pupils in the Colonies, India, and the Dependencies are eligible to become members or correspondents.

The objects of the Association are to support the status and interests of women engaged in education generally and especially in secondary education; to facilitate intercourse between head mistresses, assistant mistresses, governors, managers, and others interested in education; to consider all matters relating to the interests of the teaching profession, and to support or oppose measures in Parliament affecting it.

The annual conference is held in June alternately in London and the provinces and is open to members only.

HEAD TEACHER.—It is stated in the article on CERTIFICATED TEACHER (*q.v.*), that a head teacher must have had his (her) certificate endorsed at the conclusion of twelve months' satisfactory teaching, which must be done during the first two years after the certificate is awarded, so that by experience the teacher has at any rate begun to understand the practical meaning of those principles of teaching he has learned before obtaining his certificate.

Actually a teacher has to serve several years before being able to expect promotion, because a head teacher needs a wider experience and a deeper wisdom than a young man or woman of 22 years has usually acquired. The duties of a head teacher are such as to demand a sound judgment, hampered neither by the rashness of youth nor by the excessive caution of the man who has forgotten what it is to be young.

Before one can explain precisely the duties of a head teacher, it is necessary to give a short account of a public elementary school. At the conclusion of the section about certificated teachers, the term "department" was used as an alternative to "school"; this needs explanation.

A "school" in England usually means a building, or group of buildings, in which children are taught. The administrative consequences of this definition afford a valuable study, but this is not the place for it. Nor can we trace here the historical causes leading to the acceptance of this definition.

A child's school life falls into two periods, which are of course divisible into shorter periods. The two main periods are infancy, when the child is between 3 and 7 years of age, and childhood, when the child is between 7 and 14; in the former period the infants' department of the school building provides accommodation for the pupil; in the latter period a boy finds himself in the boys' department; a girl spends her school life in the girls' department, unless there is a portion of the building where the classes contain both boys and girls, in which case there is a mixed department. Some buildings have accommodation for two more or less parallel series of classes—one for boys only, and the other for girls only; such buildings, or portions of buildings, are called "combined departments," if they have but one head teacher or organizer.

The Relation between Departments. It is by no means necessary that the various departments in an English school should be connected otherwise than by being housed in the same buildings, and by providing instruction for the same children. It may happen that a child moves into practically another world on leaving the infants' department, and that the boys' department has not even a family resemblance to the girls'. For educational purposes the three departments might be separated by great distances. The professional functional relations between the departments depend to a great extent upon the personal relations between the three head teachers; the only unavoidable meeting-place of their respective departments is that afforded by the fact that children are promoted from the infants' department into the boys' department or the girls' department, and by the corollaries of that fact.

It will be clear that the head teachers of the senior departments and the head teacher of the infants' department must come to an agreement about certain factors of the internal working of each other's departments, as well as about the selection of children to be promoted.

This is a typical instance of the fact that the head teacher of a department represents as well as controls it. From this fact arise the importance and the multiplicity of the head teacher's duties.

Duties of the Head Teacher. The Board of Education and the Local Education Authority make certain demands upon his time. He is responsible to both of these administrative bodies for the correct observance, in his department, of their rules and regulations. He, therefore, has certain records to keep and to supervise—attendance registers (including admission register and summary register), stock book, log book, medical records, and punishment book. He has correspondence connected with the school to deal with; and the filling-up of returns may take a great deal of time at certain periods of the year.

Parents have a certain claim upon the time and attention of the head teacher. They have sometimes to accompany their children: *e.g.* on seeking admission; on the occasion of medical inspection,

and, very often, when determining the boy's future career, the parents wish to obtain the head teacher's advice and assistance, either in choosing a career for which the boy is suited, or in planning means for ensuring a successful entry into it. Complaints made by parents are occasionally a source of worry, and time has to be spent in investigation and in rectifying errors.

Employers, especially where the Juvenile Employment Bureau has not established its claims upon their support, seek the head teacher's assistance in connection with boys needing positions, or positions needing occupants.

In the internal organization of the department, the head teacher's influence should be paramount. He must inspire and co-ordinate the efforts of the other teachers in the department; he is expected to estimate their efficiency, to praise good work, to suggest remedies for bad. Young teachers must be trained, enthusiastic teachers' ardour must be directed into the proper channels. The relations of a head teacher with his staff are by no means limited to the planning of a curriculum and time-table as a guide for their work, and to the examination of the pupils at certain intervals. The head teacher must be more than an organizer, he must inspire by more than mere personal contact and by more than verbal suggestions—he must teach.

Function as a Teacher and Organizer. This is the crux of the whole matter. It is the misfortune of English elementary schools, and especially of the larger schools in towns and cities, that the most experienced teacher is so occupied with clerical and other routine work of organization, that he ceases, with few exceptions, to be a teacher. The pupils are deprived of the benefit of contact with the most mature yet most active mind in the school; the members of the staff are deprived of the best possible standard by which to measure their work; so that the pupils lose both directly and indirectly. The few exceptions to this general statement about public elementary schools share with the great head masters of public schools and grammar schools and other secondary schools the glory of living in the affectionate memories of their pupils.

Staff Conferences. The Head Teacher is naturally the Chairman at all regular conferences of his staff, and much of his influence in the school may be traced to his work at the Staff Conferences. At these conferences every member of the staff should feel at liberty to make suggestions for improving the work of the whole school. The general policy of the school work can be kept clearly before every teacher. The results of experiments in curriculum, arrangement of time-table, methods of study, methods of teaching, or other aspects of class-work, can be made available for the use of all the staff. Wise comment by the head teacher may be, and often is, of immense value on these occasions.

Salaries. The salaries of head teachers, are fixed according to scales based on the scales of salaries for certificated assistant teachers (*q.v.*). Unlike the salaries of assistant teachers they are definitely affected by the size of the school. The scales drawn up by the Joint Standing Committee in its first report do not define the minimum salary, but every certificated master on being promoted to be head master of a Grade I school receives a promotion increment of £20 per annum, and every mistress £15 per annum. Promotion to each higher grade brings with it a further increment of the same amount. The maxima for the various grades are shown below—

Grade	Average Attendance.	Maximum Salary of Head Master.	Maximum Salary of Head Mistress.
I	Under 100	£330	£264
II	101–200	£360	£288
III	201–350	£390	£312
IV	350–500	£420	£336
V	Over 500	£450	£360

Small schools with an average attendance of forty or less do not rank as Grade I schools except by express resolution of the local education authority. The Report of the Joint Standing Committee provides that an assistant teacher on promotion to the post of head teacher of a small school of this size shall receive a promotion increment of £10, and shall proceed by the normal increment of £12 10s. per annum to a maximum of £315 in the case of men, and £252 10s. in the case of women.

The normal increment of £12 10s. for head teachers applies to every grade of school.

It is to be noted that the salaries are fixed by the local education authority, and that the scales given in this article are the minimum scales which every authority is expected to adopt, because every authority was represented on the Joint Standing Committee. Many of the large towns have adopted higher scales, and in particular those authorities that have very large schools in their areas have divided Grade V schools into further grades.

This scheme has a certain commercial logic in it. Unfortunately, in some ways, the scheme disregards the amount of skill and organizing power demanded of the head teacher. The easiest school to organize is the Grade IV school, where the number of teachers is equal to the number of years which a pupil spends in the school. It is, in this case, possible to arrange that each class (*i.e.* the group of pupils taught by one teacher) shall be fairly homogeneous in knowledge and ability. The curriculum can be arranged in a straightforward manner, the position for each class containing one year's work.

But in a Grade I school, the number of teachers is necessarily less than the number of years of a child's school-life. This means that the number of classes is less than the number of years a pupil spends in the school, and therefore he must spend more than one year in at least one of the classes. As a result the knowledge and ability of the pupils in a single class in a Grade I school covers a wider range than the knowledge and ability of the pupils in a single class in a Grade IV school.

There are only two ways out of this difficulty. One is to have two classes working under the direction of one teacher every year, and to apply a Grade IV scheme and Grade IV teaching methods. This is the more usual plan, and it results in a great loss of efficiency, because Grade IV teaching methods are intended for a homogeneous class, and not for an avowedly dual class. The plan does not work in those subjects where the class works as a unit (*e.g.* in "oral lessons" such as history and geography). In such subjects a different scheme of work must be produced, if Grade IV teaching methods are to be employed. This is the second

way out of the difficulty. The planning of this scheme, however, demands more skill than the planning of a Grade IV scheme.

One of the great developments of the future, in English education, will come from more general success in dealing with the problems of the Grade I school, but it will not come as quickly as it should, unless the nation realizes that both the organization and the class-teaching in small schools demand very special powers on the part of the teacher. As long as the salary of a head teacher is paid according to the average attendance, so long will the best head teachers tend towards the larger and more easily organized schools; but the vital defect of the system is that the value of the work is estimated by its amount rather than by the kind of work done. It is the same error of judgment which causes some men to buy pictures at a price based upon the area of the picture. To correct any want of balance in this analogy, we must add that it is probably easier to paint a bad miniature than a bad picture 18′ by 12′. The point of the analogy is that the standard of judgment ought not to be quite the same in the two cases, and that the judgment ought to be based on appreciation of the art.

There is, of course, a point of view from which the present system of arranging salaries is justified apart from the fact that the income and the expenditure for each school should balance. If the primary duty of the head teacher is to know the pupils individually so as to assist the members of his staff, and the parents of the pupils, to give to each pupil the special training required, then clerical work and organizing must necessarily be subordinate to this duty. If, therefore, the clerical work increases less rapidly than the number of pupils, and the organization actually becomes easier, the amount of work and of the highest professional skill involved does actually increase in almost direct ratio with the number of pupils, and with the number of assistant teachers. A. C. C.

HEADMASTERS' CONFERENCE (Incorporated).—This first originated in a small meeting of Headmasters called by the Rev. E. Thring (*q.v.*) at Uppingham in 1869. A much larger body of headmasters met a year later at Sherborne; and at Highgate, in 1871, a regular constitution was constructed for the conference. Since then the conference has usually met annually at some selected school or college, the headmaster in each case acting as chairman and host.

Admission depends upon the administration and the size of the school, and the number of resident undergraduates at Oxford and Cambridge educated in the school.

The conference considers matters of general interest to the schools, such as subjects to be studied, school examinations and organization, and forms resolutions relating to these.

HEALTH ACTS.—(See PUBLIC HEALTH ACTS.)

HEALTH, MATERNITY AND CHILD WELFARE, THE NATIONAL LEAGUE FOR.—A strong federation of nine national organizations engaged in various ways in promoting the health of the nation. Founded in 1905, under the title of the National League for Physical Education and Improvement, it was the pioneer, with the National Health Society, in pointing out the need for education in health matters, gradually specializing in promoting the welfare of mothers and young children. It now includes the National Association for the Prevention of Infant Mortality, which undertakes the organization of national conferences and courses of lectures on Infant Welfare and promotes legislation on the subject; the Association of Infant Welfare and Maternity Centres, which links up the 2,000 existing Infant Welfare Centres in the Kingdom, organizes educational competitions for the mothers attending the centres and advises on the formation of new ones; the National Baby Week Council, which is the chief propaganda organ for the whole movement, and the National Society of Day Nurseries, which looks after the interests and promotes the formation of day nurseries and crèches. There are also the Travelling Child Welfare Exhibitions Committee, which provides education in mothercraft for a vast number of people by ocular demonstration every year; the National Council for the Unmarried Mother and her Child, which deals with a hitherto uncared-for section of the community; and, in addition to the League from which it sprang, the newer League includes the Women's Imperial Health Association, which is specifically responsible for educational work in connection with the health of women, other than mothers, and of young girls. Close co-ordination and consequent prevention of overlapping have been secured by these means and by the issue of the official organ, *National Health*, and a large number of other publications. All further information may be obtained from the Secretary at 4 and 5 Tavistock Square, London, W.C.1.

HEALTH TEACHING.—(See HYGIENE IN ELEMENTARY AND SECONDARY SCHOOLS, THE TEACHING OF.)

HEART STRAIN AMONG CHILDREN.—The mere fact of a fainting attack having occurred during or immediately after a school game is not of itself sufficient to decide whether a child is suffering from heart strain. A child with an organically sound heart may have an attack of faintness from several causes; among which may be mentioned—

(1) "Air hunger," from inefficient ventilation of the room in which the child has been working or sitting. A little extra exertion on a close day will have a similar effect. (2) Unsuitable food or excess of proper food, constipation, worms, etc. (3) Long walks or strenuous games soon after a full meal. This is a common fault in many schools and cannot be too severely reprobated. About 20 or 30 minutes after dinner should be devoted to "pottering about" or light reading. (4) The surreptitious cigarette—an evil that will probably grow now that children see their mothers and sisters adopting the habit. A far more reliable sign of possible heart weakness is shortness of breath after moderately increased exertion, especially if the return to normal breathing is unduly delayed. The transient loss of consciousness of minor epilepsy must not be confused with ordinary faintness.

Before proceeding further, the question may fairly be asked: Can an organically sound child suffer from heart strain? We unhesitatingly reply in the negative, for the exceptions are so rare as to be practically negligible. Constitutionally delicate and ill-nourished children are liable to break down easily under a strain that would

not affect the normally vigorous; and rarely, even among the former, is the heart primarily at fault.

Ætiology of Heart Disease. Since a healthy heart rarely suffers from strain as a result of the usual games, what, then, are the illnesses which, during their course or convalescence therefrom, are prone to damage the heart? The heart muscle may be poisoned by toxins generated during acute infection, or the valves may be inflamed from the same cause. The most striking instance of the former is seen in diphtheria, where the muscle may be so seriously weakened as to cause syncope and death. The inflammatory process may affect the valve either by causing narrowing of the orifice between the chambers, or by rendering their coaptation inefficient; in the former case, there is obstruction to the onward flow of the blood, while in the latter, there exists a leakage backward. In both cases the normal action of the heart-pump is interfered with, and its function can only be performed with increased labour. The object of treatment under these circumstances is to enable the heart to bear the additional burden and so carry on the circulation. Fortunately, this may be accomplished in many cases, and useful lives prolonged thereby.

Another important class is that of children born with defective hearts, due for the most part to faulty development. These generally die young, though at times life is prolonged to early adolescence. Blueness of the skin in varying degrees of intensity, shortness of breath on slight exertion, and "clubbing" of the extremities of the fingers and toes, are the chief characteristics of this condition.

We shall here limit our consideration to the causes and consequences of valvular diseases, since the majority of heart cases coming within the purview of school authorities fall under this heading.

It is common knowledge that rheumatism, especially the acute forms, is responsible for a large proportion of heart affections; and scarlet fever, especially when accompanied by joint pains, takes its toll also. Among causes less recognized by the laity are chorea (St. Vitus's dance), tonsillitis, and "growing pains," all of which are at bottom rheumatic. Tonsillitis is a fruitful cause of rheumatism, and schoolmasters will do well by having even apparently trivial throat cases put promptly under medical care. Chronically enlarged tonsils are an ever-present source of danger, owing to their liability to sudden attacks of acute, or subacute, inflammation, with the consequent risk of septic poisoning. These tonsils should be removed during a quiescent interval. "Growing pains" are essentially rheumatic, and, since there should be no pain in normal growth, the right interpretation of this common sympton cannot be overrated.

Education of Little Heart-Patients. We are now in a position to discuss the lines to be followed from an educational point of view in the management of children affected with heart disability. The question is a large one, and can be dealt with here in general terms only.

The anxious parent will sometimes ask: Why trouble the child with lessons when its attainment of mature life is so uncertain? The only reply is that it should have all possible educational advantages consistent with its physical condition. That heart patients may live fairly long and useful lives has at length been recognized by Insurance Companies, which now accept selected lives at modified premiums. The success of the modern treatment of heart disease is largely responsible for this concession. When the odds are against the prolongation of life beyond a few years, surely the obligation to render that short life as full and happy as possible is urgent! It is sad enough for a child to be deprived of physical pleasures without adding to its isolation by denying it the joys that flow from mental culture.

It remains to consider games and sports for children able to attend school. The schoolmaster should in every case act entirely under medical direction as to the character and extent of exercise allowable. The following suggestions for general guidance may, however, be given. A boy's own statement as to his ability to join in a game is valueless, for no high-spirited lad will acknowledge his inferiority to others in this respect. Close observation by a responsible person of the effect of exercise is necessary if a catastrophe is to be avoided. Shortness of breath is the most reliable intimation that the limit has been reached, and the return journey must be preceded by a rest. Cycling on the level is a good out-door exercise, while cricket and football are rarely admissible.

The diet should consist of easily digested food; and anything likely to produce flatulence must be avoided. A rest of 20 to 40 minutes after meals helps matters considerably. Stimulants are very rarely required and should be resorted to on medical prescription only, except in cases of actual fainting. Expert advice should, if possible, be obtained in all cases of doubt or difficulty. C. W. C.

HEAT CENTRE, EDUCATION OF THE.—The animal kingdom is divided, by the power of regulating bodily heat, into the cold-blooded (*poikilothermal*), whose temperature varies with that of the environment, and the warm-blooded (*homoiothermal*), in which it is maintained at a certain height under great external variations. This thermogenic power is found only in birds and mammals, being a recent development in animal evolution, and is most fully developed in man.

Animals may be regarded as living calorimeters, so closely does the heat produced correspond to the combustion of the food taken by the oxygen absorbed through the lungs. The heat is mainly produced under nerve control in connection with the muscles, 80 per cent. being lost through the skin, and 17 per cent. through the lungs.

Heat loss occurs by radiation, conduction, and evaporation through the skin and lungs, being conditioned by the vaso-motor system which controls the distribution of the blood to the skin and in the reservoirs within the body, as well as by the respiratory nervous centre which regulates the depth and frequency of breathing.

The nervous structures which co-ordinate these nerve centres deserve the appellation of heat centre. This is fully developed in animals born with fur or feathers, but is not so in animals born naked and helpless. The inability of the latter to maintain a constant temperature is due primarily to diminished production of heat on exposure, and only secondarily to excessive loss of heat. The defect is intensified in prematurely born infants, who have to be reared in artificially heated air. The Spartan custom of immersing newly born children in cold water must have eliminated all such children.

Bodily Heat and Climate. The heat-regulating apparatus develops very rapidly; the innate

endowment evidently varies with climatic conditions, for an Esquimaux child will endure exposure to cold that would be fatal to a native of the tropics, and *vice versâ*. In the one case the great loss of heat is by radiation from the skin, and in the other by evaporation. Youths born in the tropics are specially prone to lung disease when living in cold countries; while natives of northern regions suffer from abdominal disorders in hot climates.

Temperate climates, with their more frequent and sudden variations of temperature and, especially, of movement and moisture in the air, probably demand a more complex endowment, which possibly fits natives to withstand successfully other extremes of climate.

The heat centre, in modern civilized man, has suffered in its development by living in overheated houses, with over-dry air; as well as from warm clothing and shelter from the vicissitudes of weather. As a result, the bills of mortality show a great number of deaths of children from respiratory diseases in cold weather, and from abdominal diseases in hot. The inability to resist the invasion of the *bacillus tuberculosis* is, to some extent, due to this defect, and the proneness to nervous disorders, such as neurasthenia, in which the bodily temperature is always below normal, has also some relation to it.

Education in the endurance of vicissitudes of climate has made considerable progress of late years; infants are now put to sleep in the open air in all weathers, and the ventilation of houses receives much greater attention. Much, however, still remains to be done.

Baths. Dr. Eric Pritchard, in a valuable contribution to the *Lancet* (1906) on the training of the nerve centres, advises that the temperature of the bath after the first few weeks of life should be reduced gradually, a degree at a time, to 70° Fahr. The careful and gradual reduction of bath temperature is applicable to adults who believe that they cannot endure a cold bath. Not only the temperature but the duration of the bath needs to be carefully regulated; this especially applies to sea-bathing, which many persons believe they cannot endure, simply because, without training, they have stayed in the water too long, with the result that headache and other unpleasant results have followed. With proper care, the most delicate children and adults may almost invariably be taught to endure and benefit by cold bathing. Where baths are not available, similar benefit may be obtained by cold sponging and friction.

Clothing. The regulation of clothing is of equal importance. Miss Edith Sellars, in the *Cornhill Magazine* (July, 1916), draws attention to the children who go barefoot in the Eggenburg Reformatory in Lower Austria. They are drawn from the poorest class of a population specially subject to tuberculosis, yet colds and coughs have been practically banished, and the health of the children has been admirable. She points out that in districts of Scotland, Ireland, Norway, Sweden, and Switzerland, bare feet are the rule, and the people are strikingly stalwart and healthy. This illustrates the beneficial result of cultivating the heat centre by exposure to the vicissitudes of climate. Bare extremities, with warm clothing for the body, are practicable everywhere, or sandals could be worn by the young.

The adoption of the habit of putting on warm clothing on coming indoors, so that windows may remain fully open, is a counsel of perfection, in face of long established custom; yet it is but a suggestion from the open-air treatment of consumption, and soon becomes both bearable and desirable. The reformer, however, must be content to advocate as much fresh air as possible, both by night and by day. But, if such a habit could be adopted, besides the economy in coal and the improved atmosphere of large towns, it would certainly go far to abolish tuberculosis and much other ill health.

The thorough, systematic education of the heat centre as described above, would, if generally carried out, add marvellously to the health and vigour of the nation. It is most desirable that all scholastic establishments should be conducted, as far as possible, on the lines indicated. H. RAYNER.

HEAT, LIGHT, AND SOUND, THE TEACHING OF.—In the course of an address on the teaching of science delivered some years ago to the Association of Public School Science Masters, Sir J. J. Thomson said: " If you have good men and small classes, the system does not matter; if you have not good men and the classes are large—again the system does not matter." It is unlikely that the speaker intended his words to be taken literally, but they serve as a reminder of the importance of the teacher himself; and it will do no harm to keep them in mind when considering methods of teaching any branch of science.

When we come to consider the teaching of heat, light, and sound, the first thing to remember is that, of those who are taught (at any rate, at school), a considerable proportion will not take up science as their life work; it forms only part of their general education. A limited amount of time is available for giving them some insight into the broad principles and methods of the subject, and, above all, into its aims; it must not be used up in merely preparing for something they will never do. Yet, at the same time, the course must serve as a foundation for the subsequent work of those who do carry their studies further, and who are entitled to as much consideration as the others. If in a limited time the student is to get a conception of the subject that is not altogether misleading, the teaching must, from the outset, keep in touch with points of everyday interest; and, as a corollary to this, the student must feel that each piece of work he does is the key to something that is worth attaining. The normal human being does not come into the world with an innate longing to determine coefficients of expansion or the focal lengths of lenses.

The question of time is the determining factor. The treatment should, of course, be essentially experimental; and, as far as practicable, the experimental work should be done by the students themselves, especially in the later stages as their skill and ideas develop. " Practicable," not " possible ": for there is a danger that, in the early stages, young students may use up a very large amount of time in performing experiments intended to make them discover some principle which can be very clearly brought home to them in an hour's demonstration.

For this reason, the system which the writer finds to work most satisfactorily is to have a course of lecture demonstrations running concurrently with a course of practical work. The latter consists of a set of experiments, complete in itself,

designed to cover as much of the subject as possible without involving difficult manipulation. Manuscripts are provided which set forth the object of the experiment, giving sufficient instructions for the apparatus to be set up and the work started. The students work in pairs, each pair working independently; and no one is allowed to proceed to the next experiment until the last has been passed as satisfactory, including the account of it which is written at the time. In this way, the teacher is free to exercise a general supervision of the work; to assist those in difficulty; and, above all, to give individual attention and to do effective teaching when a student brings up his account of the experiment to be passed. The practical work does not keep pace with the lectures, but coincidence is not necessary, or even desirable, if the experiments are properly arranged. The lecture demonstrations are intended to deal with parts of the subject involving more difficult manipulation and preparation; they also serve to connect together the ideas which the student has developed. But perhaps their chief function is to avoid waste of time.

Heat. Any course of heat, however limited in scope, should most certainly include the consideration of heat engines—either the steam engine, or the internal combustion engine, or, preferably, both. Heat engines are by far the most important practical application of the subject, and at present form the basis of the material side of civilization; moreover, their study enables clear ideas of heat measurement, and the necessity for such measurement, to be gained.

The course would begin with such effects of heat (as expansion) that do not involve abstract ideas, but require straightforward observation. Having met with ideas of "hotness," and a scale of temperature as defined by the expansion of mercury in glass, and having performed experiments such as determination of melting points, etc., involving the use of thermometers, the student comes to coefficients of expansion. A good introduction to this is the experimental work done by General Roy in determining the expansion of his measuring rods before he could measure his base line for the survey of Hounslow Heath, on which the first Ordnance Survey of England was founded. The measurement of coefficients of expansion should introduce the conception of the degree of accuracy of experimental work; and here the writer would urge the importance of making sure that the student has a clear understanding of the degree of accuracy of any measurements he may make; without this, experimental work is likely to give rise to false ideas, and lose its value.

The conception of quantity of heat can be based on the idea of a gas-burner as a source of heat; and the rate at which a ring-burner can supply heat to water in a metal vessel should be determined practically. The idea of heat as a form of energy should then be developed and the mechanical equivalent of heat determined, preferably by some form of apparatus such as Callendar's, where the work is performed against a brake and measured in the same way as in determining the B.H.P. of an engine. From this result, the "equivalent horse-power" of the burner can be determined; and when the student discovers that an ordinary 4-inch gas-ring usually supplies energy at the rate of well over 1 horse-power, he gets a real conception of the low thermal efficiency of heat engines, and a glimpse of the problems of the engineer.

Specific heat, latent heat, etc., follow in the course of the practical work; while vapour pressure and transmission of heat are best dealt with in the lecture demonstration. Then comes the study of some form of heat engine, using an actual engine and giving some idea of its working. A determination of its thermal efficiency should be made from the B.H.P. and fuel consumption, and some attempt made to trace the waste heat. If time is available, consideration should be given to indicator diagrams and their uses.

Such experimental work is of the utmost value in developing ideas of heat and its measurement, but too much time must not be taken up with technical details. It must be remembered that the aim of our teaching is to give an insight into broad principles, and to develop a readiness in applying them; not to attempt to do, with insufficient plant, the work of an engineering college. The temptation to spend a large amount of time on purely engineering detail is by no means negligible, and is not lessened by the ease with which a knowledge of this detail can be imparted.

Light. Here, again, the treatment must keep in touch with problems of everyday interest if the subject is not to appear dull or artificial. For example, at the outset, when the student meets with the idea of illuminating power and illumination, it is not difficult for him to understand that in the lighting of a room the thing that matters is the illumination at the places where people are going to read and work, rather than the candle-power of the lamps used. He should be accustomed to express illumination in its proper units—foot-candles—and have some idea of the illumination needed for reading in comfort. Even if he does not use a lucimeter, he should know of the existence of such an instrument.

In dealing with spherical mirrors and lenses, he should see the effect of a stop when the lens or mirror is of large aperture, and have some idea of the extent to which the simple formulae can be regarded as accurate. Again, he should deal not merely with focal lengths, but with powers, which should be expressed in *dioptres*, so that, *e.g.* oculists' prescriptions may be intelligible to him. Nothing is more discouraging to the student, or more likely to convince him that the work he is doing is futile, than to find that he does not understand the terms in which such things are expressed in everyday life.

When considering the nature of light, after he has seen and performed experiments to illustrate rectilinear propagation, the student should see a simple diffraction experiment (*e.g.* the case of a pin illuminated from a distant narrow slit, where light does actually "bend round a corner"); and, further, he should see some interference fringes (*e.g.* Fresnel's biprism and monochromatic light), as the idea of waves arriving "out of step" is not difficult to understand. Whether he should work out reflection and refraction in terms of waves, fronts, or "rays" depends rather on the time to be devoted to the course. The writer has tried both methods, and finds that, although the wave treatment gives clearer ideas of such things as the power of a lens or mirror, and has the further advantage that all the phenomena can be illustrated in a ripple tank, yet the "ray" treatment is, on the whole, more suited to beginners, provided that there is not too great a use of pin-sights.

In dealing with optical instruments, every effort should be made to give a clear presentation of the

fundamental principle (*e.g.* since a convex lens can only be used as a "magnifying glass" if the object is within its focal length, to magnify a distant object we must, first, use an object glass to give us a real image close at hand, which we can then magnify; and so on). Work with the spectroscope should not be omitted and the course should include a few simple experiments on sight-testing, and deal with phosphorescence and fluorescence.

Sound. Until quite lately, the tendency has been for this subject to be dropped altogether. In one sense, there was something to be said for this, for, if any of the three subjects is to be neglected, it should be sound rather than either of the others. But there is no doubt that a short time may profitably be devoted to it, and the recent revival is all to the good. In an elementary course, the teaching should not be carried very far. A few simple ideas about the media through which sound is propagated, velocity of sound, vibrations of strings and of columns of air in pipes; pitch and timbre; and, in rather more detail, the principles of resonance—will give the student an acquaintance with the more obvious phenomena, and help him in understanding the other subjects. Any further treatment, except perhaps a rather more detailed study of wave motion, is practically useless unless carried to a standard involving extensive mathematical knowledge.

So far, we have considered a very elementary course of heat, light, and sound, designed to give those who have only a short time to devote to it a conception of the subject not altogether misleading. The further development follows naturally upon such a course. Of this development, it is sufficient to say that it should carry out the ideas already expressed. In all experimental work, the student must have a clear conception of the degree of accuracy of his measurements; he must be familiar with the different units in which the same physical quantity may be measured (*e.g.* foot-pounds and ergs, thermal units, and calories), and must always know the name of the unit. Finally, he should learn something of the attitude of the practical engineer and of the research worker; and, in this connection, it is very valuable for the teacher to have done (or, very much better, to be doing) original work. Perhaps the most valuable function of the teacher is his example of the mental attitude of the scientific worker, and from this point of view the words of Sir J. J. Thomson have an added significance.

W. J. R. C.

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HEATING OF SCHOOLS, THE.—(See BUILDINGS, SCHOOL.)

HEBDOMADAL COUNCIL.—This is the name given to the board which practically manages the affairs of the University of Oxford. It usually meets weekly, hence its name, and consists of the vice-chancellor, the two proctors, and eighteen persons elected by convocation—six heads of houses, six professors, and six graduates. The board was first constituted in the reign of Charles I, and was established in its present form in 1854.

HEBREW, THE STUDY OF.—Though it is not impossible to learn Hebrew without a teacher, the difficulties involved in such a method of study are formidable, and a number of pitfalls lie in the path of the self-taught student which without a teacher he will scarcely escape.

A discussion, therefore, concerning the best method of learning Hebrew may be understood as a discussion of the best method of teaching Hebrew. If the pupil is a child that is to be instructed in Hebrew for devotional purposes, it is clearly desirable not to distract and discourage him at the outset with *minutiae* of grammar, but rather to give him a general idea of the meaning of a Hebrew sentence. For such a pupil, it would be difficult to improve on the system of modern Jewish teachers, who have adopted kindergarten methods, and aim at making Hebrew a living language from the first. A similar system may, to some extent, be followed even with adult pupils, if they have little time for private study. In the case, however, of the great majority of older students, especially those who have had some linguistic or literary training, a less popular and more scientific method is advisable from the outset. It is this latter class whose needs are considered in this present article.

Since the study of any language is necessarily somewhat wearisome until the student has made sufficient progress to be able to translate several consecutive sentences, it is desirable that he should cover the whole ground of the grammar with as much speed as is compatible with thoroughness; and this object will be best attained if he has set before him only the regular scheme of the accidence, small irregularities, and secondary rules, as far as is possible, being noticed and explained by the way.

Hebrew Grammars. For completeness in its scope, Davidson's *Hebrew Grammar* is without a rival. The nineteenth edition of this work has been revised throughout by Professor J. E. McFadyen, who has removed many of the defects of the original. It must be confessed, however, that, notwithstanding the great improvement effected in the book, its earlier chapters are extremely bewildering to the beginner. It is quite unnecessary, for example, to inflict upon him at one blow all the peculiarities of the gutturals. What he needs at the outset is to be familiarized with the names and forms of the consonants and vowels, and thus to be enabled to spell simple words. Since in many words the gutturals cause no deviation from the ordinary rules, the beginner should first have experience of these. When he is familiar with such words as מַחְצֵב, נֶחֱמָד, מִהְיֶה, the cases in which a composite *sh'wā* takes the place of silent *sh'wā* may be explained in a short note, and will cause no difficulty. Similarly, *furtive pathah* may be explained by the way. By this method the student will be more likely to see the identity of

form in words which may otherwise strike him as different. Another serious defect of Davidson's Grammar, which, unfortunately, Professor McFadyen has not removed, is that, even in the earlier exercises, it follows the Masoretic text in the irregularity of its spelling in regard to the use of the *scriptio plena*, and takes sentences from the Old Testament involving the use of words, the explanation of which will not be given till some later exercise. The fewer the new rules with which the beginner is confronted at one time, the more rapid will be his progress; and illustrations of accidence should be given as far as possible by words repeated again and again. The ideal grammar would standardize all the spelling until the whole of the accidence had been covered, when such variations as occur in the spelling would be unlikely to cause any serious difficulty.

Method of Study. On the supposition that Davidson's Grammar has been selected, the teacher, having explained the names and force of the consonants and vowels, will do well to familiarize his pupil with words of regular form, giving a number of illustrations of the same radicals with different vowels. It will be well, at first, to describe only *vocal sh'wā*, and subsequently to explain the use of *sh'wā* in marking the end of a syllable. Thereupon the rules of *dāghēsh, lene*, and *forte* may be given; and the explanation may be added that, in the case of the gutturals, though they were originally doubled, the doubling has, for euphony's sake, been given up, slight modifications of the previous vowels being thus caused. This leads up naturally to the rules of the definite article, it being made perfectly clear that in every case the initial guttural was originally doubled.

Having familiarized himself with the rules of the definite article, the student should learn the pronouns and the inseparable prepositions, when the way will be cleared for him to learn the rules of nouns and verbs. Here the teacher must point out that the existing Hebrew vowels are in many cases a modification of what was originally heard in the spoken language, the difference between vowels which are long by nature and those which are long by position being carefully explained. Although at first sight it may seem to complicate matters, it will probably greatly aid the student in the long run if he is made to transliterate words involving the use of vowels long by position. Thus, נָהָר may be transliterated as *nāhār*, זָקֵן by *zāḳēn*, and קָטֹן by *kāṭōn*. With these transliterations before him, the student will easily understand how *nāhār* developed into נְהַר in the absolute, and into נְהַר in the hurried pronunciation of the construct state; and he will not be faced with the insoluble problem of explaining the change of the one of these later forms into the other.

From the outset, the teacher should insist on accurate pronunciation, especially in regard to the placing of the accent, and particular attention should be given to the explanation of the lengthening of vowels in the pretonic syllable. It should be pointed out to the student that up to the pretonic syllable a Hebrew word follows the same rules observable in other sharply accented languages, and that the pretone must be pronounced as a slightly accented syllable, immediately followed though it be by a syllable of still greater stress. A great stumbling block to beginners are forms like דָּבְרָה as compared with דִּבְרָם and קְטָלָה, where the *original* pronunciation underlying the pausal forms should be carefully explained. In dealing with the construct state, it should be pointed out that the word which immediately follows the construct is a true Genitive. Thus, in the phrase תּוֹרַת יהוה, the student should not be allowed to translate תּוֹרַת ("the law of"), but should be taught to regard the form תּוֹרַת as an indication that the following word is a Genitive.

But, although it is of great importance that the principles underlying Hebrew accidence should be clearly expounded, it is still more important that from the beginning the student should be trained to understand the *thought* which found expression in Hebrew. Thus, for example, in explaining the use of the Hebrew tenses, so-called, the teacher should aim at setting forth the conceptions of the Hebrew mind underlying the tenses rather than at classifying their usages in terms of Western thought. It is unsatisfactory to state that a Hebrew Imperfect may in various cases represent the Latin Imperfect, Future, Subjunctive, etc. The fundamental conception of an action presupposed in all these cases should be clearly pointed out.

A similar principle holds good in the translation of all idioms, and should be insisted on in explaining the meaning of isolated words. It is unscientific to give a list of meanings which may be borne, for example, by such a word as עַיִן. What is required is an exposition of the root idea in Hebrew thought. A uniform rendering of a Hebrew word, even in the same context, may be absolutely misleading. In many cases, indeed, the true sense can only be brought out by a paraphrase. For all its apparent simplicity, Hebrew is capable of expressing fine distinctions of *nuance*.

Another matter which receives far too little attention is the Hebrew method of expressing emphasis. The language employs few particles, and makes good the deficiency by emphasis. It is well that the teacher should train his pupil to mark his appreciation of the Hebrew order of words by emphasis in the English rendering. There is, of course, no rule without exceptions. Thus, the *last* word of a clause may sometimes receive a certain amount of emphasis from the fact that the unusual order keeps the reader in suspense for the predicate, which comes as a *para prosdokian*. Thus, in the magnificent poem Isaiah xiv. 4–23, the translation of verse 11 in the English versions (A.V. and R.V.) fails to do justice to the original, where the unburied body of the King of Babylon is contrasted with the luxurious couch associated with royalty. The passage might be rendered paraphrastically: "Beneath thee, as thy couch, is spread—the worm; and thy coverlet is—the maggot."

The Books of the Bible. When the grammar has been worked through with the help of the teacher, the student will be in a position to begin the study of the text of the Hebrew Bible; and at this stage no Book is so good as Genesis. Some teachers prefer that their pupils should not start at the first chapter on account of the occurrence of certain rare forms, and of a vocabulary which is not common in the Hebrew Bible as a whole. But these disadvantages are more than outweighed by several substantial advantages. Owing to the constant repetition of certain words, the student is able to make some headway without the discouraging necessity of being compelled to look out every word in a lexicon. In any case, he should be made

to read the whole sentence aloud, in order that ears as well as eyes may do their part.

Next to Genesis, the Books of Kings are most suitable for beginners; but probably the best order after Genesis would be Deuteronomy—taken fairly briskly, the poems being omitted—Kings, Joshua, Judges, Samuel. A careful study of the last-mentioned with Driver's invaluable Commentary, though too difficult for the beginner, is of the utmost value in laying a foundation of sound scholarship. After this, the student may be introduced to the prophetic literature, to which the Book of Amos forms an admirable introduction. He may then read Hosea i–vi, Isaiah i–x, Jeremiah i–xxv, Haggai, Zechariah i–viii, Malachi, Joel, Zephaniah, Zechariah ix–xiv. The textual difficulties of Ezekiel make it desirable to postpone the study of that Book till a considerable amount of prophetic literature has been read; while the Book of Isaiah, as a whole, makes such demands upon scholarship that it may be left till the rest of the prophetic Books have been gone through.

It is commonly the case that, as soon as a student finds himself able to translate the historical Books, he is anxious to begin on the Psalms; but, partly on account of their textual difficulties, partly on account of their large vocabulary, strongly tinged with Aramaic, the student will be well advised, first, to familiarize himself with the Prophets. After the Psalms, Job, Proverbs, and the other poetical portions of the Old Testament may be taken in hand.

The above plan is intended merely as a guide for detailed study, with special reference to the linguistic side; it is obvious that it must be frequently necessary to take some account of books or portions of books of which the *systematic* study may be postponed till a later time.

Post-Biblical Hebrew. The study of the *post*-Biblical Hebrew scarcely falls within the scope of this article. In any case, a certain amount of Aramaic should be learnt first. It must, however, be insisted upon that no study of Hebrew is satisfactory which ignores the later development of the languages, and that Rabbinic literature is worthy of more respectful consideration than it commonly receives. R. H. K.

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The following books will be found of great value by those who are beginning the study of the Hebrew Bible—

BURNEY, C. F. *Notes on the Hebrew Text of the Books of Kings.* (Oxford, 1903.)

DRIVER, S. R. *Notes on the Hebrew Text of the Books of Samuel* (2nd ed.). (Oxford, 1913.)

SPURRELL, G. J. *Notes on the Book of Genesis* (2nd ed.). (Oxford, 1896.)

HEDGE-SCHOOLS IN IRELAND.—The term "hedge-school" appears in English writers for the first time in 1807: but it seems to have come into use in Ireland as early as 1760. It was used to designate broadly all those private-venture schools in Ireland which arose during the eighteenth century, contrary to the penal laws restricting education, and lasted until the development of the State primary schools and the newer secondary schools (1835–1855). Gerald Fitzgibbon the elder, one of the Masters in Chancery, described them as being "called hedge-schools, from a common custom of adjourning from the poor cabin of the master, when a fine day invited, to the shade of a neighbouring hedge, where the poor children had the advantage of inhaling fresh air, and of learning their task. They were pay-schools, to which children resorted . . . who in winter could also daily bring one or two sods of turf, to keep up a fire in the school." The lowest school-fee in these schools was twopence a week in 1824: the number of these "pay-schools" in that year was not less than 11,000; the attendance (Autumn, 1824) was 403,000, fully 6 per cent. of the population. In his tour in Ireland, 1782–88, John Howard inspected these schools, and says: "At the cabins on the roadside I saw several schools in which, for the payment of 3s. 3d. per quarter, children were instructed in reading, writing, and accounts. Some of these I examined as to their proficiency, and found them much forwarder than those of the same age in the (State) charter schools. They were clean and wholesome." (Works, 1792, Vol. II., p. 119.).

Curricula. The curriculum of the Irish hedge-school was both primary and secondary, closely resembling that of the Scottish parish school of the same period. A large number of the teachers were personally devoted to Irish literature; for instance, Eoghan Rua O'Suilliobhain (1770), Sean Clarach Mac Domhnaill, Brian Merriman (1780), Humphrey O'Sullivan (1825). As a rule, however, they did not teach Irish, but educated their scholars into English through Latin, and into Latin through English, aiming at their equipment with two additional vernacular languages. Robert Payne, an English visitor to Limerick, 1589, records this practice: "I saw one hundred and thre score schollers, most of them speaking good and perfit English, for that they have used to conster the Latin into English." One result of this interesting method was the Latinizing of English as spoken in Ireland, more especially in Munster. Great attention was paid to mathematics, more especially in its application to surveying, and to book-keeping: there was a wide demand for both these branches in adult life.

Text-books and Treatises. The output of treatises on these subjects (1780–1830) was very notable, not only in Dublin, but in Cork, Limerick, Waterford, and smaller towns. The best-known text-books of arithmetic were composed by Elias Vorster, a Dutchman naturalized in Cork, and by John Gough, one of the many members of the Society of Friends who worked for education in Ireland: he was head master of the Friends' School at Lisburn, 1774–1791. For English, the *Universal Spelling Book* of Daniel Fenning was in wide use; but the immense use made of cheap publications issued in Ireland of works of history poetry and fiction deserves special mention. These cheap books were sold all over the country, in sheep-skin binding,

for a "tester" (6½d.) each. Dr. Cooke, the famous leader of the Irish Presbyterians, and Dr. Adam Clarke, the Orientalist, both record that their English studies at hedge-schools in Derry (circa 1780) began with these texts. As the individual system of instruction was generally practised, a great variety of reading texts might be found in any one school. Accounts of hedge-schools in being have been given by many writers, of whom Lady Morgan, Samuel Lover, and William Carleton may be mentioned.

The establishment of the State primary schools "had the effect of greatly diminishing the resources which, though no doubt scanty and imperfect, formerly provided for local education beyond the primary stage." (Schools Commission Report, 1858, p. 278.) The people of Newtownstewart, in their remonstrance of 1862, point out that though "more than 20 teachers imparted classical instruction, since the year 1800, in this parish . . . at present, with 25 National schools, there is no classical or other superior instruction whatever." These statements were true of the whole of Ireland, and show clearly the importance of the work done, in their day, by the Irish hedge-schools.

T. C.

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HEDONISM, or Eudemonism, is the view that the essential element of the highest life is found in the feeling of pleasure. The followers of Aristotle and Epicurus, and some modern philosophers make happiness the aim of life, and teach the cultivation of virtue as a means to secure happiness.

HEGEL, GEORG WILHELM FRIEDRICH.— He was born at Stuttgart on 27th August, 1770. After first studying in his native city, where he was profoundly influenced by Hellenism, he studied at the Theological Seminary at Tübingen (1788–1793) and formed a close friendship with Schelling and Hölderlin. He then acted as private tutor for six years, first at Berne, and afterwards at Frankfort, meanwhile developing his philosophical and religious thought; so that when, in 1800, a small legacy gave him independence he had already formulated his speculative principles, and in 1801 was able to join his friend Schelling at Jena and to undertake with him the publication of a *Critical Journal of Philosophy* (1802–1803) in which he included various writings destined to elucidate his own point of view. At Jena as *privat-docent* and professor extra-ordinary, he gradually gained a clearer conception of the difference between his own method of philosophy (in which the depth of Christian spiritualism was wedded to the methodical rigour of Greek realism) and the essentially mystical and fantastic philosophy of Schelling. In the preface to his *Phaenomenology of the Spirit*, which he published in 1807 as the first part of a *System of Science*, he definitely severed himself from his friend. The following year he was nominated director of the High School of Nuremberg, where he remained until 1816, when he went to the university of Heidelberg as professor of philosophy. Thence he passed, in 1818, to the university of Berlin, and there he exercised a most important influence on the youth and on the studies of his time in Germany. He died of the cholera in Berlin on 14th November, 1831.

After the *Phaenomenology*, he published the *Science of Logic* (1812–1816); the *Encyclopaedia of Philosophical Science* (1817; 2nd ed., 1827; 3rd ed., 1830); and the *Outlines of the Philosophy of Right* (1821). After his death, his disciples published his course of lectures on the *Philosophy of History*, on *Aesthetics*, on the *Philosophy of Religion* and on the *History of Philosophy* in a complete collection of his works [18 vols (1832–1845) and one vol. *Letters*, 1887]. They also included in an edition of the *Encyclopaedia* a great number of elucidatory articles drawn from their notes of his lectures.

Hegel's Metaphysics in Relation to Education. It is not customary to assign much importance to Hegel in the history of pedagogy, since he never proposed to write a work specially dealing with this subject. Moreover, the profound speculations whereon Hegel based his theory of education in the *Phaenomenology* were interwoven into a work of too abstruse and original a metaphysic to succeed in arresting the attention of students of pedagogic philosophy, who have been intent on the empirical study of childhood and on the perfecting of the art and practice of teaching. But to Hegel one of the very first positions in the history of pedagogy is certainly due, if the science of education is regarded (according to the principles professed by the modern Kantian school) in a vigorously speculative aspect, as the science of the *ideal*, and, therefore, truly *real*, development of the spirit. He who considers pedagogy as a science distinct from philosophy, although based on it, cannot reconstruct to-day the development of pedagogic thought without encountering Hegel, who, with his *absolute idealism*, systematically interpreted certain conceptions which are the necessary postulates of every scientific theory of education. These conceptions are—

The Spirit as Liberty. From Socrates onwards, education has been conceived as the autonomous development of the personality of the pupil. Plato attempted, unsuccessfully, to testify an *a priori* idea of knowledge that should make the autonomy of the spirit in the acquisition of knowledge thinkable. All subsequent thought, resting in the conception of reality matter as opposed to mind, had no means of demonstrating the possibility of a real, full and concrete development of mind, which, until it came to be regarded as having its own proper object within itself, was never able to draw from its own depths, and by its own power, any determination of its knowledge or any sense of its value. It must have been, therefore, always regarded by the educator as a vessel to be filled rather than as an activity to be promoted within its own free existence. Rousseau (*q.v.*) in the eighteenth century insisted on the ancient Socratic principle, but he could not solve the problem implied because he could not conceive the spirit except in opposition to external reality matter from which it derives the whole of its content. Nevertheless, he prepares the ground for Kant by making the need vividly felt for attributing a free productivity to the spirit. But such a conception hardly begins even in Kant, and Hegel alone, by his absolute idealism and by his liberation of the Kantian conception from the *noumenon*, establishes the conception of the idea understood as the absolute process of truth, and hence as the spirit which creates itself. He resolves, therefore, all external

reality (which vulgar thought and all philosophy before his time held to be an antecedent of thought wherein it is presented to the consciousness) into thought itself. Whether or not Hegel succeeded in clearly and effectively demonstrating this unity of thought and of being, there can be no doubt that all subsequent philosophy has maintained this conception more or less coherently and consciously; and pedagogy, with Pestalozzi's (*q.v.*) theory of intuition and with Froebel's (*q.v.*) theory of *action*, has only developed, or applied, this same idea of the realization of the spirit in its own proper world.

The Spirit as Development. All philosophy up to Leibnitz continued to conceive spirit as substance. The systems of Descartes and Spinoza end in the association of thought with deity; so that for them, thought is true only when it is divine, developing thought is of no philosophical account. The empiricism of the English thinkers, Bacon, Hobbes, Locke (*qq.v.*), precludes them from recognizing, in the process of experience, the development of the originating power of the mind. Leibnitz terms mind an activity (perception) which he regards as the development of a primitive force; but his development is merely an unfolding of what is implicit, not that increment and progressive differentiation of self from self wherein true development consists. Moreover, the true conception of education is based on the intuition of this increment and progress of the spirit; not in so far as its abstract content is concerned, but in its essential nature and worth. Yet all the discussions of the second half of the eighteenth century and beyond, on the *formal* and not material character of true education are simply an expression of the exigency which is imminent in the conception of education—namely, that education is not an external adornment, or furnishing, of the spirit, but an actual generative process (*autogenesis*). Now this conception of the spirit as in a continual process of self-generation is found for the first time in the Hegelian philosophy. The *Phaenomenology* and *The Philosophy of the Spirit* (Part III of the *Encyclopaedia of the Philosophical Sciences*) are the scientific exposition of this concept, of which so much is written in empirical psychology; but it is not so easy of understanding as is commonly believed, since the first condition of understanding it is to place oneself at the dialectical standpoint whence Hegel was able to conceive reality as a process of *becoming*. This is not possible to him who does not understand thought as a spiritual act; it is not possible, therefore, to empirical psychology which cannot help pre-supposing a physical reality difference, at least phenomenally, from the psychical. And the Hegelian *becoming*, which is the beginning of dialectics, has no sense except in so far as Nature itself, to which it is attributed, is conceived as a form of thought.

The Spirit as Infinite Self-consciousness. Before Hegel each human spirit was considered as a finite personality. However, education as the immanent connection of the educand with the educator, is, assuming the limitation of the individual *ego*, wholly inconceivable; since the finite can have no other than an external and transcendental relation with another finite. This would imply the fortuitousness of education, and, as a consequence, the negation of its worth—a conception that was indeed, accepted by the nationalists of the eighteenth century. Hegel has the great merit of having interpreted individuality as the concrete actuality of the universal, and hence of having understood the personality of the individual as the true reality of the absolute and infinite personality. Whereby, he succeeded in demonstrating and in dialectically deducing how that the negativity of the spirit, in the course of its development, ever leads the spirit on to realize its own infinite nature by limitation of itself, and sometimes by rising above its own limitations. By abnegating its own indeterminate liberty it is able to recognize an authority which is at one with its liberty. Briefly, the spirit in the process of history realizes its own infinite nature.

The elaboration of these three concepts (which in truth are really the substance of the Hegelian philosophy) makes Hegel worthy of being named as the greatest of the thinkers to whom we owe the scientific development of pedagogy. G. G.

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HEGUIS, ALEXANDER, (d. 1498).—A German humanist schoolmaster, who became famous as the head master of a great school at Deventer, where at one time he had nearly 2,000 pupils. He was renowned as a teacher of literature, and wrote educational works in the form of catechisms on science, rhetoric, and the value of the study of Greek.

HEIDELBERG UNIVERSITY (BADEN).—This was founded by the Elector Rupert I, in 1386, and flourished until the period of the Thirty Years War, when it began to decline. It revived only after 1802, when the town and surrounding country were handed over to the Grand Duke of Baden. It has ever since been famous as a seat of learning. It comprises the usual four faculties, has normally about 110 professors and lecturers and is attended by about 1,600 students. It is under State control, being supported by the Imperial Government and subject to the Minister of Education for Baden. Women are admitted, and Heidelberg is one of the few German universities which have conferred the degree of Doctor on women. The university library contains upwards of 500,000 volumes and nearly 5,000 manuscripts. Among the famous scholars of Heidelberg were Reuchlin, Spanheim, Gervinus, Helmholtz, and Bunsen.

HELLENIC STUDIES, SOCIETY FOR THE PROMOTION OF.—Founded in 1879, this Society advances the study of Greek language, literature and art, and publishes documents illustrating the history of the Greek race; collects drawings, facsimiles of Greek inscriptions, MSS., etc., to this end inviting travellers to offer to the Society archaeological and topographical notes; and makes arrangements for members to visit ancient sites or to carry on research in countries at any time under Hellenic civilization.

The official organ, the *Journal of Hellenic Studies*, was first published in 1880, and now appears half-yearly.

Meetings are held in the rooms of the Society of Antiquaries in Burlington House.

Large collections of lantern slides are available for the use of members, and there is a library, of which a catalogue was published in 1903, supplements being added annually.

HELPS, SIR A. (1813–1875).—An eminent scholar of Eton and Cambridge (1835), who was associated at the university with Tennyson, French and Monckton Milnes. For a time he was private secretary to Ministers of the Crown, and in 1860 became clerk to the Privy Council. In his public duties he came under the notice of Queen Victoria, who employed him to edit her own *Journal* of her life in the Highlands (1868). In a period of leisure, between 1840 and 1860, he wrote a number of brilliant and interesting essays on social and philosophical subjects, of which the chief published collections were *Essays written in the Intervals of Business* (1841) and *Friends in Council* (1847–1859). Between 1855 and 1861 he compiled a great work *The Spanish Conquest of America* in four volumes, and biographies of Las Casas, Columbus, Pizarro and Cortes to be published later. The question of slavery aroused his strong interest, and led him to write *Conquerors of the New World and their Bondsmen* (1848–1852). Helps's best essays in *Friends in Council* are in the form of dialogues, and acquired great popularity by their clear and graceful style and pleasant humour.

HENRY VIII, LEARNING IN THE COURT OF.—(See RENAISSANCE, THE.)

HENXMEN, or henchmen, in the Plantagenet and Tudor times were pages of honour, the sons of gentlemen, who in public processions always walked near the monarch's horse. Their education in the time of Edward IV is described in John Russell's *Boke of Nurture*. The chief places of education were the houses of nobles, especially those of the Chancellors. In the reign of Henry VIII almost all the King's officials passed through Wolsey's household. They were taught reading, writing, grammar, rhetoric, Latin and music. Others were educated by private tutors at home or in the houses of Abbots. (See also NOBLES AND GENTRY, THE EDUCATION OF.)

HENXMEN, MASTER OF THE.—(See MORALS AND MANNERS, HISTORY OF THE TEACHING OF.)

HERBART.—Herbart was born, in 1776, at Oldenburg. After the usual university education, he became private tutor in Switzerland to three boys, and in 1799 came personally under the influence of Pestalozzi. Three years later, settled at Göttingen, he began to devote himself to educational problems; in 1804 appeared the *Aesthetic Revelation of the World as the Chief Work of Education*, and in 1806 his *General Pedagogy deduced from the Purpose of Education*. Works on psychology and philosophy followed (not *preceded*, as is commonly asserted) the above. In 1810, at Königsberg, he founded a training college for teachers and developed into a highly popular lecturer. Back at Göttingen, he published, in 1835, his *Outline of Pedagogical Lectures*. His death occurred in 1841.

Herbart's educational influence increased enormously in Germany some years after his death; to this result the labours of Stoy, Dörpfeld, and Ziller largely contributed. Ziller combined Herbart's views as to the ethical "purpose of education," with a biological doctrine of "culture stages"—largely identical with the "recapitulation" doctrine that the developmental stages of embryo and child reproduce the history of animal and human evolution.

Elsewhere, too, Herbart's influence, frequently unrecognized by the people who feel it most, has been very great: though during recent years the custom had grown up of depreciating Herbart not only because of his "omissions," but because it is supposed that he "deduced" his educational methods from a false and now "antiquated" psychology. To all this it is sufficient to reply that Herbart is the most encyclopaedic and systematic thinker in the history of education, his "omissions" being amazingly few (he gives even handicraft an honoured place); while his pedagogy is "deduced" not from his psychology, but, as the very title of his greatest book asserts, from the "purpose" of education.

The Doctrine of Interest. That purpose, in Herbart's view, is morality or character-forming: "ethics supplies the goal" of the teacher's efforts. This, of course, means that such other goals as knowledge and efficiency must be either rejected or brought under the rubric of morality or character-forming. Herbart chooses the latter alternative, and his formula of "many-sided interest" effects the reconciliation. Indeed, to an age like the present, split and embarrassed by controversies over "sacred" and "secular" things, the proof that many-sided interest is "sacred"—something that helps to expel evil from the world or to prevent its lodgment there—becomes an evangel and an inspiration, and as such has been expounded by the present writer in his *Secret of Herbart*. As usual, however, Herbart never rides one idea to death; many-sided interest is not everything; specific moral culture, together with training (*Zucht*), and even mere government or discipline (*Regierung*), have their part to play. The absurd charge that Herbart "ignores everything except instruction" (*Unterricht*) is refuted by a mere glance at his chapter headings.

It is true, however, that he "has no conception of education apart from instruction"—the employment of ideas. Waiving the question of the constitution or substance of ideas, we can fearlessly assert that, whether called knowledge, information, ideals, or (more technically) apperception masses, ideas exert immense power; and that to define education as a mere process of "following Nature" or of "drawing out faculties" is to define it in an unhelpful, misleading, and (maybe) paralysing way. Both contentions are Herbart's. Biologists assert that man is the most plastic, dirigible, and educable

of all animals; sociologists assert that civilization rests mainly on "social heredity" (ideas handed down through books, institutions, and word of mouth); education to the Herbartians is similarly meaningless apart from instruction (*i.e.* the conveying of ideas to the pupil in some way or other).

The placing of the concept of "interest" in the central educational place—linking (secular) instruction on the one side with the (sacred) things of character and conduct on the other—was a notable step to educational clarity.

Faculties v. Ideas. Not less important was Herbart's discovery that the "faculties" (as commonly regarded) had no existence, and that "formal training" or "mental transfer" (again, as commonly regarded) was a myth. "No man ever learns to do one thing by doing something else" (Bernard Shaw), because the ideas bearing on the one thing are not the ideas that bear on another; to give a common name (observation, perseverance, neatness, etc.) to two distinct processes does not make them the same process. Thus nine-tenths of the claims urged on behalf of classics and other school subjects have had to be revised; similarly the majority of pleas for "indirect" methods have been shown to be meaningless. In its broad outlines, the Herbartian discovery that we work and think by ideas and not by "faculties" has outlived opposition, and the only qualifications of it have been introduced by Neo-Herbartians such as Thorndike and Bagley.

Another Herbartian achievement—the working out of the "five formal steps" of a lesson, including, in particular, the supplying and manipulation of apperception masses—is now a commonplace in the training colleges of the world.

Though Herbart's psychology was never, except in the above general kind of way, the basis of his pedagogy, and though, therefore, those critics are wrong who say that the psychological "foundations" of Herbartianism have been undermined, it is interesting, if superfluous, to note that almost all recent psychologists, including the critics in question, make extensive use of the leading terms of this "exploded" psychology. The "energy," the "mechanism," and the "blocking" of ideas; the "margin" and the "centre" of consciousness; the "shooting up," the "massiveness," and the "contrariance" of ideas; the "building of ideal constructions"—these phrases, borrowed from Keatinge's *Suggestion in Education*, are all significantly Herbartian. It was not without reason that James urged his teacher readers to "think of their pupils as so many little systems of associating machinery. You will be astonished," he added, "at the intimacy of insight . . . you will gain." This intimacy of insight has been supplied by the Herbartian way of looking at the mind as a battle-ground for the oppositions and alliances of ideas.

That Herbartians, carried away by their sense of education as a constructive, aggressive, creative process, may tend sometimes to neglect the study and the idiosyncrasies of the individual as carried out by Froebel, Montessori, and others, is quite possible. The fact remains that Herbartianism throws light on everything, destroys fallacies galore, and gives teachers something to live for. The hopeful state of pedagogical thought in America as contrasted with the pedantries and verbalisms that, often disguised as advanced thought, do duty for pedagogy here, is due to the Herbartian thought of a generation ago, which captured America but passed Britain by. F. H. H.

ADAMS, J. *Herbartian Psychology applied to Education.*
HAYWARD, F. H. *The Secret of Herbart. The Meaning of Education as Interpreted by Herbart. The Critics of Herbartianism.*

HERBARTIANISM, THE LATER DEVELOPMENTS OF.—The leading principles of Herbart have been set forth under another head. If to-day his followers are to be at all distinguished from other serious educationists, it must be mainly by differences of clarity and emphasis rather than of specific doctrine. The modern Herbartian distrusts vague talk about "nature," "individuality," "liberty," "faculty-training," and the like; and seeks for real meanings behind these seductive phrases. He believes that education may be made a constructive, formative, and immensely influential process. He believes in the power of ideas and ideals, and in the greatness of literature and music; and he is willing to devote the toil of a lifetime to the sheer organization or popularization of these things, quite independently of the results of child-study and psychology. And he finds, with much gratification, that non-professional writers, like "Kappa" in *Let Youth But Know*, often arrive at exactly his own standpoint without having ever heard the name of Herbart.

It may be, of course, that in some countries an Herbartian here and there has become a narrow-minded bigot; to become one is, however, somewhat difficult, owing to the immense breadth of view which distinguished Herbart, and the essential soundness of his pedagogical principles. The present writer remembers that, when puzzled for years how to reconcile the Herbartian stress on ideas with the "drawing out" theories of other educationists, he approached several eminent sociologists with an inquiry as to the verdict of science on the question of human educability: the verdict, he learnt, was that man was the *most educable of all animals*, the most plastic, the most dirigible; in other words, ideas were more influential with him than with any other creature—exactly the fact on which Herbart had laid stress. Similarly, throughout the non-technical pages of James's *Talks to Teachers* there runs the Herbartian assumption that, for educational purposes, an associational or ideational pedagogy is the most useful and explanatory of all; not that instincts are to be ignored; they have to be taken for granted, whereas ideas cannot be taken for granted; the teacher is called upon to supply them. This is not to deny in any way the value of the work of Froebel, Montessori, and others; in fact, Dr. Montessori's plea for direct forms of training and her distrust of question-begging formulas are much in the spirit of Herbart.

After Herbart. The most important of the early followers of Herbart were Stoy (1815–1885), Dörpfeld (1824–1893), and Ziller (1817–1882). Stoy made Jena the centre of an Herbartian propaganda, continued, after the year 1886, by Rein. Dörpfeld, an eminently sane Westphalian schoolmaster, published numerous works on education, the best known being *Thought and Memory*, an excellent exposition of the apperception process. Ziller, as explained in the article on CULTURE STAGES (*q.v.*), sought to effect a union between the Herbartian doctrine of apperception and a doctrine of evolutionary recapitulation; in fact, between an

idea-pedagogy and an instinct-pedagogy. Such a union was foreshadowed by Herbart's own studies in instinct, and Ziller's work along these lines possesses some suggestive value. Perhaps, however, his most valuable achievement was his panegyric of interest as a "protection against the passions," "a salvation amid the storms of fate," and so on.

Excited controversies soon arose in Germany and spread to many other countries. For a few years (*c.* 1890) America was the scene of an Herbartian *furore*, the term "soft pedagogy" being invented by critics as a protest against the supposed flabbiness inherent in the interest doctrine. Gradually, Herbartianism merged in the general stream of educational thought.

Modern Herbartianism, so far as it has a distinctive mission, is now bent on framing a perfect school curriculum, a scheme or catalogue in which every fact, ideal, habit, etc., of importance for humanity may find its place. Distrusting all dubious methods of "teaching one thing by teaching something else," it aims at making every moment of the teacher's work lucid and fruitful. Curriculum-forming has always been the chief interest of the Herbartian.

Among non-technical books and essays which show marked traces of Herbartian influence may be mentioned Bagley's *Educative Process;* Dewey's *The Child and the Curriculum;* Findlay's *Principles of Class Teaching;* Rooper's *A Pot of Green Feathers*, and other essays; Lange's *Apperception;* and Hayward's *Secret of Herbart.* The title of Adams's *Herbartian Psychology Applied to Education* scarcely does justice to its brilliance and humour. For the confirmatory bearing of recent psychology on Herbartianism, the works of Thorndike are important. Historical controversies are set forth in Hayward's *Critics of Herbartianism.*

F. H. H.

HERBERT OF CHERBURY, LORD EDWARD (1583–1648).—Travelled widely in Western Europe, serving in continental wars, and acting for a time as ambassador to the Court of France. He wrote a theory of knowledge, *De Veritate*, in the style of the later philosophy of the Scottish school; a "natural history of religion," *De Religione Gentium*, in which he shows similarities in all religious systems; and an *Autobiography*, which is a masterpiece as a picture of himself and contemporary society.

HEREDITY.—This may be defined as the genetic (γενετή, birth) relation between successive generations of organisms. A great advance has been made during recent years in our knowledge of heredity. Three methods of investigation have been developed: (1) the Embryological Method; (2) the Biometric, or Statistical Method; (3) the Experimental Cross-breeding Method; and each of these methods has led to valuable results.

The Embryological Method. The fundamental result of this method is the discovery that an organism arises from a cell called the fertilized ovum, which is derived in part from each of two parents (one parent only in parthenogenetically produced organisms). The contribution of the female parent is the ovum, a large cell, with much protoplasm, in addition to the nucleus; the male contribution is the sperm, a minute cell of which the nucleus forms nearly the whole bulk. A fertilized ovum gives rise to an individual, including its germ cells. The germ cells are thus sister cells to those of the body or "soma," and not derived from these. The egg gives rise not only to the hen, but also to the hen's eggs. It has been urged, as a matter of further detail, and with some degree of probability, that the nucleus is the bearer of hereditary qualities; Weismann and others have gone further and suggested that it is the part of the nucleus called the chromosomes which is the actual bearer. These are, however, only elaborations of the general principle that heredity is from germ cell to germ cell, not from parent to offspring.

Biometric Method. The foundations of the Biometric method were laid by Francis Galton, whose most important work, *Natural Inheritance*, was published in 1889. In this he showed that, by taking a large number of cases into consideration, an *average* degree of resemblance could be established between pairs of related individuals (*e.g.* father and son, mother and brother, grandparent and grandchild). Such results do not involve any biological theory: they are purely results of mathematical treatment of extensive data. Galton calculated the contribution to his inheritance which an individual receives *on the average* from each generation of his ancestors, and his data suggested that the two parents together contributed $\frac{1}{2}$, the four grandparents together contributed $\frac{1}{4}$, the eight great-grandparents $\frac{1}{8}$, and so on, giving the series $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \ldots = 1$. This he called the *Law of Ancestral Inheritance.* Professor Karl Pearson has with more complete data confirmed the principle of Galton's Law, but suggests that the actual series is more correctly represented by $0{\cdot}6244 + 0{\cdot}1988 + 0{\cdot}0630 + \ldots = 1$. Pearson and his school have elaborated Galton's mathematical methods, and their contributions are published largely in the journal *Biometrika.* The average degree of resemblance, or the correlation between parent and child (parental inheritance), has been found in a large number of cases to approximate closely to ·5; and a similar figure expresses the correlation between brother and brother (fraternal inheritance). This holds in physical characters of lower animals, *e.g.* the length of the anterona in Aphis [parental inheritance]; in physical characters of man, *e.g.* stature, span, eye-colour [parental inheritance]; in mental characters of man, *e.g.* vivacity, conscientiousness [fraternal inheritance], and ability [parental and fraternal inheritance]. The Biometric method deals with mass-phenomena and averages; it does not give information as to individual cases. Nor does it discriminate between characters due to genetic relation and those due to somatic modification.

Breeding Experiments. Here one is not concerned with mass-phenomena or average degrees of resemblance, but with individual cases, analysing the resemblances between individual parents and their offspring. The outstanding name among the experimenters is that of Gregor Johann Mendel, Abbé of Brünn, who, in 1865, enunciated the far-reaching principles of Unit Inheritance and Segregation, and the less important principle of Dominance. Though Mendel's work was carried out so long ago, it passed unheeded at the time; and it was not until re-discovered independently in 1900 by De Vries, Correns, and Tschermak, that it began to command the attention of biologists. Mendel showed the very striking fact that the characters with which he experimented (characters, in the main, of the edible pea) were transmitted as units; that, though they might, if "recessive," disappear in the hybrid

offspring produced in a cross with a " Dominant " form, they nevertheless reappeared or were " segregated " in their original form among the offspring produced by inbreeding the said hybrids; and not only so, but such segregated forms, when mated together, breed true without any throwing back to the type with which their ancestors had been crossed. Mendel formulated a theory to explain his results which has, as its main idea, the suggestion that each germ cell is pure in regard to any given character—the character being, in fact, according to Professor Bateson's re-statement of the theory, under the name of *Presence and Absence Hypothesis*, either present or absent. Since the re-discovery of Mendel, his followers have put on record numerous experiments which give generally similar results to those of Mendel, confirming his principles of Unit Inheritance and Segregation. The theory of the purity of the germ cell must, on the other hand, always be remembered to be but a theory; it remains still, however—though subject to some criticism—the most convenient explanation of the known facts. The principle of Unit Inheritance is an important contribution to evolution theory, showing how a variation may be perpetuated, although the organism possessing it mate with a normal individual.

Transmissible Characters. The question of the origin of transmissible characters is included in the science of heredity. From what has been said above, it follows that only characters potentially present in the germ cells are capable of transmission. New characters (variations) may arise *de novo* as " mutations " in the germ cell and become visible as the organism develops. It is urged by some that, apart from such mutations, the soma exerts an influence on the germ of such a nature that the organism to which the germ gives rise will tend to exhibit in some degree somatic modifications of the parent. This somatic inheritance, or inheritance of " acquired characters," is an old view which is represented in modern thought by the *Mnemic Theory*, which takes as its starting point the physical memory of protoplasm. The Mnemic Theory is advocated by Sir Francis Darwin in his presidential address to the British Association in 1908. Arguments can no doubt be adduced to favour somatic inheritance, but it should be kept well in mind that all experimental evidence that has been brought forward in its favour is open to grave criticism.

Practical Applications. The study of heredity is a pure science; but, as other pure sciences, it has its practical applications. It has an obvious bearing upon stock-breeding and horticulture. In England, for example, Professor Biffen has, by the application of Mendelian principles, produced a useful race of wheat immune from rust disease. Numerous strains of yeast have been isolated in Germany. Beet has been scientifically improved with regard to its yield of sugar. Heredity has also a direct bearing upon Eugenics (*q.v.*). Professor Pearson and his school have, for example, shown that, whereas the intensity of parental inheritance averages ·5, the correlation between the individual and his home surroundings amounts on the average to only about ·05. This means that good stock is much more important than good environment. Both are desirable. Feeble-mindedness is known to be inherited; and this is the basis of the Mental Deficiency Act, 1913. One of the limiting factors in regard to Eugenics proposals must always be our knowledge of laws of heredity. (See also ACQUIRED CHARACTERS: EVOLUTION AND EDUCATION.)

R. D. L.

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HERING THEORY OF COLOUR VISION.—(See COLOUR VISION, THEORIES OF.)

HERIOT AND HIS HOSPITAL, GEORGE.—George Heriot, the " Jingling Geordie " of Scott's *Fortunes of Nigel*, was descended from the Heriots of Trabroun, Haddingtonshire, and was born in Edinburgh in June, 1563. Having been trained in his father's trade of goldsmith, he started in business for himself in 1586 in a small booth attached to the north-east corner of the Cathedral of St. Giles. His success in his joint business of goldsmith and money-lender was amazing. In 1597 he was appointed goldsmith to Anne of Denmark, Consort of James VI of Scotland, and in 1601, became Jeweller to King James himself.

When the Court removed to London, Heriot transferred his business thither and became a very wealthy man. He died on 12th February, 1624, and was buried in the Church of St. Martin-in-the-Fields.

George Heriot's will directed that the residue of his estate, after provision had been made for certain relatives and friends, should go to the Town Council and Ministers (of the Established Church) of Edinburgh, to be employed for the maintenance, upbringing, and education of poor, fatherless boys, freemen's sons of Edinburgh. The residue, when realized, amounted to £23,625, and was invested very largely in land in and near the City of Edinburgh; and the growth of the city, together with careful administration, has resulted in such an increase in the value of the Trust Estate that the income for 1919 was £36,620.

The foundation stone of the Hospital was laid in 1628, and the building was almost completed in 1650 when Oliver Cromwell, after his victory at Dunbar, took possession of it as quarters for his sick and wounded soldiers.

It is impossible to say to whom the design of the Hospital (generally regarded as the most beautiful building in the city) is due. Some believe that Inigo Jones was its author, but a more probable view gives the credit to the " Master-masons " : William Wallace, John Mylne, William Aytoun, and Robert Milne. The general style of the building, which is in the form of a hollow square, is Renaissance, but Roman and Gothic features have been freely introduced.

After about eight years, the Governors regained possession of the Hospital from General Monk, and in 1659 it was opened as a residential school for poor, fatherless boys who were sons of freemen of the City. The character of the institution remained substantially unaltered until 1886, when, according to a scheme prepared by the Endowed Schools' Commissioners, it was reconstituted as a fee-paying secondary school, with a curriculum on modern and scientific lines. George Heriot's School, as the institution is now called, numbers about 2,250 pupils from 8 to 18 years of age; it has been most liberally equipped for its new work with science laboratories, workshops, drawing classrooms, school hall, gymnasium, swimming bath, miniature rifle range, etc.

It should be added that the Heriot Trust not only

endows the school to the extent of more than £13,000 annually, but also contributes a considerable annual sum towards the maintenance of the Heriot-Watt College in Edinburgh, and further, provides a large number of valuable bursaries and scholarships tenable at the school itself, the Royal High School, the Heriot-Watt College, and the University of Edinburgh. J. B. C.

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HERMITE, CHARLES.—(See CAUCHY.)

HERVEY, LADY MARY. — (See "BLUE-STOCKINGS" AND EDUCATION, THE.)

HEURISTIC METHOD, THE.—Method is the orderly setting forth of sequences and relations, and is for economy in learning and teaching. From one point of view or another a duality is often expressed. We have, for example, inductive and deductive method, analytic and synthetic, empirical and rational, heuristic and dogmatic. Not that each is at the choice of a teacher to take it or leave it as he may think fit: frequently the subject or the mental equipment of the learner will impose its own correct procedure. Nor that each is sharply and distinctly separate from the other in the ordinary detail of teaching: the same lesson may give proper occasion for both. Nor again that the several divisions represent identity in content. The words are indicative rather of logical process in the acquirement and conveyance of knowledge. They describe a mental attitude in relation to external phenomena.

The *Heuristic Method* makes use of the seeing eye and the inquiring mind. It requires the learner to be ever ready to challenge authority, and to exercise a confident independence and initiative. Heuristic methods, says Professor Armstrong (quoted by Professor Welton in his *Logical Bases of Education*, p. 256), are "methods which involve our placing students as far as possible in the attitude of the discoverer—methods which involve their *finding out*, instead of being merely told about things" (*Special Reports on Educational Subjects*, Vol. II, p. 390). The pupil must hunt hither and thither, must search and ask questions—yet be ever alert to suspect an answer and pause lest things should not be what they seem. In spite of exhortations in favour of the Heuristic method, it may be feared that class-teaching—particularly in our public elementary schools where the classes are very large—tends to cultivate a "receptivity" not quite favourable to originality and discovery.

A. E. L.

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HIERONYMITES.—(See BRETHREN OF THE COMMON LIFE.)

HIGHER ELEMENTARY SCHOOLS.—Many School Boards under the Act of 1870 established higher grade schools for children whose parents were willing to pay a higher fee than was charged in ordinary elementary schools in return for a somewhat enlarged and advanced education. The Act of 1902 practically put an end to these schools. Another class of school called higher elementary collected scholars of upper standards from smaller schools, where they were few, and provided them with more favourable conditions of class teaching and a wider and more technical instruction. (See also CENTRAL SCHOOLS.)

HIGHER PUBLIC SERVICES. — (See PUBLIC SERVICES, EDUCATION FOR THE HIGHER).

HIGHLANDS, EDUCATION IN THE.—In the Highlands of Scotland the earliest centres of learning were the Celtic monasteries. Of educational provision for persons other than clerics there are glimpses in the early part of the sixteenth century. At a gathering of the chiefs of the Isles in 1609, it was ordained that the eldest sons of chieftains should be educated in the Lowlands. The Act of 1616 for providing a school in every Scottish parish remained in many districts inoperative, yet by the end of the seventeenth century a number of schools, some giving instruction in Latin as well as English, had been established; and as early as 1648 the General Assembly was providing bursaries to maintain Gaelic-speaking boys at the schools and universities.

William III endowed a school at Fort William, and apportioned vacant church stipends in Argyllshire for the upkeep of schools. In 1696 came his great Education Act, by which a school was to be "settled in every parish not already provided."

The educational work of the Society in Scotland for Propagating Christian Knowledge dates from 1709. One of their earliest schools was in St. Kilda, and within a century they had established throughout the Highlands more than 300 schools.

Additional schools were provided in the early nineteenth century by various Gaelic School Societies, by a Committee of the General Assembly (from 1825), and after 1843 by the Free Church. In spite of the many agencies at work, the Act of 1872 found that much was still to do to make education available for all Highland children.

This aim may now be said to have been practically realized. Where the population is very scattered, facilities have been eked out by "side schools" conducted by unqualified teachers. The ancient belief of Scottish parents in the value of education, and their readiness to secure it at some sacrifice, persist in no part of Scotland more strongly. Out of a population of 300,000 there are approximately 46,000 children in attendance at 650 schools.

In many cases the rural primary school helps to provide secondary education for selected pupils, who afterwards, aided by county bursaries, complete their course at one of the centre schools which have developed at convenient geographical points. Of these 23 are intermediate (3-year secondary course), and 17 secondary (5- or 6-year course) with rolls ranging from 12 to 300, and having together 3,570 pupils (ages 12–19). About a fifth of these, many of them children of crofters, fishermen, or farm-workers, intend to continue their studies at the universities or training colleges. This close contact of the Highland schools with preparation for the learned professions is a special feature of the educational position. W. J. G.

HINDU EDUCATION.—(See INDIA, EDUCATION OF BOYS AND MEN IN.)

HINDU NOTATION.—(See ARABIC NOTATION.)

HINDU WOMEN, THE EDUCATION OF.—It is proposed to discuss in this article the position of Hindu women in regard to education: what is being

done for them, and what more is needed. The term "Hindu" will here be limited to those who are Hindus by religion as well as by race. This means that we must exclude the women who, though Hindu by origin, belong to the "educated" communities, whether as Indian Christians, Brahmos, or Arya Samajists.

For religion, in the name of Christ, and of the great Hindu Theistic reformers, Keshub Chandra Sen and Ram Mohun Roy, has made of such units distinct communities of progress, which have established a right to separate existence. And these are the people in India served by the colleges with university and professional education.

For the mass of Indian women, education means a very simple matter indeed. How simple may be seen from a single entry in the returns. The test of literacy adopted by the authorities is "ability to write a letter to a friend, and to read the answer to it." Judged by this standard, in 1911 only twelve women per thousand, aged 20 and over, were found to be literate. This was the figure for all India, including the Native States, and for all races. When we allow for the "educated" communities, the figure for Hindu literacy is considerably smaller. Yet it is not so discouraging as it seems: in 1901 the proportion was eight per thousand.

The Material to be dealt with. And then there are many things to remember. Hindu girls marry very early; some castes seclude their girls at 8 years of age; and the strictest orthodox high caste opinion is that marriage before 9 is most advantageous. After the first marriage, it is not proper for girls to go to school, especially where the only teachers available are men. If the woman has not learned to read as a child, it is very difficult to buy back the chance later on in life, for, apart from custom, there is prejudice. "If women learn to read and write, they will become independent and have opinions of their own," is what Hindu men have said.

Over large parts of India the prohibition against learning to write is the last to be yielded. "A woman," it is persisted, "would put writing to mischievous uses"; and the hieroglyphic representing her signature is often all that she is allowed to master, though she may read fluently.

Again, the rapid progress of the "educated" few terrifies the strictly orthodox woman. "Must we then," she says, "throw away caste, seclusion, and religion, when we learn to read and write?"

Worst prejudice of all: "Educated women," it is whispered in zenanas, "are childless, and their husbands die young." No Indian woman, believing that, could desire learning. And that brings us to the root of things. The orthodox masses do not realize the advantages of education: they do not know enough to desire learning for the sake of the fruits of learning. In a race, too, where there are no spinsters, that a woman should earn her own living is not thinkable. You are either a wife or a widow: in either case, you are in tutelage all your life. In communities where the chief work of a household is done by the women, however well-to-do, neither are you in need of occupation. The service of your husband, of your mother-in-law—these are enough for your needs. To be the mother of sons —that is the end of ambition.

Of late years, attempts have been made to lighten the lot of widows by education; to make them self-supporting so that they need not be family drudges. Some of the figures to which reference will be made later on include these women. But, even where one has persuaded families or individuals of the advantage of such a scheme, both to the widow and to the family relieved of her support, the want of proper provision for recognition of Hindu custom in existing educational institutions, and the difficulty of placing a good-caste woman among strangers when she is eventually equipped for work, present very real problems.

A recital of difficulties is inevitable if figures are to be understood and needs met. Mr. Orange, late Director-General of Education in India, writing about the education of girls, quotes some of these difficulties, and refers to the fact that, whatever Indian gentlemen may admit about the advantages of education when the process is complete, they are apprehensive of "the loosening of social ties, the upheaval of customary ways," and "the severe domestic embarrassment" which must mark the period of transition. He concludes—

"In fact, the people at large encourage or tolerate the education of their girls only up to an age and up to a standard at which it can do little good, or, according to their point of view, little harm."

Existing Educational Facilities. So much, then, for material—a handful of Hindu women who can read and write their mother-tongue, and whom caste and custom allow to proceed to further education. What is being done for them? Government, Mission, and private agencies are all at work. There is, first, university education. In this anomalous country of India, women may take degrees exactly on the same terms as men; nor are they deprived of a university vote. In Bombay, women attend even men's colleges. There are training colleges, mostly vernacular, where women are taught the profession of teaching. There are schools of art and technical industrial institutions.

The Census Report of 1911 gives 106,612,331 as the number of Hindu women in India. The following tables show how many of them were under instruction in colleges attached to the universities, in training colleges and schools, and in other institutions.

TABLE I.
UNIVERSITY EDUCATION. (ALL INDIA.)

	Brahmans.	Non-Brahmans
Arts Colleges	28	48
Medical Colleges	3	3
Training Colleges	—	1

TABLE II.
TRAINING COLLEGES AND SCHOOLS.

	Brahmans.	Non-Brahmans
Madras	3	44
Bombay	134	131
Bengal	8	14
United Provinces of Agra and Oudh	12	22
Punjab	5	18
Eastern Bengal and Assam	2	11
Central Provinces and Berar	9	38
Coorg	2	2

TABLE III.

SPECIAL SCHOOL EDUCATION.

	Brahmans.	Non-Brahmans
Training Schools . . .	173	274
Schools of Art . . .	—	1
Medical Schools . . .	—	19
Industrial Schools . .	75	

(*These tables are taken from the Quinquennial Report, 1907–1912, Department of Education, Government of India. They evidently overlap in detail, and must be discounted for the further reason that they include the "educated" communities also.*)

One conclusion to be drawn from these statements is that it is not a university education of which Hindu women, as a whole, stand just now in need. In Bombay, where the custom of seclusion is lax, the figures are good—both as to university education and training schools. For other provinces, they are not encouraging. Calcutta, for instance, which boasts three women's colleges, returns only five Hindus, and these attend the Diocesan Mission College. The College with an Indian foundation officered by Bengalis does not return a single Hindu woman.

A teacher's training in the vernacular is apparently more popular than a university education in English. But the cry all over India still is that there are not enough Hindu women who are sufficiently literate to avail themselves even of this opportunity of service.

To the figures given above, we should add the possibility that some Hindu women (not listed as such in any available statistics) may be attending infant schools. The writer has known cases in Bombay where mother and daughter have been pupils at one time in the same school—the mother in the Infant Class, struggling with the alphabet with the help of a daughter who was preparing for the University Entrance Examination.

The educational authorities, recognizing that Hindu women are not yet ripe for university education, are wisely pushing forward from below. They are now experimenting with "gathering classes" (*i.e.* classes for secluded women held in private houses); with zenana house-to-house teaching; and with classes for the wives of village schoolmasters—all extremely elementary work, serving, so far, the lower middle classes, and not yet completely satisfactory; but all movements in the right direction. They are multiplying training colleges, and making better provision for respect of the custom of *purdah* in girls' schools, in order to prolong the school age and attract secluded women. And, since the complaint is still that education does not fit the need, they are experimenting with "Mothers' Meetings" and School Extension Classes. Widows' schools are also being multiplied; and industrial education has made a step forward, chiefly through missionary and private institutions, where lace-making, Delhi embroidery, etc., are taught, and where in some instances women are helped to start home industries.

From Native States like Mysore and Baroda we get statistics which prove that it is not impossible to reach the orthodox. But it is difficult to report progress except in detail, as India differs for different provinces. In Madras, for instance, there is a tendency for girls to return to school after marriage. In the United Provinces of Agra and Oudh, the complaint is that girls leave school at 8 years of age. Again, provinces like Bombay, and tracts of country like the Tibetan Hill District, where there is no *purdah*, show numbers which are deceptive if taken as an average. We read in reports from one part of India that women are clamouring for education; from another that the most that can be said is that antagonism is yielding to apathy.

Aims and Ideals. There is a danger that the educated non-Hindu communities may absorb too much of the country's resources. Already, as we see, the high schools and colleges serve such communities almost exclusively. One of the new schemes already in progress is the foundation of a Women's Medical College at Delhi. A committee of women in England has been urging the further education of Indian women in England. For many years to come, schemes such as these, however praiseworthy, must serve the non-Hindu advanced communities alone.

If these educated women could influence the strictly orthodox more quickly than any other provision for education could do, the disproportionate allotment of funds might be advisable. But experience teaches that it is only the orthodox community that can serve the strictly orthodox, except in the rare cases where education has been so complete as to teach the educated that sympathy and respect for the customs and beliefs of others which is the sign of the elect of whatever race or creed.

The first thing necessary would seem to be separate enumeration for Hindus proper in all educational returns. We should then know exactly how we stood in regard to this community in every school and college all over India, and could make special paths for the feet of the strictly orthodox.

Next, work should be planned according to the place in life of these Hindu women. The secluded women of the zenanas of Raj estates or landholders' families need different provision from the secluded women of the professional or lower middle classes; and Hindu non-secluded women in villages need other treatment still. There should also be some kind of educational propaganda to create the desire for learning. And, preliminary to the teaching of letters, one would like to see instruction given in the vernacular in such subjects as the need for fresh air and exercise, personal hygiene, domestic sanitation, the care of children, and what is doing in the world generally, so as to help the women to know what ambitions to hold in their hearts for their children. *Purdanashin* parks should be enclosed in the larger towns, and *purdanashin* institutes founded in connection with them, where work of the kind indicated above could go forward. Till orthodox Hindu women are educated, it is hopeless to work for the regeneration of India; and money spent on the education of boys and men, or on the education of the emancipated communities alone, is expenditure at a discount.

The method of education adopted in the past has been to provide English ready-made fashions for Indian customers. It has resulted in the evolution of the educated communities, and to that extent is not to be despised. The point is, "What next?"

"Let the orthodox come and take in the open what we have taken, or go without," said a Brahmo,

discussing this question. But the difficulty is that there are myriads who would rather do without for ever than come into the open, renouncing caste and custom and inherited prejudice.

Shall we remain inactive while they die in ignorance, or shall we seek now to meet the situation which this article has attempted to summarize?

C. SORABJI.

HISTORICAL ASSOCIATION.—This Association was founded in 1906 to further the study and teaching of history. For this, it collects information of materials available for historical study and methods of teaching the subject, and imparts this knowledge to members through the library, various publications, correspondence and lectures. Local centres are arranged to discuss questions relating to the study and teaching of history, and opinions of teachers of the subject are stated to bodies controlling education. In addition, it co-operates with such bodies as the English Association, the Geographical Association, the Modern Language Association, the Classical Association, in order to advance any educational purposes which it may have in common with them.

The journal *History* is published quarterly. Other publications of the Association consist of leaflets of information on examinations, methods of teaching, and lists of books on various subjects.

HISTORICAL ASSOCIATION OF SCOTLAND.—Inaugurated in 1911, to consider educational problems relating to the teaching of history and to shape a definite course in relation to them, to collect and offer to members any information of methods of teaching in other countries, of the relative value of text-books and books for school and library, and to further in any way the scientific teaching of history. By organizing local branches, the study of local history is encouraged, local records, names and places of historical interest being examined.

The lending library includes a reference department of text-books.

HISTORICAL NOVELS.—The first aim in the teaching of history is to awaken the imagination. The old and obsolete method was to fill the student's mind with facts, dates, genealogies, and other information. When the inadequacy of this became recognized, chief stress was laid on deeper things—the growth of customs, laws, institutions, and the conditions determining internal evolution and external relations. Neither method is satisfactory without a vivid realization of the human side of history; the one tends to be an affair of rote, the other a study of abstractions. History is not so much a science as a branch of humanism; a study of men and women, not merely of intellectual concepts termed peoples. It should be taught as something actual and alive, and the truth should be deeply instilled that we to-day are engaged in preparing the latest chapter.

There are two useful ways of making this felt. One is to connect the past closely with the present, by arousing interest in, and understanding of, existing things and current events as a part of history. Of the value of so doing, a striking illustration is before us. Our absorption in the Great War, and our natural desire to understand its meaning and antecedents, have given the average man an insight into the history of the last fifty years that nothing else could have inspired. The study of local history also helps by bringing home to us that our own forebears and predecessors, and the scenes amid which we live, all have a vital place in the great historical perspective.

The Historian and the Historical Novelist. The other and not less fruitful way is the reading of historical novels. Its great educational value would be obvious were it fully realized that the difference between good historical fiction and the reconstruction of bygone periods essayed by the regular historian is not so much grounded in the nature of things as in the degree to which thought and imagination have worked upon precisely the same material. The historian undertakes to ascertain and interpret facts. He has also to substantiate his statements by submitting and weighing evidence, and, further, by explaining motives and analysing causes. This involves, first, a process of psychological analysis based on research into material facts, and then a process of imaginative reconstruction and portraiture of persons, peoples, and circumstances.

Leaving out of account the mere costume novel, let us see how the historical novelist works. There are, of course, some novels dealing with particular persons or events that are serious contributions to historical knowledge. Such are Hewlett's *Richard Yea-and-Nay* and *The Queen's Quair*, imaginative biographies of Richard I and Mary Queen of Scots; Quiller-Couch's *Hetty Wesley; Esther Vanhomrigh*, by Mrs. Woods; and the pictures of Elizabethan Ireland by the late Emily Lawless. But the historical novelist usually takes for his central theme not real persons or outstanding events, but romantic incidents and imaginary personages, combining these with the facts warranted by history. Yet, in so far as his novel is historical, he constructs it on the same plan as a work of history. He, likewise, has to present facts, and to make them intelligible, lifelike, and convincing; he has also to invent incidents that resemble facts and human figures that harmonize with the historical environment.

The historical novelist thus approximates more or less to realities; and, after all, the historian does no more. His portraits, too, are essentially imaginative creations. He can no more give us the real man of yesterday than he can recapture the primitive thoughts and feelings of the Stone Age.

The Educational Value of an Historical Work. The educational value of any given historical work depends not merely on truth of fact, but largely on the same qualities that make a good historical novel. Those historians who have taught mankind most—Herodotus and Thucydides, Livy and Tacitus, Clarendon and Macaulay—were men of powerful imagination, deep insight into human character, and an inborn faculty for portraying living beings, as well as a strong artistic sense of *mise-en-scène*. Conversely, Scott, Thackeray, George Eliot, Dumas, Jókai, Tolstoy, had in them the makings of great historians. In a sense, they really were great historians.

The educational value of *Old Mortality*, or *Esmond*, or *The Cloister and the Hearth*, or *War and Peace*, is to make the past live. This is infinitely better history than any collection of meaningless or unimpressive facts. It is the same kind of difference as between reading a play and seeing it acted, but a much greater difference. An historical picture teaches by making one see things. An historical novel teaches far more,

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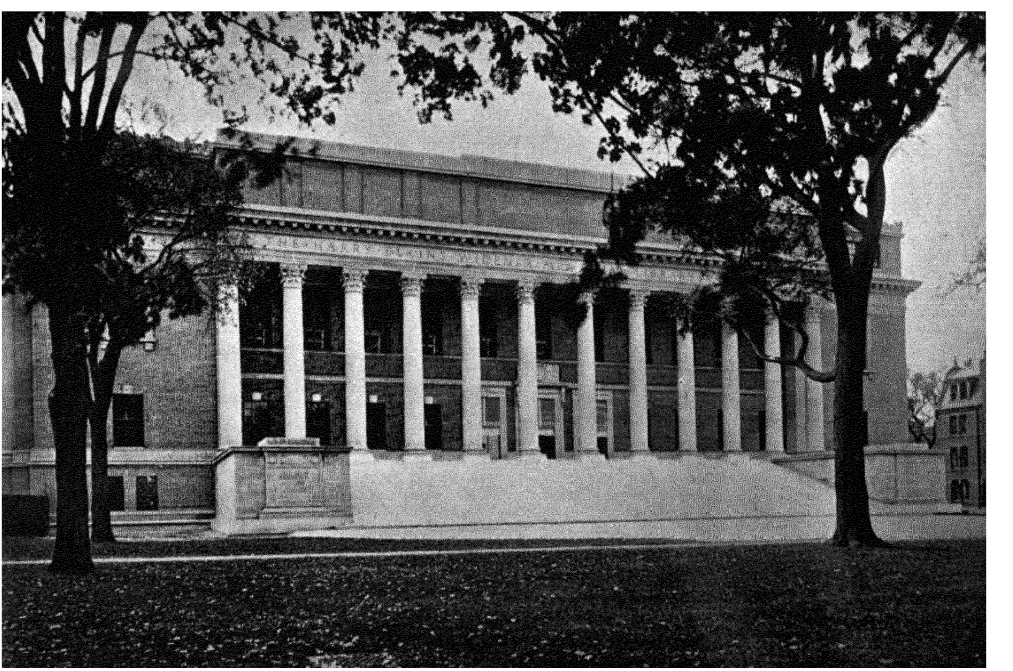
The Johnston Gate at Harvard University



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The Widener Memorial Library at Harvard University

PLATE XLVIII

because it makes the inner eye see, and archaeological details become part of the environment of life.

Great historical epochs have yielded the largest crop of historical novels. The Great Civil War, the Jacobite troubles, the struggle with Napoleon, the American Revolution, and the American Civil War, —each has a vast romantic literature. Most of the finest novels, however—notably Scott's—have, for artistic reasons, had other themes. Both the great imaginative creator and the humbler interpreter of historical events have their educational value. Among the latter, the teacher of history should not undervalue the stories of Henty, Gilliat, Whistler, Miss Hollis, A. J. Church, A. D. and E. E. Crake, and Mrs. Marshall; the Indian novels of Meadows Taylor; the Alsatian stories of Erckmann-Chatrian; or the reconstructions of ancient Egypt, Greece, and Rome by George Ebers. Some novels of supreme merit are cited below—

Novels.

BLACKMORE, R. D. *Lorna Doone.* (Exmoor and the Monmouth Rebellion.)

DUMAS, A. *The Three Musketeers.* (Time of Richelieu.) *Twenty Years After.* (Time of Mazarin.)

The Vicomte de Bragelonne. (Reign of Louis XIV.)

ELIOT, G. *Romola.* (Florence and Savonarola.)

HEWLETT, M. *Richard Yea-and-Nay.* (Richard I, 1188–1199.)

The Queen's Quair. (Mary Queen of Scots.)

HUGO, V. *Ninety-three.* (The Chouans.)

Notre Dame. (Fifteenth-century Paris.)

KINGSLEY, C. *Hypatia.* (Alexandria, A.D. 413–415.)

Westward Ho! (Elizabethan England.)

LYTTON, LORD. *The Last of the Barons.* (Wars of the Roses.)

MUNRO, N. *John Splendid.* (Mary Queen of Scots.)

READE, C. *The Cloister and the Hearth.* (Europe about 1470.)

SCOTT, SIR W. *Ivanhoe* (*c.* 1194).

Quentin Durward. (Louis XI and Charles the Bold.)

The Fortunes of Nigel. (Reign of James I.)

The Legend of Montrose. (Montrose and the Covenanter.)

Old Mortality. (Scotland in 1679.)

Rob Roy. (The Jacobites in 1715.)

The Heart of Midlothian. (Scotland in 1730.)

Waverley. (The Jacobites in 1745.)

Redgauntlet. (The Jacobites in 1763.)

SHORTHOUSE, J. H. *John Inglesant.* (England and Italy, 1622–1685.)

SIENKIEWICZ, H. *With Fire and Sword.* (Seventeenth-century Poland.)

STEVENSON, R. L. *Kidnapped.* (The Jacobites in 1746–1751.)

THACKERAY, W. M. *Esmond.* (England in 1691–1714.)

TOLSTOY, L. N. *War and Peace.* (Russia and Napoleon.)

ZOLA, E. *La débâcle.* (Sedan and the Commune.)

E. A. B.

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HISTORICAL RESEARCH.—(See RESEARCH AT THE BRITISH MUSEUM AND PUBLIC RECORD OFFICE, THE APPARATUS OF.)

HISTORY AND GEOGRAPHY, THE RELATIONS BETWEEN.—Man with his powers of abstraction and introspection is ever ready to look upon himself as a being independent of the world around him, as owing no allegiance to the system in which he finds himself; and this attitude of mind becomes more pronounced as he advances along the path of civilization and learns how to harness Nature's powers to his service, so that the web of his activities becomes sufficiently complex to conceal from his view the fundamental facts of his existence.

Yet however much man, and particularly modern man, may consider himself master of the material world, it must always be true that in his needs of air to breathe, of water to drink, of food to eat, of raiment to wear, and of suitable climatic conditions, he must acknowledge Nature as the controller rather than as the controlled; in other words he is the subject rather than the ruler of his environment.

In primitive times, the places to which man was attracted were those where simple foods could be procured without much difficulty, where the climate was sufficiently genial to make clothing and shelter more or less unnecessary, at any rate for the greater part of the year. Such sites were found in the basins of the Lower Nile, the Ganges, the Euphrates, and the Tigris. In these districts Nature's bounty provided man with enough and to spare; he had leisure to consider how to improve the conditions of his existence, to accumulate and record his experiences, and so to proceed along the path of discovery. He learned how to produce fire at will, and, what was still more valuable, how to control it when produced.

Henceforth, he was no longer tied to the hotter of the earth's zones, but could fix his abodes in parts which were less genial. Successive swarms, therefore, set out from the earliest settlements in Asia in search of new homes, picking their way as geographical circumstances dictated, following the lines of least resistance as marked out for them by the river valleys, skirting mountains, forests and fens, till they reached the various "land pockets" of the North, the South, and the West of Europe, where allied tribes settled down to coalesce into nations and develop political systems whose strength was usually proportioned to the completeness of the physical buttresses surrounding them.

But between district and district there exist dissimilarities of surface, climate and soil, and consequent upon these diversities are differences in the natural productions. Nature gives in one direction what she withholds in another, and thus sets up between region and region a sort of difference of potential, causing the wealth of one land to seek an interchange with that of another. The desire to share in the good things possessed by others finds expression in intercourse by way of trade, or attempts at forcible acquisition through invasions and wars. An instance of the first of these is to be found in the foreign policy of England during the Middle Ages when, as a wool-exporting country, she maintained a close political connection with the Flemish wool-manufacturing towns. An example of the latter is furnished in the Spaniards'

appropriation of America for the sale of the precious metals it possessed.

It might, at first sight, be supposed that a country's trade will mould its foreign relationships only. But further consideration will show that such a view is too restricted. The traders in a community tend to become a well-recognized class bent on securing and maintaining such a position in the political structure as will best conduce to their material interests.

From what has been already said, it will be seen that there is always in operation an interaction between man's environment and man, between geography and history, and this interaction works in two stages which may be described as the statical and the dynamical. In the first, man is largely at the mercy of his locality. He lies at Nature's feet, and takes simply what she chooses to bestow. In this stage he tends to become the resultant of natural conditions, much in the same way as the flora of a district accommodates itself to its environment.

The Dynamic Influence of Geographical Conditions on Man. In the second stage he seeks to modify his surroundings by his skill and his inventive faculties, and by procuring from districts outside his immediate area the goods Nature has denied to him. In this stage, he becomes more and more the dictator of Nature; and yet, even then, he enters upon a new sort of dependence, seeing that it is only by studying Nature's operations and obeying her laws that he can get from her what he wants. Man decides what commodities will best serve the purposes he has in mind, but it is Nature that decides to what kind of treatment she will yield her fruits of increase, and it is along the paths planned by her that the products are conveyed from the producer to the consumer. Before the construction of artificial roads, the rivers were the best highways, and, even when locomotion was revolutionized by the advent of the steam-engine, it was the river valleys that furnished the easiest routes along which to construct the railroads.

It is an easy transition from river navigation to sea navigation, and in the dynamical stage of interaction between history and geography, the sea has proved the most powerful factor.

It is the sea that most readily fills men with the spirit of adventure, and makes them ready to face the unknown. It is thus the sea-faring nation that creates for itself opportunities for the establishment of colonies and the acquisition of wealth. The Mediterranean sea laid down the lines which the trade of the Middle Ages should follow, deciding the course of commerce by the configuration of its coast lines, and by its harbours which could most easily establish communication with the best over-land routes. But the discovery of America changed the whole course of European history. The Atlantic superseded the Mediterranean as the region of maximum maritime activity, and all that was involved in the question of the supremacy of the seas became century by century more and more clearly recognized. It is outside the scope of this article to trace the successive stages by which Britain came to rule the waves, but it is worthy to remark that the Great World-wide War contained among its more or less latent issues the question whether Hamburg and Bremen with the advantages of the open Continent behind them could out-distance London with its insular security.

Trade, even by way of the sea, keeps to established routes, seeing that prevailing winds and currents determine the best courses for ships. In other words, though man has at his command the gigantic powers of steam, he cannot afford to ignore such independent forces as are to be found in the Gulf Stream, the Mozambique Current, the Japan Current, and the Polar Current.

Naval warfare, *per se*, is, it might be supposed, free nowadays from the geographical factors which obtained when it was the winds that decided the encounters between rival ships on the open sea. Yet naval warfare of the present day cannot claim absolute freedom, seeing that the use of steam presupposes the ability to obtain coal or oil.

Land warfare is in a much greater degree a matter of geographical conditions. Undulating surfaces and river are likely to present important problems in the strategy of a campaign, and, even on the flattest surface, the assemblage of large bodies of men must be conditioned by the provision of adequate supplies of water. No more convincing fact can be adduced in this connection than the importance attaching to map-reading in the training of officers, and the fact that for the elucidation of the details of military history it is necessary to follow the course of events on a map drawn to large scale.

As a further illustration of how history is closely associated with geography, consider what is involved in the construction of the Channel Tunnel to join England and France. This project means the placing of London in direct communication with all the capitals of Europe, the opening up of a new highway to the East, and the linking up of the Mother Country with Cape Colony overland by junction with the Cape to Cairo railway. As a result of the quicker transport, commercial advantages would accrue to all countries of the Old World; but far outweighing any trading advantages would be the gain to humanity in political assets. A League of Nations to be effective must be based on a good understanding between its constituent members, and a good understanding depends upon greater knowledge and closer intimacy.

But these advantages derive much of their power because of the stage of development man has now reached, and emphasize the variable value of Nature's gifts from age to age, insomuch that what was at one time a blessing may be at another a curse.

The considerations most valued by man of to-day are not those sought after by semi-civilized man, and still less are they those which were prized most by primitive man.

A. J. BERRY.

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HISTORY, THE DRAMATIC METHOD IN TEACHING.—To the educationist in general, the value of the dramatic method lies in the demands

which it makes upon the active co-operation of the pupil, and the scope which it gives for self-expression and spontaneous effort; to the teacher of history, in particular, it offers unique opportunities: (1) To stimulate the historical imagination and emphasize the solidarity of human nature; (2) to develop the sense of historical perspective; (3) to exercise the faculties of selection and construction; (4) to create a standard of objective historical truthfulness; (5) to reduce sociological abstractions to the concrete by expressing them in terms of the individual. These different aims assume varying importance according to the varying needs of the pupils. The one constant principle is that the work must be the children's own. A ready-made play does not afford pupils the same opportunities either of self-expression or of appropriation of facts. But the teacher must supervise and criticize, lest romance oust history, and error be blended with fact in the recollection of the actors. Three main stages may be distinguished, the method being somewhat different at each—

1. When personal experience is too limited for political facts to have meaning, the value lies in the realization of historical figures in little heroic or epic plays. Scenes from the life of Dunstan, for instance, have been produced in this way. The plays should be almost impromptu, for spontaneity is their most valuable characteristic; for most young children, acting is a far more natural form of self-expression than writing, or even than oral narrative.

2. With older children, much of the value of the method consists in training the sense of proportion. As they can now read for themselves, more can be left to them. Judgment and perspective will be demanded; whilst experience in literary construction will be gained which will be of great service later. The life of Joan of Arc is a typical subject suitable at this stage. The teacher will watch and criticize, and guide the pupils to books of information about costumes, armour, heraldry, etc. The critical faculties of the children are not yet sufficiently educated for them to be left to collect their material themselves from original authorities.

3. This may be expected of them later, when their minds are becoming greedy for facts, and the development of self-consciousness makes creative work more difficult. They can be referred to original sources, the teacher guiding them in the choice of subjects. A great mass of material for social, constitutional, and political history is suitable for dramatization and worthy of detailed study. In political history, the Parliamentary reports, from Elizabeth onwards, supply material; and debates on subjects such as Monopolies, the Stamp Act, the French Revolution, or the Repeal of the Corn Laws, can be arranged. The State Trials also provide useful matter. The repressive policy of Pitt, for instance, can be illustrated by a reproduction of some of the trials for sedition in 1792–1793. For constitutional and social history, the method has even greater advantages. The reduction of an institution to terms of individual life is a device long familiar to the teacher, but is of even greater value when effected, as it may be through the dramatic method, by the pupils themselves. Those who welcome the recent tendency to emphasize the social and economic aspect of history will find in the dramatic method a most useful ally. By its means, not only the continuity of institutional development, but also the permanence of human needs and natures, as set against the ever-changing framework of society, may be visibly demonstrated. A court baron, for instance, may be constructed from readily accessible manorial rolls; an episcopal visitation of a nunnery from diocesan records; whilst the *Dialogue of the Exchequer* itself has great dramatic possibilities. The method might also be used along the lines suggested by Mr. Keatinge, with the aim rather of working a problem than of reproducing past events. Thus the scope of an Act of Parliament may be grasped by the invention and trial of test cases. There must, however, be no invention of history or law. The teacher must indicate clearly where there is and where there is not documentary warrant for the proceedings.

Accessories and Costumes. The extent to which accessories, such as costume and properties, are used will vary according to circumstances. Whilst the love of dressing up may contribute largely to the success of the method with young children, and the search for correct properties may have an educative value in itself, it is still true to say that, broadly speaking, the fewer accessories the better. The historical imagination works most vigorously when there are fewest external aids to bolster it up. As correct reproduction is impossible, it is better to keep to a conventional scale; and once the dramatist-actors' blood is up, there is no difficulty in recognizing Fox in the person of a twentieth-century schoolgirl. If desired, as Miss Finlay-Johnson suggests, a "chorus" may be appointed to explain and define the conventions used. It is only when a less imaginative audience is permitted to witness the performance that any difficulties will arise. If the dramatic method should vary at different ages, the extent to which it is used should also vary. With the youngest children, it can be used very frequently; but, as the amount of care which it demands grows, it will have to be employed less often. With older children, it is probably most profitable when used for revision purposes, when the whole background is familiar and the pupil can safely be allowed to concentrate on certain incidents or aspects of the period without losing the sense of proportion. And it is, above all, necessary to remember that all historical subjects are not susceptible of dramatic treatment. Valuable as the method is, it is not an end in itself: it is subsidiary to the interests alike of historical truth and of the personality of the child.

H. M. C.

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HISTORY IN ENGLAND, THE EARLY STUDY OF.—In Alcuin's account of the library at St. Peter's School, York, in the eighth century, he refers to the ancient historians, and to the English Bede (*Ecclesiastical History*, of course in Latin, A.D. c. 731). The interest in history studies until the Renaissance period was mainly in the Latin and Greek historians, though the old Latin chroniclers of British and Anglo-Saxon history, such as Gildas; the Anglo-Saxon chronicler, William of Malmesbury; Giraldus Cambrensis, Hoveden, Matthew Paris, Higden, supplied the material from which in Renaissance times later historical books were compiled. No doubt readers of history in the

Middle Ages were mainly the princes, nobles, and the members of the Court. In Italy, Patrizi, in the latter half of the fifteenth century, said that the study of history is necessary to kings, dukes, commanders and all princes. In the earlier part of the fifteenth century, John Froissart wrote a chronicle (1326–1400) which is distinguished by its width of outlook, its intimacy, "artlessness," and zest of narrative. It includes accounts of events in France, Flanders, and the Papal Court, and is of particular interest for England, Scotland, and Ireland. Enguerrad de Monstrelet (d. 1453) continued the record of Froissart from 1400–1444, showing the same readiness as Froissart in consulting documents and in obtaining authentic information together with a still wider European interest. From this time forward, courts, and even noble households, entertained historiographers to chronicle their deeds. Historians henceforth, at least, mainly belonged to courts or lay life rather than to the cloisters, as had been the case in the Middle Ages. John Bourchier, Lord Berners (1467-1533), courtier of Henry VIII, translated into English the French of Froissart's chronicles (1523-5). In his preface, Lord Berners made a stirring appeal to the reading of history, incomparably the finest up to his date in England. Robert Fabyan, in 1516, produced his English chronicle or Concordance of Histories. But in 1534, Polydore Vergil, an Italian from Lucca, in Henry VIII's Court, published at Basle his remarkable *Historia Anglicana*, written in Latin but with a distinct attempt at judicial weighing of facts and the statements of his predecessors. Edward Hall's *Union of the noble Families of Lancaster and York* (1542), and Raphael Hollinshead's comprehensive *Chronicles* (1557), are the sources from which Shakespeare and the other Elizabethan dramatists drew for their historical plays, and these plays must be regarded as the chief disseminators of knowledge of English history in the sixteenth century, and a large part of the seventeenth century.

History as an Educational Subject. With regard to modern history as an educational subject of school and university teaching, the first advocacy of its inclusion in the curriculum is apparently to be found in Juan Luis Vives (*q.v.*) who specifically mentions the study by the pupil of the Spanish Valera, and Froissart, Monstrelet, and Philip de Commines, writers of recent history in the vernacular, "of whom *there are many not less worthy of being read than the majority of Greek and Latin historians.*" Vives is thus the pioneer of the study of modern as well as ancient history. There were, of course, at the time of and after the Renaissance, claims for the teaching in schools of the history of Greece and Rome. Erasmus looks on historical writings as models of rhetorical treatment, and in the *de Copia* points out the usefulness of historical allusions for the purposes of illustration in composition. Sir Thomas Elyot who wrote the *Gouernour* in 1531, the same year as Vives published the *de Tradendis disciplinis*, speaks of the delight of history-reading, but refers to Greek and Roman historians, and especially in those of the *conciones* or orations of captains.

Historical Text-books. The first school text-books of history in England appeared in Queen Elizabeth's reign. Two should be mentioned. Christopher Ocland wrote *Anglorum Praelia*, 1580. (For an account of this book, prescribed by the State for schools, see OCLAND, CHRISTOPHER.) The second was unprinted till modern times, viz., the *Historia Anglicana*, by John Herd, or Hyrd, head master of Lincoln Grammar School, who died in 1588. The books of Ocland and Hyrd are in Latin verse, and both were written about 1580. Hyrd's book, in the Roxburgh Club series, is interesting as presenting a contemporary schoolmaster's view of history-teaching just before the Armada. It is founded on Edward Hall and Polydore Vergil. In a letter to Cecil, Hyrd describes history as *memoriae thesaurus, temporum imago, veritatis lux, pietatis propagatio, heroum vita, regum fama, et magistratuum magistra perfectissima.* Hyrd's work extends from 1460 to 1509.

In 1570, Thomas Blundeville wrote the *True Order and Method of Reading Histories*, based on the Italians, Francisco Patrizi and Eccontio Tridentino. In 1648 Matthias Prideaux followed with an *Introduction for the Reading of all sorts of Histories.* But more important was the foundation of a chain of history in the University of Oxford by William Camden in 1622, and in Cambridge by Lord Brooke in 1628. The latter required that preference should be given, in the appointment of lecturers, to those who had travelled beyond seas, and who knew foreign languages; and made the lectureship open to foreigners. The first "reader" of history at Oxford, in 1622, was Degory Wheare; and, in keeping with Lord Brooke's statutes, at Cambridge, in 1628, was appointed a foreigner, Isaac Dorislaw, of Leyden.

The pride of patriotism which had been developed in Queen Elizabeth's reign showed itself in the activity of history-writing. John Stow wrote the *Annals of England*, 1580, and *Survey of London*, 1598; Richard Knolles, head master of Sandwich Grammar School, a *History of the Ottoman Turks*, 1603; and Sir Walter Raleigh a *History of the World*, 1614; and "pieces of history," as they were called, were numerous. James I, in the *Basilicon Doron*, advised his son to be well versed in authentic histories, and the Protector, Oliver Cromwell, after the experiences of the great constitutional struggle against Charles I, counselled his son to "recreate himself" with Sir Walter Raleigh's *History;* and John Milton wrote a text-book of English history. Nevertheless, history did not become a systematic school subject in the sixteenth or even in the seventeenth century. Schoolmasters with the historic spirit, like William Camden at Westminster School (1575–1599), and John Langley, at St. Paul's (*d.* 1657), "a great antiquary in the most memorable things of this nation," doubtless developed the historical interest of boys in their schools; but it was not till the eighteenth century that modern history (at any rate) really became established in good schools—largely due to the example and influence of Nonconformist academies. At the time of Defoe, who had been at Charles Morton's Academy (*c.* 1670) at Newington Green, and in 1743 at Northampton under Philip Doddridge, history was clearly regarded as an important subject—and the study of history was further developed at Warrington Academy, as seen particularly in Joseph Priestley's syllabus.

Literary Historians. The introduction of style into the writing of history is to be noted in Clarendon's (*d.* 1674) *History of the Rebellion;* Gilbert Burnet in his *History of the Reformation* (1679–1714), held high rank, and in the latter part of the eighteenth century Hume began the series of

the later stylist English historians of whom Robertson and Gibbon were the most conspicuous examples.

As a point of contact between the literary man and the schools, Oliver Goldsmith's *Histories of Rome* (1769), and *England* (1771), are conspicuous. Goldsmith's text-books particularly served the purposes of the large body of private schools, both of boys' schools and girls' schools, in the latter part of the eighteenth, and the nineteenth centuries. In 1875 English history was included as a possible class subject in primary schools, but it was not till the Code of 1902 that history was required to be provided for in the ordinary curriculum of all state-aided schools, primary and secondary. F. W.

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[The illustration of the characteristics of English historians by a series of extracts, together with passages showing the views of historians of different periods, as to the objects and methods of History.]

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HISTORY (SCHOOL) TO EDWARD VI.—(See ENGLISH SCHOOLS TO EDWARD VI, HISTORY OF.)

HISTORY, THE TEACHING OF.—Method in teaching history, as in teaching any "literary" subject, must always be governed by (*a*) the nature of the subject; (*b*) the age, character and degree of development of the students who compose the class; (*c*) the object for which the subject is studied, and (*d*) the educational value that the study will impart. It is obvious that a method which is suitable for boys and girls of 13 or 14 years of age will not be suitable for young men and women at a university. Similarly the degree of development in the student must be carefully considered. Students may be very ignorant of history and yet may have had their intellectual facultics adequately trained by the prolonged study of other subjects, such as mathematics or one or more languages; or they may begin the study of history, not merely ignorant of history but with very little previous training in any other subject. There is always, also, a great danger in the laying down of principles and rules which may become mechanical. Teachers and taught alike may easily convince themselves that the mere carrying out of rules, in themselves reasonable and effective, constitutes in itself a sound method. Too much emphasis cannot be laid on the truth that no method is an end in itself, but only, at best, an instrument, always more or less defective, for achieving an end. It can also be asserted with certainty that no method will in the long run be effective that does not interest the teacher himself: *i.e.* that is sufficiently flexible to admit of infinite variation and to give the fullest scope to the teacher's knowledge, temperament and attitude towards the problems involved in the subject matter. Personality and the indefinable inspiration that comes from a marked individuality are the first and most important pre-requisites in a teacher. Without that, his teaching may have the maximum of correctness in method, but will lack everything else. Method can never create personality; it can only develop it, and provide the fullest and best field for its manifestation.

Reasons for Studying History. Hence, it is desirable at the outset for every teacher to have very clear ideas as to the objects of, and reasons for, the study of history. These, briefly, may be defined as three. The study, apart from any ulterior results, can be made a valuable educational exercise in the training of the mind: *i.e.* the processes by which knowledge is acquired have a value distinct from the value of the knowledge acquired. Accuracy in thought and expression, the correct use of terms and words, the use of tests to distinguish truth from falsehood or to classify degrees of probability, the exercise of the imagination in order to visualize conditions wholly different from those prevailing to-day, the training of the memory so as to carry the requisite facts, the analysis of motives in the characters who have influenced events, the comparison of different sets of circumstances, the deduction of influences from established and tested *data*, the capacity to draw wide generalizations covering a mass of phenomena—all these mental processes are essential for a study of history, and involve the careful training of the reasoning powers. The subject matter of history provides ample material for the development of intellectual power. Secondly, history is obviously a great storehouse of knowledge. Exploration of the past is inexhaustible. The mind with a thirst for knowledge, in and for itself, can always satisfy that thirst in the study of English history. Thirdly, the past has an ascertainable relation to the present. The best justification for a study of English history lies in the undeniable truth that the present is unintelligible without some knowledge of the past. English history (like all history) is therefore an unending series of problems. If correctly interpreted, it provides both the problem and its solution, and a varying amount of help for the analysis and solution of similar problems, created by contemporary phenomena. Hence, the student should, from the first, be encouraged to work on English history, not only as an intellectual exercise of his faculties or as a means of acquiring knowledge intrinsically interesting, but as the only study by which the problems of the present can be broken up into their component elements and a solution possibly be discovered. Two examples will illustrate this, the supreme justification of a study of history. Problem: How must a nation conduct war so as to secure success? The essential preliminary to any answer is a careful study of the reasons why, in the past, nations have succeeded or failed in war, and from the study to deduce certain broad principles, the observance of which or the failure to observe which, will involve demonstrable consequences. Problem: How can pauperism to-day be diminished? The essential preliminary is an impartial investigation of the causes of pauperism, as revealed in the past, the steps taken to deal with its growth, and the ascertainable consequences that followed. No less necessary is the distinction of the phenomena and the machinery available to-day from those prevailing, say, in the sixteenth century; but the whole economic position of England, as altered by the evolution of events, must be analysed and interpreted. The teacher and the student who have grasped that a study of history is always concerned with causation (*i.e.* the investigation of causes and the measuring of effects) and

that this study has a definite relation to life and the ideals of life, will have secured two essentials—a reason for interest in the study, and the necessity for a scientific method. Good work in history cannot be achieved unless teacher and taught are intensely *interested* in their joint work; and the surest way to create that interest is the conviction that the acquisition of knowledge is an indispensable instrument for answering many of the questions that living human beings must ask themselves, if they mean to live, *i.e.* to get the maximum out of life. Method in history is simply an attempt to provide the most efficient means for acquiring indispensable and accurate knowledge, in the acquisition of which mental power also will be created and developed.

Development of Interest. Method in teaching history, therefore, divides into two main branches: (1) the ways in which the interest of the student can be sustained and developed; (2) the processes by which the investigation can be conducted in the most scientific (*i.e.* the most efficient) way.

As regards (1), "interest" can be sustained when the student works in such a way as (*a*) to stimulate his imagination; (*b*) to employ his reasoning powers; (*c*) to cultivate powers not strictly imaginative or intellectual; (*d*) to strengthen the conviction that his study is directly related to the realities of life. Imagination in history, broadly, means visualizing conditions of life that have disappeared and that have to be reconstructed by a mental effort; or seeing the problems of individual or public conduct as an individual or group of individuals saw them at some time other than the present. For example, in order to understand the career of Simon De Montfort, or of Queen Elizabeth, or of Chatham, the England of their time must first be visualized, and then the historical figure placed in the visualized conditions. It follows that the student must have a clear, broad vision of an England without railways, telegraphs, or any of the apparatus of modern life, with a scanty population, a different system of agriculture, etc. In this visualization two aids are at the disposal of every teacher, and should be freely used: (1) original authorities; (2) pictures. A page of Chaucer, one of the Paston letters, a page from Pepys' Diary will do more to recall the vanished past than pages of a text-book. Portraits of individuals, an old castle, a reproduced map of old London, figures in their correct costumes, etc., are invaluable. In short, the eye must be employed to stimulate and help the mental effort. Every teacher must grasp that through the eye more may often be taught quickly than through the ear. Eye and ear must be trained to work together. The reasoning power can always be exercised by putting the events of an epoch in the shape of simple but fundamental problems. For example, the judicial and administrative reforms of Henry II can be stated, not as a series of facts, but first as a set of problems. What were the defects in the judicial and administrative machinery when Henry II came to the throne? What reforms were desirable? Then, what reforms actually were carried out? And finally, the student should be encouraged to inquire for himself: Did these reforms remove the defects? If they did, why? If not, why not? He will approach the study of the Constitution or Assize of Clarendon in a very different spirit when he sees that in these measures are wrapped up a problem and its answer, which must be disentangled by thinking both out bit by bit. And this method is particularly applicable to constitutional history, and to the great measure of foreign policy. For example, Why did Edward III go to war with France? Why did Great Britain make war on France in 1793? The work so done can be clearly correlated to present problems, by indicating that all problems of policy, administrative or social reforms and legislation to-day, involve similar issues and difficulties, and that they differ only in the conditions that make them and the objects in solving them. The student, to solve a contemporary problem, must first be trained in analysing the conditions of the past, and must have grasped that the difference between the present and the past lies in the character and degree of the differences in the conditions and the *ideas* of the age. A study of ideas necessarily leads up to the investigation of general principles.

Scientific Investigation. The second and more difficult part of method—the processes by which scientific investigation can be carried out—should always be reserved for students who have advanced some way in the study of history, and whose interest has been evoked and mental powers trained by the system indicated above. The essence of this more advanced study is summed up in the formula that it is an attempt to determine how truth can be ascertained. Hence, it is primarily concerned with the analysis of original authorities and the different tests applicable to them. Method in this part, broadly, breaks up into two parts: (1) ascertaining the value of an original authority; (2) employing that authority for establishing facts (*i.e.* finding what really happened). The historical investigator is in the position of a person who is obliged to reconstruct an action, or series of actions, from the evidence of witnesses no longer living. The witnesses are the original authorities available. What, for example, is the value of a mediaeval chronicler? The student must be taught to ascertain the date (*i.e.* how near the chronicle is to the events it relates), the sources on which it is based, the fidelity and credibility of the narrator, what allowance must be made for conscious or unconscious bias, and the accuracy of the record (*i.e.* does the test represent what the writer wrote). Secondly, the evidence of the chronicle must then be compared with any other contemporary evidence available, and if there is any, the discrepancy must be accounted for. Here, again, work on a specific example can teach more than any general rules; and the method of stating the issue as a problem is very valuable. Take as an example a famous issue—Was Mary Queen of Scots an accomplice in the murder of Darnley? The student should be invited, first, to collect all the evidence available from contemporary sources, and to sift it in order of relevancy and merit, distinguishing carefully between (*a*) evidence at first hand, (*b*) the secondary evidence of witnesses who merely repeat what they had heard from other persons, (*c*) circumstantial evidence. Secondly, the student should construct from this evidence a case for the prosecution or a case for the defence, and, finally, should sum up on the issues so presented. This method, with the necessary variations, is applicable to all original authorities. In a word, the student should be encouraged to put two questions to all statements purporting to be verdicts based on facts—(1) How do I know that? (2) Why should I believe that? For example, How do I know that William the Conqueror won "the battle of Hastings"? or, Why do I believe that Nelson won, and

was killed at, the Battle of Trafalgar ? He should then be trained in the scientific way of answering such questions.

All method in teaching history centres on the attempt to show clearly Who did What, When, Where and Why ? Hence the teaching of geography and, more particularly, physical geography is an essential part of method in teaching history, and must always be combined with the methods briefly analysed above. C. G. R.

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HISTORY, THE TEACHING OF COLONIAL.— The study of the history and institutions of the British Empire, with that of colonial and imperial history generally, was strangely neglected in the United Kingdom until the last few years, and very little attention was devoted to the subject by those engaged in education. The British Empire had been the theme of a vast amount of vague talk by journalists and politicians ; but neither in the universities, nor in the secondary and primary schools, had much effort been made in the past to supply systematic instruction upon its constitution and development. The note struck by Seeley, when he published his *Expansion of England* in 1883, met with less response in the educational world than might have been expected. The historical text-books in general use continued to occupy themselves almost exclusively with the " History of England." The history of Greater Britain was too often treated in a merely incidental fashion, and chiefly in the reflex of such episodes as the American Revolution, and the struggle with France for India, upon British and European politics. Nor was the subject adequately recognized in the examinations for university degrees ; and it was possible for a student to obtain high honours in the School of Modern History at Oxford, the Historical Tripos at Cambridge, and the Final Examination for the M.A. degree at the University of London, without having acquired more than a slight and superficial knowledge of the evolution of the British Empire beyond the seas of Europe, or of colonial history in general.

Colonial History at the Universities. Private individuals and societies did something to amend the deficiency. The Historical Association, the Victoria League, and the League of the Empire encouraged teachers in elementary and secondary schools to pay more attention to colonial and imperial history, and to demand text-books dealing with British history from a less rigidly insular standpoint. At Oxford a considerable impetus was given by the munificent foundation of the late Mr. Alfred Beit in 1905, and by the monumental benefaction of Cecil Rhodes. Through the operation of the Rhodes Trust, Oxford has become, in a sense, an Imperial University, in which a proportion of the undergraduates are young men from the British Oversea Dominions and the United States of America. The Beit Foundation provides for a Professor of Colonial History, and a Lecturer in the same subject, as well as for an annual essay prize. The first professor was Mr. H. C. Egerton, who has done valuable work by the publication of such excellent books as his *History of British Colonial Policy*, and his *Federations and Unions within the British Empire*. He has trained some promising young scholars to follow in his footsteps. One of the Beit lecturers has been appointed to the chair of Colonial History at Queen's University, Kingston, Canada, and another left Oxford to become Lecturer in Colonial History at the University of Edinburgh.

Notwithstanding these favourable developments, the places allotted to Colonial studies in the educational curricula were still insignificant. It is only within the past few years that Oxford, chiefly through the efforts of Professor Firth, has decided that the study of British Political History shall be carried down to 1885 instead of stopping short with the year of Queen Victoria's accession ; and that candidates for honours in the Modern History School must show a knowledge of the documents included in Professor Egerton's book on Federations and Unions. Colonial history is one of the optional " special subjects " which candidates may offer for their final examination. But, up to the war, only a small fraction of the large number of those who obtained honours did, in fact, select this subject. At Cambridge, as late as in the academical year 1913–1914, no colonial " special subjects " were included in the examination for the Historical Tripos ; but in the paper on English constitutional history questions might be set on the constitutions of the British " plantations," colonies, and dominions. In the Honours' examination for the B.A. degree in history at the University of London (1914–1915), colonial history was one of the five optional general subjects, and the history of British India (1772–1805) was one of the seven optional special subjects. Candidates who did not offer either of these were not apparently under any obligation to acquire more knowledge of the colonies and dependencies than they could derive from their study of English political and constitutional progress, including " the actual working of the British Constitution." London, however, had somewhat more extensive facilities for the teaching of this subject than the older university towns. In the London School of Economics and Political Science instruction has been given by lectures and classes in the economical, constitutional, and legal systems of the British Empire ; and excellent papers on the various Dominions and Crown Colonies have been read by men of recognized authority at the meetings of the Royal Colonial Institute. Naval history, which may almost be considered a subdepartment of British Imperial history, was luminously expounded at King's College by the late Professor Sir John Knox Laughton (*d.* Sept., 1915), the most eminent of recent English writers on the subject.

The Imperial Studies Committee. On 27th November, 1912, a paper was read by the present writer, at a meeting of the British Academy, on " The Organization of Imperial Studies in London." This essay attracted considerable attention in educational circles and in the newspapers, probably because it gave definite expression to the feeling that the studies to which it referred were not adequately supported. It was soon followed by some active measures to remedy the deficiency. In my paper I had suggested that the University of London should institute a separate faculty or school of imperial and colonial learning. The suggestion in a modified form was adopted. In

1913 the Senate of the University decided to appoint a special Imperial Studies Committee, "to advise upon the co-ordination and extension of the teaching and research carried on in the University in subjects of Imperial Study, and generally to advise upon the best methods of furthering an increased study of the problems of the British Empire." The Committee was constituted in January, 1914, with Lord Milner as its first Chairman, and Sir C. P. Lucas, K.C.M.G., K.C.B., late Under-Secretary of State for the Colonies, as Vice-Chairman; and among our other original members were Lord Rosebery (Chancellor of the University); Lord Bryce; Sir Charles Lyall, K.C.S.I.; Sir Krishna Gupta, K.C.S.I.; Sir Theodore Morison, K.C.I.E.; Sir Harry Johnston, G.C.M.G.; the Provost of University College, the Principal of King's College, and the Director of the London School of Economics; Mr. Mackinder, M.P.; Sir John Macdonell, K.C.B.; Dr. G. R. Parkin; Professor A. F. Pollard, and other distinguished scholars.

The Committee, though hampered by lack of funds, and by the paralysing effect of the European War upon the higher educational activities, was enabled to do some useful work during the first years of its existence. Its advice and co-operation were eagerly sought by the London colleges, with the result that systematic courses of lectures, classes, and seminars on colonial history and kindred subjects were arranged, and in some cases tutors or lecturers were specially appointed to deal with them. The Rhodes Trustees made grants of money to University College and King's College for this purpose. At these two colleges, and at Bedford College for Women, and the London School of Economics and Political Science, series of free public lectures were given in connection with the work of the Imperial Studies Committee. The lectures were well attended not only by students and teachers, but by the general public. Some of these addresses have been collected and re-published in volume form. During the war, the lectures were inevitably devoted in large part to that absorbing topic; but it was discussed from the standpoint of historical and political science, and particularly in its relations to the peoples and problems of the British Empire. The Imperial Studies Committee has also done good service in circulating in the colonial and provincial universities, and in educational circles generally, analytical catalogues of the lectures and classes in the London colleges and teaching institutions which deal with its special subjects of interest.

In the summer of 1915, the Council of the Royal Colonial Institute decided to associate itself with the work of the Imperial Studies Committee, and to give it some financial assistance. The Institute appointed a lectures' sub-committee and drew up a panel of lecturers of high academic standing; it was prepared to assist the provincial universities in obtaining the services of these lecturers if they desired to establish courses of study in the history, laws, and economics of the Empire. The movement grew rapidly in spite of the war, or possibly because of the quickened interest the war had aroused in the wider problems of domestic and international politics. By the autumn of 1915, imperial studies committees, acting in co-operation with the parent body in London, had been established in several university centres; and the lecturers of the Royal Colonial Institute's panel had been engaged to deliver public addresses to academic audiences in Manchester, Liverpool, Birmingham, Sheffield, Edinburgh, Glasgow, and other large towns in England and Scotland.

It may be anticipated that in due course every important university and college, not only in the United Kingdom, but probably also in the Dominions, will have its faculty or department of colonial learning, under the control of specialists who will be able to provide sound and systematic instruction to their pupils, as well as to engage in original research themselves. And it may also be expected that sufficient endowments will eventually be provided by imperial and colonial governments, by the municipal authorities, and by the contributions of public-spirited individuals, to place these new faculties on a stable and permanent basis. An excellent example was set by the Rhodes Trustees, who, in the autumn of 1919, endowed a Professorship of Imperial History in the University of London. Dr. A. P. Newton, who has been from the beginning secretary to the imperial studies committees of the University and the Royal Colonial Institute, became the first occupant of the Chair.

By these and other means it may be hoped that proper recognition will be given to the study of imperial history in the higher, as well as the secondary and elementary, educational establishments of the country; so that in the schools children will be taught in outline the facts relating to the acquisition, growth, and political system of the Oversea Empire; and in the universities the subject will be treated in a manner worthy of its dignity and its importance as an essential factor in any real scheme of liberal civic culture.

S. Low.

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HISTORY, THE TEACHING OF COMMERCIAL.—Commercial history is that part of general history which deals with the development of commerce and of all the forms of human activity which aim at the production and distribution of wealth, with the changes that have taken place at various times in the methods of trade and industry, in the demand for, and the supply of, particular kinds of merchandise, in the streams of traffic, and in economic aims and ideas. Commercial history is the study of the past from a special (*i.e.* a commercial) point of view. Political changes and industrial changes are closely connected with one another, and must be studied together. Economic changes alter the course of political events, *e.g.* the Industrial Revolution of the eighteenth century caused a great migration of population to the North and the West of England, and these parts of the country which had before been backward and comparatively unimportant became centres of activity; this made the demand for an alteration in the Parliamentary representation irresistible, and led to the Reform Bills and to the spread of democratic ideas. Political changes produce economic results, *e.g.* the establishment of the legislative union between England and Scotland by removing the obstacles that hindered the trade of Scotland, led to a rapid growth in Scottish commercial enterprise. The revolt of the American colonies from England was,

it seems, partly the result of the increased trade of the colonies and of discontent with the Navigation Acts which hampered this trade; but the revolt would probably never have taken place, had not the colonies been freed by the conquest of Canada from the necessity of depending on the protection of the Mother-country.

The foreign policy of a State is often determined by commercial considerations. England from the thirteenth to the sixteenth centuries had almost a monopoly of the supply of wool. England, owing, in part, to its insular position, in part to the vigour and wisdom of its monarchs, was less exposed to war and internal disturbances than the other countries of Europe. The rearing of sheep is an occupation the success of which depends to a great extent on security and peace, which were better maintained in England than elsewhere. England was thus able to rear a great number of sheep and to export wool abroad, especially to Flanders; the English wool trade with Flanders led to the long alliance between England and Burgundy, the power which was predominant in Flanders. The alliance between England and Flanders has continued intermittently down to the present day, and is based partly on commercial considerations. The friendship of England and Portugal, based on the interchange of Portuguese wine for English woollen cloth, was also founded on commercial as well as political considerations.

War and Commerce. The tendency of the commerce of a country is to expand and to find new spheres of activity and fresh outlets for trade, leading to the discovery and settlement of new lands; while the competition of countries with one another for new acquisitions and fields of trade causes ealousy, rivalry, and war. The discovery of America was prompted in part by the desire to find a new route to the East to replace the Mediterranean route, which was blocked when the Turks conquered Constantinople. The race for trade with, and settlement in, America was one of the causes of the war between England and Spain in the sixteenth century. Commercial rivalry between the English and the Dutch, culminating in the Navigation Acts, which were directed against the Dutch carrying trade, led to the wars between England and Holland under the Commonwealth and Charles II. The attempts of France to extend her colony of Canada towards the south, and to increase her power and influence in India, contributed in part to the outbreak of the Seven Years' War.

Success in war leads to a great expansion in the trade of a country. The rapid commercial development of Germany after her success against France in the war of 1870–1871 shows how supremacy in arms often leads to the increase of trade and wealth. Commercial history teaches us that "trade follows the flag."

Religion and Commerce. Even religion has its commercial side. The pilgrimages of the Middle Ages promoted intercourse between different countries and led to the growth of fairs. The Crusades stimulated commerce, increased the prosperity of many of the Italian cities (such as Genoa, Pisa, and Venice), extended geographical knowledge, and introduced into Europe the products of the East. Some of the great monastic Orders, such as the Cistercians, were great wool-growers and wool-exporters. The transmission of money to the See of Rome in payment of dues and of the costs of appeals to the Papal Court made England acquainted with bills of exchange, which were sent to Rome by the Pope's agents, the Lombard bankers, and which represented the export of wool from England to Italy.

Commercial history deals with changes in commercial and industrial methods and aims: some commercial methods and practices are common to all periods of the history of European civilization, and others take new forms. For practical purposes, it is better to limit the study of the subject to one country such as England, although for the sake of understanding English commercial history, we must consider the history of other countries which have affected England. To teach commercial history efficiently, it is necessary to be always going backwards and forwards, for we cannot understand the present unless we study the past, and we cannot understand the past without studying the present.

Commercial History of England. The field of the commercial history of England is an enormous one, for, from the beginning of the English settlement in the fifth century A.D. down to the present time, there is a continuous chain of events nearly fourteen centuries long. In order to cover this period properly, it is necessary to sub-divide it into several divisions and to select in each division certain heads to be considered.

English commercial history may be broken up into four divisions: the first, from the beginning of the English settlements in the fifth century to the fourteenth century, during which time England was almost purely an agricultural country; the second, from the fourteenth century to the middle of the sixteenth century, when England began to be a manufacturing and maritime country; the third, from the middle of the sixteenth century to the middle of the eighteenth, the period of the beginning of oceanic voyages and the foundation of colonies; and the fourth, from the middle of the eighteenth century to present times. This is the period of the application of steam power to manufactures, and of the capitalist or factory system.

Another way of tracing English commercial history is to consider it according to the economic methods which were at different times in fashion with regard to the application of labour and capital to industry. Thus we should begin with the manorial system; then pass on to the growth of towns and the gild system; then to the growth of the woollen manufacture, the migration of labour to the country districts, and the substitution of the domestic system for the gild system; and, finally, to the supplanting of the domestic system by the factory system, which the Industrial Revolution made necessary, and the rise of which led to the growth of trades unions and all the complications of the modern problems of the relations of labour and capital.

With regard to the application of capital to industry and commerce, varying systems have been in vogue from the days when societies like the Merchant Adventurers arose out of the London Livery Companies, to the times of the great chartered companies under Elizabeth and her successors. Most of these companies decayed as they became unsuited to the conditions of changing commerce; some of them altered their character. The modern equivalents of these societies are the limited liability companies, which have grown enormously in number since the system was introduced by the Companies Act of 1862.

Finance and Currency. The money-lending industry has passed through many changes. The Jews were brought in by the Norman kings and were expelled by Edward I, and Lombard and other Italian and foreign financiers took their place. English monarchs had, at first, to borrow abroad till the time of Elizabeth, when a sounder financial system and better developed industry made it possible to borrow at home. The history of English banking has passed through many changes from its beginning with the London goldsmiths to the rise of the Bank of England and the private banks in the seventeenth century, and the enormous extension of banking enterprise and the founding of joint-stock banking companies in the nineteenth century.

The extension of the credit system and of speculation has led to financial crises, such as the stop on the Exchequer in the reign of Charles I, the "South Sea Bubble" in the reign of George I, and the panics of the nineteenth century.

Momentous changes have from time to time taken place in the supply of the precious metals and in their value. Great alterations in value were produced by the discoveries of gold and silver in America in the sixteenth century; and by the discoveries of gold in California, Australia, and South Africa in the nineteenth century, when the establishment of gold as the chief standard of value caused for a time a depreciation in the value of silver.

Many great and puzzling changes have occurred in the history of coinage in England; in the earlier times only silver and copper were coined here, but in the reign of Edward III a regular gold currency was instituted; the names and values of English coins have changed, and various attempts have been made to depreciate and reform the coinage, which has been supplemented by paper currency and negotiable instruments.

The Influence of Economic Theories and Ideals. Economic theories and ideals have changed from age to age, and have produced an important influence on legislation, as may be seen in the rise of the mercantile or protectionist system under Richard II, and its development under Elizabeth and her successors culminating in the Navigation Acts and the Corn Laws. Then trade expanded to such an extent that Government control became impracticable, and the movement in favour of Free Trade sprang up, and led to the repeal of the Corn Laws and the Navigation Acts. In quite recent times, a reaction against the policy of Free Trade has taken place. Great changes have also taken place in systems of taxation and the different ways of raising revenue. The course of maritime discovery and colonization has changed from time to time, and these changes have reacted on trade and imperial policy.

Properly to understand commercial history, we must also study the development of English shipping and of the Royal Navy; the course of scientific discoveries and their application to industry; the inventions of new machines and new methods of driving them; changes in the means of communication, such as roads, canals, and railways; changes in agricultural methods; the rise and development of some of the most important English industries, such as coal-mining, iron-smelting, cotton-spinning and weaving; and the growth of the oversea trade, the development of the colonies, the dependence of England on foreign supplies for food since the end of the eighteenth century, the competition of foreign nations, and the course of geographical discovery.

The field to be covered is enormous; and to bring it within practicable limits, it will be necessary to take up different periods or heads at different times, but always to give some slight summary of the whole period, in order to preserve an idea of the continuity of the subject. J. R. V. M.

HISTORY, THE TEACHING OF ECONOMIC.—At present, Economic History is taught mainly in technical or commercial schools; in University Extension or Workers' Educational Classes; and at the universities, where it forms part of the course for a degree in either Economics or History. It is, therefore, taught only to adults and older children, and, if the teaching of the subject should become more general in schools, it would probably be taught only in the higher forms.

The advantages of including Economic History in historical teaching are that it is essentially the story of the continuous evolution of familiar things, and that it adds a glamour and an understanding to the workaday world in which the adult lives, or in which young people will presently find themselves. There is at least as much romance and instruction in the history of the production of the clothes people wear (*i.e.* in the history of textiles), and the food they eat, as in the struggle of parties or the decapitation of a king. The relations of employer and employed are as interesting as the Napoleonic Wars; while most great events such as the Reformation have economic causes and effects, without a knowledge of which the real course of events is obscured. The difficulty about teaching Economic History vividly is that there are so few brilliant outstanding figures such as Burleigh or Bismarck, and so few cataclysmic events. It is a long sequence of cause and effect, which has its own teaching value and interest, but which makes the subject unsuitable for the younger children.

Early Stages. In order to enable the student to visualize Economic History and to get definite starting points, the subject should at first be taught in big outlines, and not in short periods or reign by reign. The Middle Ages, for instance, can be taken as a whole, and the salient features of that thousand years—say, from A.D. 476 to A.D. 1485—can be treated together, emphasizing such outstanding facts as Church guidance, the absence of the idea of the nation, the importance of the town, the prevalence of the manor, and natural economy. Modern times, up to the coming of steam and machinery, can also be treated in another great block, having as its leading characteristics national policies and national rivalries, the great discoveries, the expansion of trade and colonies, the transformation of industry by capital, and of agriculture by enclosure. The new era ushered in by the use of steam, machinery, and mechanical transport, when man began to control Nature and dominate his environment, and to enjoy a personal freedom of movement hitherto unknown, would bring the student down to his own times.

In teaching Economic History, it is well to begin with England, as her evolution is typical. While the modern era is especially useful as throwing light on the economic system in which we live, the Mediaeval Period is important, partly because it has its own special flavour which appeals strongly to certain types of persons, partly because it develops the sense of continuity and coherence, and fosters an historical breadth of vision too often obscured by the study of detailed periods; but

chiefly because modern times are not really intelligible without some understanding of the mediaeval period, the survivals from which are so numerous to-day. For instance, the present condition of Russia and Central Europe must be absolutely unintelligible in the absence of some knowledge of the manorial system.

In Economic History, if the teacher looks after the pounds, the pence will look after themselves. The method of teaching in big outlines as here suggested, presupposes that the teacher will, at the outset, know the subject thoroughly himself.

Intermediate Course. After a course sketching the main lines of economic development in this country, another should be added showing the development of foreign countries, going back at least as far as the Crusades. The teacher would show the activities of the great Italian and German towns, the importance of the Mediterranean and the Baltic trade (*i.e.* of the inland seas), and would dwell on the relative significance of England as an economic outpost till the end of the fifteenth century. Stories of the contribution of Portugal in opening the seaway to India, the work of Spain in the development of Central and South America, the ubiquity of Holland at sea, and the great industrial development of France, will all give a juster sense of proportion in regard to the position of England as a part of Western civilization. It is a fact too often neglected that England was not a really great Power till the middle of the eighteenth century, and that, even then, she was an agricultural country of about six and a half million people with one great industry —cloth.

When Great Britain really became the workshop of the world at the end of the eighteenth century, when her contribution of mechanical power to civilization was the dominant feature in economic life, then her economic development should be treated in special detail in a third course, comprising the last 150 years. It is almost impossible, however, to teach Economic History after 1870 as something that concerns England alone—the railways and steamships have so linked countries together, that Economic History almost necessarily becomes world history.

The Use of Illustrations and Documents. The teacher will have to make considerable use of maps. They can be drawn roughly on the blackboard if a wall map of Europe be hung up so that the class can see where the piece illustrated fits into the whole. For late periods, a wall map of the World is equally indispensable. Special maps, which can be copied on the blackboard with the superfluous bits left out, are to be found in Cunningham's *Western Civilization*, as well as in the historical atlases of Droysen and Spruner and Menke. Pictorial illustrations are more difficult to come by, but are a great help in teaching. Something may be done by collecting picture post cards of mediaeval towns, picking out especially those showing cloth-halls and old buildings and market crosses. Illustrations of the manorial system may be found in Cunningham's *Growth of English Industry and Commerce* (Vol. I), or in Seebohm's *Village Community*; Cheyney's *Introduction to the Industrial and Social History of England*, and other less accessible sources.

In modern times, pictorial illustrations of such things as factories, pit-heads, and blast furnaces are more easily obtained, and much can be done by judicious clipping from illustrated newspapers. It is well for a school or class to have a little museum containing specimens of such things as raw cotton, yarns, wool and worsteds, silk and linen, pig and wrought iron, steel, copper and tin. If working models of a steam engine, locomotive, or marine boiler can be constructed, it adds enormously to the vividness of the teaching. Some use may be made of novels, and Economic History may be interwoven with the literature course: *Quentin Durward* will serve to illustrate town life in the Middle Ages, *Romola* the brilliance of Florence, *Ivanhoe* may help to visualize a little of the manorial system. *Westward Ho!* will help with the age of discovery, and Mrs. Gaskell's *Lois the Witch* with the conditions of the early colonies. *Bleak House* will serve very well to picture the insanitary condition of the nineteenth century towns, as also will *Martin Chuzzlewit*; while *Oliver Twist* is excellent for the poor law. Mrs. Gaskell's *North and South*, or Charlotte Brontë's *Shirley*, will help with the effects of the coming of machinery.

In addition, the teacher must use illustrations from contemporary sources. If whole documents are given, they should be reproduced on a duplicator and laid before the class, or be dictated. Very few persons can keep a long extract in mind that has been merely read out. The most convenient source of documents is the book published by Bland, Brown & Tawney: *English Economic History; Select Documents*. The teacher in search of illuminating details to cheer up a class will find them in such accessible books as Dunlop's *English Apprenticeship and Child Labour*; Leonard's *Early History of the Poor Law*; Groas' *The Evolution of the English Corn Market*; Cunningham's *Growth of English Industry and Commerce*; Webb's *The King's Highway*; Hammond's *The Town Labourer*; Prothero's *English Farming: Past and Present*; and other similar works. A bibliography of English Economic History is published by the Historical Association. It is possible to collect a wealth of illustrative detail from local histories, and there is nothing that interests a student more, and brings home more nearly the reality of the subject, than illustrations drawn from his own town or country. Quarter Sessions Records, where published, are invaluable in this respect. It is these illustrative details which cause the facts to be remembered.

The University Course. In university teaching, the course to be followed will vary with the degree. If Economic History forms part of the Economics degree, then more stress is laid on modern times. If it be for the History degree, then the evolutionary aspect is the more important; and modern times receive less, and earlier periods more, attention. The chief difference between university teaching and extension or school teaching is that the university teaching is done in much greater detail, and the student has to learn to do the work himself instead of having it largely worked out for him. He has to use the large text-books himself, and can be induced to consult several books on the same subject. He learns that authorities often contradict each other, and that he must weigh the evidence. It is the teacher's function to give emphasis, and make the student learn how to work and judge for himself. He should be *taken* to a big library (it is no use telling him to go); he should be taught how to use it and how to find his way about the catalogue. He should actually be made to handle such authorities as the Statute Books, the State Papers, the Privy Council Records, and the Local Histories.

The habit of using good primary sources will grow on him, and he will soon be ready for a course on Palaeography and Diplomatic, after which he will readily tackle the unprinted documents. The literature of the period bearing on Economic History should always be studied, and the student should first be initiated into such easily accessible works as Hakluyt's *Voyages*, Harrison's *Description of Britayne* (Ed. Furnivall), and the *Discourse of the Common Weal of England*. In addition, he might be taught to consult the pamphlets and the old eighteenth and nineteenth century newspapers, and such periodicals as the *Annual Register* and the *Gentleman's Magazine*.

The Blue Books of the nineteenth century are invaluable to the student of that period, and he should be shown how to find them in the special indexes to the Parliamentary Papers, and induced to browse on their very realistic and fascinating contents. For those who cannot refer to a library where the early Parliamentary reports are kept, Smart's *Economic Annals of the 19th Century* is a valuable book for the early years of that century. It is a useful plan in the advanced teaching of Economic History to give each person in the class some special subject, or bit of a subject, of his own to get up, indicating to him the chief authorities, and showing him generally how to set about the work. In teaching Economic History in its more detailed form, the lecture should be followed by a class; and the illustrations and documents used to elaborate and vivify the points should be dealt with. In such a class, discussion should be promoted, and care should be taken that one or two active persons do not monopolize the conversation.

Maps are an indispensable adjunct, and an occasional lantern lecture proves very stimulating. Where text-books are scanty or in foreign languages, the lectures should always be accompanied by a full typed or printed syllabus containing not merely the heads of the subject-matter, but a reference to the parts of the various books that the students could usefully consult on the subject. L. K.

HISTORY, THE TEACHING OF LOCAL.—One of the most hopeful facts about the teaching of history in recent years has been the development of interest in local history. Fresh material is constantly being made accessible, and the education committees of many of the larger towns are now providing well-written text-books of local history for use in their schools. In some of the public schools, history lessons are illustrated by lantern slides of local scenery and by excursions to places of historical interest. Mr. Kipling's *Puck of Pook's Hill* shows how local associations can be utilized by the teacher to make history a living thing.

In the older text-books, history is too often the record of "war and wantonness and crownings and dethronings" only obscurely connected with life in the hamlets and boroughs. To see these things from the standpoint of local life is to give them fresh interest and significance, and bring home to the children the fact that national life has been shaped as well by the actions of "the rude forefathers of the hamlet" as by the deeds of the great. The Briton hiding in the woods to see the legions pass by on their march to York or Chester; the gathering at the village moot to administer justice; the bowmen who fought at Crecy and Agincourt; the knight who rode to the Parliamentum at Westminster; the unlearned man perplexed by the dissolution of the local religious house, or by the unfamiliar services in his church; the yeomen who rode out with the squire to fight for the king; or lit his bonfire on the heath to celebrate the return of Charles II, the coronation of William III, or the victory of Marlborough—all these had their share in making our national history. To bring this home to those we teach, we must show how local life is related to the general course of national history. Local history does not mean the Chronicle of the Parish Pump. Every district has produced men who have played a part in national affairs; through them we can link the local life of the district to the larger world outside.

Material. This does not mean that local affairs are to be treated as unimportant, but only that they must be treated as a real part of the national life. The development of the Manorial system can be made intelligible to children if it is illustrated from the history of their own village; the ruins of a local monastery will sometimes awaken interest in monastic life; the industrial revolution has left its marks almost everywhere in England; and in our larger towns the statues erected to commemorate citizens "of credit and renown" may serve the purposes of the historical teacher. Even the names of the streets afford nourishment to the historical imagination. There is, no doubt, a danger in all this that the antiquary may usurp the place of the historian, and that we may forget that history uses the past to interpret the present. Pageants illustrating local history have been used with great success in some schools, but if they are to have their full value they must be brought down to our own times. The days of corduroy and khaki may seem unromantic after the breastplates and banners of earlier times, yet we shall fail of our true purpose as teachers unless we help the children to realize how "all unseen, Romance brought up the nine-fifteen."

In the public schools, and in places where the population is largely migratory, local interest is difficult to arouse; but even in these cases an enthusiastic teacher will be able to overcome many obstacles. In the case of some of our older schools, the school records are themselves full of historical associations, to which the imaginative insight of a wise teacher can give life and significance. A few talks on Architecture are almost essential to enable boys and girls to realize what buildings stand for; and, where original documents of local interest can be inspected and explained, the past can be made to live.

An outline knowledge of English history is necessary to the right understanding of local history, but this need not be detailed, and can be taught at an early stage of school life. All that is really necessary is that the child shall know a few of the great turning-points of national history, so that he may have a kind of framework into which he can fit the local life of his own borough or village or county. In doing this, he will, almost unconsciously, fill in the outline of national history that he has learned. If parts of the outline remain comparatively bare, no harm will be done, for the object of the teaching of history is not to provide a child with a complete knowledge of English history, but to help him to realize that his own age has a background—that people have lived and worked and suffered in this England of ours, as we live and work and suffer to-day. History appeals to, and develops, the faculties of imagination, gratitude, and hope.

Method. It is not easy to lay down any definite method of teaching local history. One thing may be said emphatically—that any attempt to teach local history simply and solely by means of "Readers" is very unlikely to prove successful. If there is a good local history every effort should be made to ensure that the children possess copies for themselves, so that it may find its way into their homes. But, in class, the teacher must depend largely on himself. A few maps of the district at different periods are a great help, and these might, where the necessary materials exist, be supplied by the local education authority. The rise and decay of local industries, displacements of population, changes in land tenure—all have historical significance as showing the influence of national developments on local life. A local hero, if one can be found, might be commemorated as the Church of earlier days commemorated its saints. Plymouth should have its Drake's day and Bedford its Bunyan's day, and Rochdale its Bright's day. And many a smaller English town has local worthies who ought not to be forgotten, for there are few more worthy motives for noble effort than the desire to be remembered in the places where we lived. The Great War has provided a record of honourable service that our children must not be allowed to forget. Every schoolroom should have—many have already—its roll of honour, which in a little while will pass into the custody of the history teacher.

Sources. If we are to ask all this of our teachers, more must be done to help them to learn what they have to teach. Lectures on local history by recognized experts must be organized by the local authorities, perhaps in conjunction with the Historical Association, which has done so much already to stimulate and guide the study of history. Teachers must be encouraged to avail themselves of the valuable collections of materials for local history which the enthusiasm of many of the librarians of our public libraries has gathered.

If some historian who has made a special study of the evolution of English village life would supply the teachers with an outline into which they could fit the local circumstances of their own village, the teaching of local history would become a less difficult task in those places where at present it seems hardest.

Values. As has already been said, the teaching of local history has its dangers. In the hands of an unimaginative or apathetic teacher, it may become little more than a record of local squabbles, without significance or value. Or the picturesqueness of the mediaeval world may lead to the comparative neglect of the more drab life of modern times. In dealing with modern local history, the teacher must guard against the danger of pointing the moral in the direction of his own political opinions. It is better to idealize than to belittle the efforts and aspirations of the past, yet nothing but harm is done by representing local history as a process of deterioration from some supposed age of communal well-being. In England, more perhaps than in any other country, political and economic strength has been the outcome of local energy and initiative. The river of national history has been fed by the streams that have flowed from the life of our English boroughs and villages. War always develops a tendency towards centralization that is liable to outlast the immediate crisis that called it into existence. In the effort that will be needed to counteract this danger in our national life, the teaching of local history may play an important part. Centralization ministers to the requirements of order, but decentralization safeguards the interests of liberty. J. H. B. M.

HISTORY, USE OF CONTEMPORARY DOCUMENTS IN THE TEACHING OF.—When the teaching of history in schools first began to receive serious attention, it became evident that the apparatus generally supplied for this instruction was inadequate. That the subject itself was valuable, there could be no doubt. The politics and social life of the present day are unintelligible without some knowledge of their origins; while, as an introduction to the study of character and to the human factor in daily life, the scope of history in the hands of a good teacher is unlimited. But, while a first-class teacher will get good results with a minimum of appliances, it is clear that, if the only apparatus supplied is a text-book, a great and unnecessary strain is placed upon the teacher; and it is doubtful if even a good teacher can do the best work in these conditions. To give a stimulating lecture interspersed with questions, to examine on the contents of the text-book, and to ask for short compositions on various topics, exhaust the possibilities; and, if the method of history-teaching is to keep pace with the rapid development of the subject-matter, something more is needed. Just such a difficulty was felt when natural science was first introduced into schools. The only apparatus supplied was a text-book, and the pupils were made to learn this. Then demonstrations, given with apparatus by the teacher, were introduced; and, finally, as a result of a movement which began some twenty years ago, we now find all schools supplied with laboratories, so that each pupil can work through a course of experiments which demand thought and give exercise in the manipulation of instruments. Is there anything which, to some extent, can supply the place of the laboratory in the teaching of history? Obviously, books of reference, larger histories, source books, documents (such as the *Anglo-Saxon Chronicle* or *Cromwell's Letters*), and architectural remains when these are available. The class-room library must contain works like Besant's *Survey of London*, *The Political History of England*, and some of the many biographies of historical characters that have recently appeared; and, when properly stocked, is an indispensable adjunct of teaching. It cannot, however, be used by the whole class at once, and, therefore, a short collection of suitable documents must be placed in the hands of each pupil. This article, leaving on one side the wider question of the class-room library, will discuss the proper employment of such document-books.

Atmosphere. Documents may be used for two purposes: (1) To give "atmosphere" and local colour to historical episodes; (2) to provide materials for exercises. For the purpose of "atmosphere," it is not essential, though it is still desirable, that the document should be in the hands of the pupil. Vivid contemporary narratives well read by the teacher are of the greatest value. It should be remembered, however, that one reading is not enough to make them effective. Three readings—two by the teacher and one by a member of the class—are generally necessary to enable the class to take them in. A good example of an "atmosphere" document is Grim's account of the

murder of Becket. No exercise upon it is possible, except, perhaps, to ask for an abstract of its contents; but as a vivid narrative by an eye-witness, it is difficult to beat. Such descriptive documents, however, are long, and there is not much room for them in the pupil's collection: so Henrietta Maria's entry into London, the description of Drake on board the *Golden Hind*, and similar illustrative passages have to be given by the teacher. The use of documents as exercises in judgment is, perhaps, more important. It presents greater difficulties, in particular that of giving a sufficient number of documents to enable any historical inference to be drawn, and thus calls for a good deal of ingenuity in bringing together extracts which give conflicting views or need some thought to bring them into harmony with one another. A few types of exercise may be indicated. From two accounts of a battle which differ in topographical details, the pupil can be asked to draw a plan of the ground which reconciles them. The descriptions of the Battle of Bannockburn by the Chronicle of Lanercost and by Baker of Swinbrook respectively, give an opportunity for this. When two conflicting accounts of a character can be obtained, again there is an opening for their reconciliation, or for the portrayal of a character from which either might be derived in accordance with the friendly or hostile views of the writer. The descriptions of Henry II by Peter of Blois and Ralph Niger lend themselves to this treatment. Comparisons of enactments are often possible, and this form of exercise may often make the pupil read with care a not very attractive document. If, for instance, the exercise is to find out the difference between the Acts of Supremacy of 1534 and 1559, the correct answer can be reached only after a careful reading and collation of the two Acts. Less novel, perhaps, but not to be despised, is the demand to make a *précis* of a long document. If the pupil is asked to make an abstract of Wellington's despatch to the Earl of Liverpool from Pero Negro in 1810, in such a manner that the important points stand out unmistakably and can be grasped with ease, this exercise will give a valuable training in logical analysis.

Problems. Certain documents which, in the pupils' manual, must be represented at considerable length, are equally important as illustrative of and as material for problems. Extracts from Domesday Book, for example, supply occasions for a large number of exercises, and at the same time give a vivid first-hand picture of the English manorial system. The Constitutions of Clarendon and Magna Carta should be given in full or with few excisions. Younger pupils will, of course, not study them carefully, but it is of great atmospheric value for them to see the texts and to realize that they are lengthy documents with a considerable number of clauses. A few of the headings or chapters in each will be made the subjects of detailed study, the precise headings selected varying with the age of the class.

In the case of most documents, there is no difficulty in giving pupils a good deal of manipulatory work of the nature of comparing and abstracting. Their use to illustrate the nature of historical evidence and the care that must be taken in estimating the value of authorities is not so easy, since, in the form in which documents must necessarily be presented to pupils of middle school age, they are, as a rule, insufficient in themselves to admit of the inference that the historian draws from fuller materials. Still, judiciously used by a teacher who makes it clear that only a small portion of the evidence is present, they can be of great service. Take, for example, an extract from Latimer's First Sermon on the Land Enclosures—

"You landlords, you rent-raisers, I may say you step-lords, you unnatural lords, you have for your possession yearly too much. For that which heretofore went for XX or XL pound by year (which is an honest portion to be had *gratis* in one lordship, of another man's sweat and labour) now is let for fifty or a hundred pound by year. Of this too much cometh this monstrous and portentous dearth made by man, notwithstanding God doth send us plentifully the fruits of the earth mercifully contrary unto our deserts; notwithstanding, too, much which these rich men have causeth such dearth that poor men (which live of their labour) can not with the sweat of their face have a living, all kinds of victuals is so dear: pigs, geese, capons, chickens, eggs, etc. . . . Furthermore, if the King's honour (as some men say) standeth in the great multitude of people, then these graziers, enclosers and rent-raisers, are hinderers of the King's honour; for, where there have been a great many of householders and inhabitants, there is now but a shepherd and his dog; so they hinder the King's honour most of all."

This, like numerous other contemporary complaints, suggests that the enclosures had been widespread; but there are statistics which go far to contradict this. From the returns of two Commissions, it has been conjectured that between 1455 and 1607 the percentage of the total area enclosed for sheep-farming was only 2·76 or about half a million acres. Making due allowance for the untrustworthiness of mediaeval statistics, we are led to believe that contemporaries exaggerated the change that was taking place; and it is certain that, at the end of the sixteenth century, England was still a land of open fields and common waste. But, on the other side, there are certain facts to be urged: (1) The returns of the Commissions were collected in the teeth of opposition, and may have fallen short of the facts; (2) we are told the proportion of enclosed land to the total acreage of the county, but not the proportion to the land actually under cultivation; (3) general statistics often tell us little. A small portion of a county only might be affected, yet in this portion the village with which Latimer was acquainted may have been turned adrift. Now all these pros and cons can be marshalled before our pupils; and, in connection with Latimer's sermon, in itself a picturesque document which will make Latimer himself more of a reality to them, they can be got to see that an approximation to the truth can be obtained only by weighing a great many different pieces of evidence of which only one or two can be placed before them at any great length.

The Question of Time. We may now ask how, with the small number of hours at the disposal of the history teacher, time is to be found for exercises of this kind. A teacher may well have to cover the whole of English history up to 1485 in one year, with no more than two periods weekly in school and one period of preparation. In passing, we may deplore the impossible nature of the task; and hope that before long more time may be given to history, and that the teacher will be enabled to teach more intensively. But, taking the situation as it actually presents itself, it seems that there are

two methods which may be used: either a few selected documents, say three or four in a term, can be used for exercises, while the remainder in the pupil's collection are read rapidly for atmosphere; or a small section of the whole field may be selected for intensive study, with documents and exercises, during a portion of, say, the second term in the school year. Certain episodes in history, as, say, Richard I and the Third Crusade, lend themselves to this treatment. (For this episode a small volume of sources, edited by Archdeacon Hutton [Nutt], supplies the material.) But, on the whole, the practice of selecting a few documents to illustrate particular episodes, and of giving them a thorough treatment, commends itself as the easiest to work. If, in addition, circumstances permit the intensive study of a short period, this will be of great value. It is plain from what has been said that the introduction of the "source-book" into the history class-room gives many opportunities to a good teacher; but it must be borne in mind that to use sources profitably needs some knowledge of history and of historical method. It also needs judgment: for, while the same documents may be used with pupils of widely differing ages, the treatment in each case must be suited to their stage of development. For the younger classes they can often be little more than "illustrative"; with older pupils the critical powers can be called into play. Even in the higher standards of elementary schools good critical work has been done; and in the middle forms of secondary schools the method forms a useful adjunct to the conventional use of the text-book. There is every reason to believe that the introduction of "sources" and of class-room libraries will have the same vivifying effect on history in schools that the equipment of laboratories brought to natural science.

M. W. K.

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HOBBES, THOMAS (1588–1679).—One of England's greatest political philosophers. He was educated at Oxford, travelled widely in France and Italy, became acquainted with most of the great continental and English philosophers of the period, and in 1647 became mathematical tutor to Prince Charles, afterwards Charles II. His greatest works were all political, and carried on the discussion of theories of government propounded by James I and Francis Bacon. After publishing his *Elements of Law: Natural and Politic* (1640) he left England, returning in 1651. In 1642 he published *De Cive* in Latin, and in 1651 *Leviathan* in English. In all these works he propounded the view that government was established in primitive and uncivilized communities to provide order and security for their members. The sovereign power must be single and supreme, either a monarch or an assembly, but not shared between King and parliament. The sovereign's duty is to preserve order, his will is law, and he must perform his duty in his own way without let or hindrance. Hobbes's *Leviathan* offended both political parties, and his views did not gain general approval until after the Revolution of 1688.

HOCKERILL TRAINING COLLEGE. — (See BISHOP STORTFORD TRAINING COLLEGE FOR SCHOOLMISTRESSES.)

HOCKEY.—Hockey is probably one of the most encouraging of games for beginners, as the mere hitting and stopping of the ball presents few difficulties. From the beginning, a player should learn to give the ball a good clean, hard hit, keeping her eye on the ball, and following through her stroke with the stick. She should practise stopping the ball dead by allowing her stick to give slightly as the ball reaches it. There are many strokes and dodges which it is useful to practise, and these will be found clearly explained in a book on hockey (such as Eustace White's *The Complete Hockey Player*).

The team consists of eleven players, who are usually arranged in the following order: Five forwards, three half-backs, two backs, and a goal-keeper. The forwards (*i.e.* left wing, left inner, centre forward, right inner and right wing) stand touching a line drawn across the field parallel to the goal lines, the half-backs (*i.e.* left half, centre half, right half) a few paces behind them, left and right back behind that again, and the goal-keeper between the goal posts.

The game begins with a bully between the two centre forwards. Each player hits the ground and her opponent's stick alternately three times in quick succession before touching the ball. The centre forward who succeeds in hitting the ball passes it, if possible, to one of the forwards on her own side. The whole forward line is then set in motion and travels towards the opponents' goal. The player with the ball is slightly in advance of the others, and there is then no danger of any player incurring the penalty provided for being "off side." The object of the attacking team is to get the ball within the striking circle and thence shoot a goal. It is usually the work of the centre forward and the two inners to shoot the goals, but the wing players or centre half-back may do so if an opportunity offers itself. All five forwards have scope for working on their own initiative, and a quick change of tactics is frequently required. The centre forward ought to be the leader of the line; but often she is so closely marked by the opposing centre half-back, that the inners have to organize the attack.

The forward line, with quick passing and repassing, tries to outwit the opposing defence. Once a forward has learnt to control the ball and the correct angle at which to hit it, she will present a difficult problem to any defence player. Meanwhile, the half-backs and backs have to back up and feed their own forwards. The left half-back marks the opposing right wing, the centre half the opposing centre forward, and the right half-back the opposing left wing; the two backs are responsible for the inners, and must mark them closely when play is in their own half of the field. A half-back or back has to use her ingenuity to draw off an opposing half-back, thus leaving her own forward free to receive a pass. It is as important to have combination of play between the backs and half-backs as amongst the forwards, so that a defence may be ready at any moment to interchange with another defence who is in a better position for tackling the player with the ball. The goal-keeper needs to be cool, alert and ready, after stopping the ball, to clear it out of the danger zone with a clean, hard stroke. It is as essential in hockey, as in all other games, for a player to keep her eye on the ball throughout the game; she will then have the ball in focus when she herself has to play it.

The game is thoroughly well organized, and the rules are carefully revised each year: thus it is kept a clean open game and free from rough play. Some criticism has arisen on account of the stooping position taken when hitting the ball. However, as no one player has the ball all the time, nor is it the custom to run in a stooping position when free from the ball, there is no occasion for players to develop what is known as the "hockey stoop."

P. L.

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HOGG, QUINTIN (1845–1903).—After education at Eton, he entered mercantile life in London in 1863. In 1864 he became associated with Arthur, afterwards Lord Kinnaird, in ragged school work, and shortly after established a "Youths" Christian Institute, which developed in 1878 into an institute for 500 pupils in Long Acre. In 1882 Hogg purchased the Royal Polytechnic Institution in Regent Street, and opened it in September with 2,000 members. He developed technical classes, a savings bank, a Christian workers' union, and a volunteer corps; and in 1886 opened a day school for professional, industrial and commercial education. Quintin Hogg was the inaugurator of the Polytechnic system which has been extended to many other parts of London. Until 1889 he carried on the Regent Street Polytechnic without public aid, but from that time a yearly endowment has been received from the commissioners of London parochial charities.

HOLIDAY COURSES ABROAD.—For teachers wishing to qualify to teach a foreign language, for those desirous of reviving from year to year their acquaintance with a foreign people and tongue; and for students seeking knowledge of another country, language, and literature for its own sake, holiday courses are arranged in connection with many universities and other educational institutions on the Continent. The Board of Education, though neither making grants nor specifically recommending any of these courses, issues a pamphlet prepared by the Special Inquiries Office, setting forth the fees, cost, and scope of the courses at various places; the fares from London; and other useful details.

Almost without exception, conversation in the foreign language among small groups of students is a prominent feature, and lectures on the literature and customs of the country are given by men of eminence. Frequently special attention is paid to phonetics, and much time is devoted to composition and translation. The holiday spirit is not lost sight of: social functions are arranged, appropriate games and diversions encouraged, and excursions organized to neighbouring places of historical and archaeological interest and beauty.

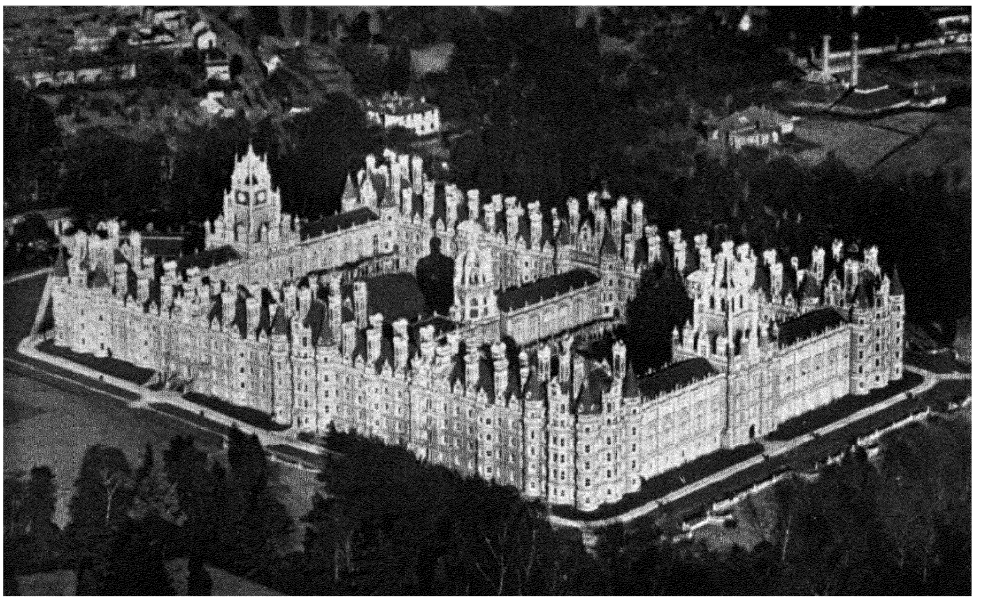
Short courses, lasting a week or two, are occasionally held at Easter; but in July or August it is usual for the classes to extend over four weeks. Diplomas are issued, as a rule, to those who complete the course satisfactorily. France is the country most frequently visited; and, in normal times, courses are held at some twenty-one places, including Paris, Rouen, Grenoble, Tours, Caen, and Boulogne. Switzerland has courses at Basel, Geneva, Lausanne, and Neuchâtel; Italy at Florence; and Spain at Madrid. A few local education authorities have been in the habit of making small grants to help their teachers to take advantage of these facilities.

A teacher wishing to attend any of these classes should obtain, before 1st July, the *Table of Holiday Courses for Instruction in Modern Languages*, issued by the Board of Education (Wyman & Sons). Further information may be had of the secretaries and directors of the various classes, whose names and addresses are given in this handbook. A little guide, called *Holiday Resorts*, prepared by the Teachers' Guild, 76 Gower Street, London, W.C.1, will also be found useful: it is full of valuable and appropriate information.

HOLIDAYS IN OLDEN TIMES.—As the schools of England were derived from those of Rome, so English school holidays were derived from Roman holidays. Schools being attached to the Church, the holidays were essentially *holy days*. The schools of Rome, almost exclusively day-schools, were closed from the Ides, or perhaps even from the Nones, of July to the Ides of October, for the wheat and wine harvests. The schools of the English universities followed their tradition, and ceased on the Translation of St. Thomas the Martyr (7th July), beginning again on the morrow of St. Denis (9th Oct.). English day-schools, as appears from the statutes of the Grammar School of Wotton-under-Edge (1384), had a long vacation from St. Peter's Day (1st Aug.) to Holy Cross Day (14th Sept.). But the chief schools were connected with cathedral and collegiate bodies, and their holidays naturally followed the life of those bodies. Hence, until the sixteenth century, there were no school holidays in our sense. Only at the chief holy seasons did *otium* prevail over *negotium* (leisure over work). Even then, if the boys did not go into school, they went a great deal more to church.

Christmas. Christmas, which extended from 16th December to 6th January, represented the Roman *Saturnalia*, added to the great feast of the winter solstice, with which, in the cult of Mithras, the celebration of the unconquerable Sun on 25th December was merged (transformed in the fourth century into the Nativity of Christ), and the New Year's festivities. The essential feature of the *Saturnalia* was topsy-turvy jollity: the slaves sat in the places of their masters, and were waited on by them; moral and social ties were loosened; feasting and dancing prevailed; forbidden games, like dicing, were played; and on New Year's Day collections of money and food were made. These features were all reproduced in the Christmas festivities of the colleges. The earliest mention of them in England is about the year 680, when Aldhelm wrote to his bishop to excuse his absence "from the approaching solemnization of Christmas, which he had intended to celebrate dancing (*tripudians*) with the brethren," the canons of Winchester.

In 1263, at St. Paul's Cathedral, the festivities began with the *O O O*, the days beginning with 16th December, (which was called *O Sapientia*,) so named because on each day a festal anthem beginning with "O" was sung; the various officers celebrated their appropriate O: thus the Gardener of Winchester Cathedral Priory had his on the 18th of December, when the anthem was "O root of Jesse" (*O radix Jesse*). On the three days after Christmas, the *Saturnalia* were reproduced. On the eve and day of St. Stephen, who was a deacon, the deacons acted as priests and chose a "Lord of Fools," whom they chaired round the church and to the Chapter common room, where they were



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reverently received and served by the bishop and canons. On the day of St. John the Evangelist, the priests travestied the bishops. Next day, Holy Innocents' Day, the schoolboys had their turn. At vespers on the eve before, when the verse in the *Magnificat* was sung, "He hath put down the mighty from their seat and hath exalted the humble," one of the boys (in later times elected on 6th Dec., the day of St. Nicolas, bishop of Myra, Santa Claus, the patron saint of schoolboys), chosen largely for his good looks ("Thou art beautiful, my son," was one of the responses), dressed as a bishop in full pontificals, took the bishop's stall and, with a boy-dean, boy-precentor, boy-chancellor, and boy-canons, performed the service. A supper followed. Next day, the boy-bishop sang pontifical high Mass, sometimes with some ribaldry; and, after a mock sermon, a procession through the town, often a play, and another supper took place. In the fourteenth century, the boy-bishop and his staff used to go to the neighbouring great houses, singing or acting plays, and levying perquisites. At York, in 1396, a whole fortnight was thus spent. Even more exciting than the boy-bishop must have been the sub-deacons' day which followed.

Not only William of Wykeham at Winchester in 1400, and Henry VI at Eton in 1445, but even the puritanical Colet, in 1518, at St. Paul's, recognized the boy-bishop as one of the school institutions.

Other Feast Days. On other saints' days there were other ceremonies. Thus, St. Thomas Becket's biographer gives an account of the three London schools of about 1118. On certain feast days, the scholars held a sort of Speech Day in their own church (St. Paul's, St. Martin's-le-Grand, St. Mary-le-Bow), and recited Latin verses, epigrams, and speeches, and held debates, and disputations in grammar and logic. Shrove Tuesday was dedicated entirely to sport. The morning was devoted to cock-fights actually in the schools, the cocks being provided by the boys and the masters managing them. Christopher Johnson, Head Master of Winchester, as late as 1564, gives an elaborate defence of cock-fights as a school of courage. Silver bells were kept in many schools to be fought for. The occasion was seized for levying presents from the parents as a substitute for school fees. This custom prevailed in many schools till the suppression of cock-fighting by law in the nineteenth century. In the afternoon the schools went out to Smithfield, and each school played a football match, the whole city turning out to look on. On May Day they went into the woods to gather May, and chambers were hung with the spoils. In September they went again to gather nuts. On 3rd September, 1510, "a sporting day in the cuntre" for St. Anthony's School cost the Hospital which maintained it 1s. 6d. On 15th September, 1562, this school marched out 200 strong, "with streamers and flags and drums beating." "Nutting-money" for the expenses was regularly charged to Winchester scholars till 1721. *Montem*, a march out of the Eton boys to Salt Hill at Slough, followed by a supper, lasted till 1850. On St. John the Baptist's Day (24th June) and St. Thomas Becket's Day (7th July) there were bonfires, round which anthems were sung; and then a beer-drinking contest. On St. Peter's Day (29th June) no work was done after dinner-time, which was 11 a.m.

Easter and Whitsuntide. At Easter and Whitsuntide there was no school for ten days; and from the fourteenth to the sixteenth century, all boys who could went home, though the school did not break up. Those who stayed took part at Easter in the semi-play of the Sepulchre, watching round it with wax tapers and torches "lest the Jews should seize the Lord's body," and they often performed regular Passion plays. The English drama clearly owes its rise to the dramatic services and plays performed by the clerks and schoolboys of the cathedrals and colleges. *Ralph Roister Doister*, "the first English comedy," was written by Nicholas Udall (*q.v.*).

Remedies. The whole school day included ten hours' work, but there were generally not more than four in a week. When there were not enough holy days in the week, they were supplemented by "Remedies" (*remedia laboris* or play-days), generally on Tuesday or Thursday. These remedies were a frequent source of complaint, as at Southwell Minster in 1484, when the grammar master was complained of for granting indiscriminate remedies, so spending the parents' substance to no purpose. Colet, in 1518, said blankly: "They shall have no remedies," and the master was to be fined 40s. for giving one, except the king or a bishop in person asked for it; but Colet reckoned that in the school year there were 153 holy days and half holy days, including Sundays. So that the collegiate schoolboy in olden times did not fare so badly, even if he rarely went home and the school was never wholly closed. A. F. L.

HOLLAND, PHILEMON (1552–1637).—Described by Fuller as the "translator generall in his age," and for some years a medical practitioner at Coventry. He became usher of the free school there in 1608, and devoted much of his time to translations of the classics. For ten months in 1627–1628 he was head master, and retired on account of age and infirmity. His translations include Livy's *History of Rome*, Pliny's *Natural History*, Plutarch's *Morals*, Suetonius's *History of the Caesars*, and Xenophon's *Cyropaedia*. His work was highly praised by Fuller and by Robert Southey.

HOLLOWAY COLLEGE, UNIVERSITY OF LONDON, ROYAL. — The opening of Queen's College in 1841, and of Bedford College in 1843, marked the beginning of a new development in the education of women; these colleges, however, were intended for non-resident students, and it was not until some twenty years later that the opening of Girton and Newnham Colleges at Cambridge, and Somerville Hall and Lady Margaret Hall at Oxford, and the success achieved by those colleges, made it clear that a real need had been met by the provision of women's residential colleges in close touch with university life. A few years later, in 1873, Mr. Thomas Holloway, inspired by his wife's advice and counsel, determined to found a University College for Women which should hold in the University of London a position similar to that held by the Oxford and Cambridge Women's Colleges in their respective universities. He, therefore, purchased a property of some 93 acres in Egham, within 19 miles of London, to form the estate of the College which he proposed to found. The best advice was sought, with regard both to the actual buildings, and to the constitution and management of the College; a meeting of prominent men and women who were known to be interested in education was held early in 1875; and during the next four or five years the plans of the College and the

provisions of the deeds of foundation were constantly under consideration, and reports were obtained from the Oxford and Cambridge Colleges, and from Vassar College, U.S.A. The College was designed in the style of the French Renaissance, the architect's principal model being the Château de Chambord: the building consists of a double quadrangle, the living rooms forming the east and west sides; with the chapel, picture gallery, and libraries at the north and south ends; and the dining-hall and kitchens separating the quadrangles. By the beginning of 1883 the structure was practically completed; and in October of that year, two months before Mr. Holloway's death, the trust deed of the College was drawn up in its original form. Thus, although the founder died without seeing the College in working order, he saw the buildings erected, and he was able to lay down the main principles in accordance with which the College was to be conducted.

On 30th June, 1886, the College was formally opened by Queen Victoria; and work was begun in October, 1887, with 7 lecturers and 28 students, under Miss M. E. Bishop, the first Principal. The numbers increased steadily, and by the end of ten years over 100 students were in residence. In 1898 the University of London was reconstituted as a teaching university, and the inclusion of the Royal Holloway College as a "School" or affiliated College of the University formed an appropriate recognition of the position the College had gained in the educational world. The College has thus been enabled to take an important part in the development of the London University as a teaching university; the professors and lecturers of the College hold the position of university professors and recognized teachers, with seats on the University Faculties, Boards of Studies, and Examining Boards; and the College has also been represented on the Senate throughout. In 1920 there were 196 students in residence, and a teaching staff of 32 professors, lecturers, demonstrators, etc.; while the former students number over 1,300.

Government and Activities. The government of the College is in the hands of 19 governors (including the 3 trustees of the estate and endowment); 9 governors are appointed by various public bodies, and 7 are co-optative (two of the latter being women). The Principal, the professors, and senior lecturers form an Academic Board which advises the governors concerning all educational matters, and the whole teaching staff is organized in the two faculties of Arts and Science.

Before the reconstitution of the University of London as a teaching university, the College maintained a close connection with the University of Oxford, and the students entered regularly for the First and Second Honours Schools obtaining excellent places in the lists; but the affiliation with London University made it inevitable that the relations with Oxford should ultimately cease, and the students now read almost entirely for London degrees, provision being made, however, for students who wish to follow general courses of study without reference to University Examinations. The Honours and Pass lists of the University indicate the high standard of academic achievement reached, and of late years it has been found possible to provide further facilities for research and other post-graduate work, so that an increasing output of original publications may be confidently expected in the future.

In the Deed of Foundation, the Founder emphasized the importance which he attached to the companionship and discipline of corporate collegiate life, and the internal social life of the College is exceptionally vigorous; there are over thirty societies and clubs in existence—religious, philanthropic, political, literary, scientific, musical, artistic, and athletic—several dating back to the earliest days of the College; the students also join in the work of the various intercollegiate societies and clubs of the University, and send representatives to the Students' Representative Council; they are thus able to take part in the general University affairs.

From the above brief sketch of its rise and progress, it will be seen that Holloway College has fully justified the expectations of its founder. It has not, indeed, been found practicable to develop the College (as the founder suggested) into an independent university for women; but there can be little doubt that the position of the College as an integral part of the University of London is in reality more honourable and influential than would have been the case if a new and independent university had been established in Egham. Designed for "the advancement, intellectually, of English womanhood," the College has built up and maintained traditions of collegiate life and of scholarship which form a sure basis for the important work for which it was designed and founded. E. C. H.

HOLMGREU TEST.—A method of testing the ability of the eye to distinguish between colours. The chief tests are in shades of green and shades of red. The person whose eyes are to be tested is required to select from a mass of intermixed woollen threads all those of a chosen shade. The person with perfect colour-vision makes the selection without difficulty; but one who suffers from colour-blindness is slow to choose, and according to the degree of the defectiveness of his vision will choose more or less wrong shades.

HOLYOAK, GEORGE JACOB (1817–1906).—Son of a maker of horn buttons, born at Birmingham, worked as a child in the same trade, and was apprentice to a tinsmith. He afterwards made bone buttons, and during his spare hours studied at the Old Mechanics' Institute, turning his attention especially to mathematics and the making of mechanical instruments. He taught mathematics in the Sunday schools and assisted at the Mechanics' Institute. In 1831 he joined the Birmingham Reform League, became a chartist, and, influenced by Robert Owen, lectured on socialism and co-operation. He shared in the Chartist movement in 1839. In 1840 he joined the Owenites and helped in their Halls of Science. Giving up the evangelical beliefs which his mother had taught him, he adopted rationalistic views, and assisted in the publication of the paper *The Oracle of Reason*. His public utterances on religion led to a trial and conviction for blasphemy (1842). In 1851 he appealed, in *The History of the last Trial by Jury for Atheism in England*, for a change in the law. From 1843 to 1850 he carried out propaganda work, advocating freedom of thought and speech, and the principle of co-operation. He coined the word "secularism" to denote his religious views, defining it as the practical philosophy of the people (1854). His bold defiance of the tax on newspapers led to the repeal of the Newspaper Stamp Act (1855) and the abolition of the duties on paper (1861). In 1845 he

presided at the opening of the Rochdale Co-operative Stores, and to the end of his life supported the co-operative movement, advocating its extension to co-operative production. He wrote *A History of Co-operation in England* (1875–77), *A History of the Rochdale Pioneers* (1855), and *Biographies of Tom Paine* (1851), *Robert Owen* (1866), and *John S. Mill* (1873).

HOLYOAKE, FRANCIS (1567–1653).—A lexicographer born in Warwickshire. After leaving Oxford University, he taught in a school, first at Oxford and then in Warwickshire. While rector of Southam he was ill-treated by the Parliamentarians, deprived of his estates, and reduced to poverty. He compiled a *Dictionarie Etymologicall* (1617), to which his son Thomas made great additions, and it was again published in 1677 as *A large Dictionary in three parts.*

HOLYOAKE, HENRY (1657–1731).—Son of Thomas (above); was educated at Oxford, where he held the offices of clerk and sub-librarian from 1676 to 1681, and chaplain of Magdalen College from 1680–1690. In 1687 he was elected head master of Rugby School, and is included by Colvile in his *Worthies of Warwickshire.* He received a small salary; but, in spite of this and other disadvantages, he raised the school from insignificance. His establishment at the school was under the management of his cousin, Judith Holyoake, whom he described as " very serviceable and seemingly kind to the boys."

HOME AND COLONIAL TRAINING COLLEGE, THE.—The College originated as the Home and Colonial Infant School Society. This was founded in 1791 by John Stuckey Reynolds, a retired civil servant. In 1845 an enlargement of its first purpose was indicated by a change of name: " and Juvenile " being added. A few years later the whole was reduced to the Home and Colonial School Society; and education was extended along Christian principles according to the Articles of the Church of England. There were then separate houses for Church students and Dissenters; but after fierce criticism students were, from 1848, obliged to sign a declaration of conformity with the Church.

The first home of the College was at Southampton Street, Holborn, London, but after two years it was removed to Gray's Inn Road, where, with enlargements, it remained until 1903. The Rev. Charles Mayo, one of the English followers of Pestalozzi, was an original member of the society and he introduced the principles of the Swiss reformer. He died in 1846, but his work was continued by his sister who also supervised the training. In 1846, when State grants were offered to training colleges, the committee decided to accept Government assistance. A number of students were preparing for teaching in nurseries and private schools so that two departments were created: one Government and the other non-Government. The College is the oldest of all the Church of England training colleges.

It entered upon a prosperous career when it removed to Wood Green, where it occupies large and imposing buildings, surrounded by 13 acres of ground, possessing a spacious dining hall, library, common room, chapel, gymnasium and large playing fields. Candidates are admitted who have passed the London Matriculation Examination or one of the senior local examinations; local candidates receive special consideration and student-teachers and pupil-teachers are preferred to bursars; character is given full consideration and a medical certificate is required. The entrance fee is £35 for uncertificated and £20 for certificated students, with £3 10s. for text-books, note-books, etc. All infants' school teachers are trained on the lines of the syllabus of the National Froebel Union, and the ordinary course of training covers a period of two years.

HOME AND SCHOOL, THE RELATION BETWEEN.—The teaching profession has taught itself much within the past fifty years, and nothing more important than the lesson that the school does not exist merely to correct the faults of the home, nor does the home exist merely to provide the material that occupies the energies of the school. The day has gone by when schoolmasters thought parents a necessary evil, and we have rid ourselves of that absurdity as much by recognizing the incomparable worth of home influence in the lives of children as by recognizing our own limitations in the school.

The school exists only to do, at the bidding of the home, what the home cannot do for itself. The home cannot supply the wholesome correction which a larger society can give to undue self-importance. A rabbit can exist as happily in a vacuum tube as a healthy-minded child in the environment with which Rousseau surrounded Émile. The invigorating air of public life encourages the diffident, and gives them self-reliance where the gentle influence of the home circle would leave them always passive. Among a number, each person is in some respects but little above or below the average; and one is taken not at his own valuation, but at the rough-and-ready estimate formed of him by his fellows. Even the largest family cannot supply a number of those who are of the same age; and in school life the most helpful criticism, the most inspiring admiration, the most stimulating contempt, often come from one's own Form.

But, although it is true that the school exists for the home, it does not follow that the home knows better than the school how the work should be done. If ill-feeling arises between parents and masters, it is often because that fact is ignored. The happiest results in education are those that are secured by the most perfect confidence on both sides. Parents should never place their children under the influence of persons for whose intellect and character they have not ample respect. They should satisfy themselves that there is good reason to trust their children to the school, and their trust should be generous. They should, indeed, demand that the schoolmaster shall know his business; and such a man not only knows his business, but knows that he knows it, and he will not submit to interference. On the other hand, parents must not revere the schoolmaster so blindly as to forget his peculiar difficulties. The boys are not his own: they do not treat him with the unconscious confidence which they give to their parents. They all differ widely in antecedents, in abilities, in temperament; and he must provide a system on which they may all work together. He controls them for but part of a year (or part of a day) at a time, and for but a part—often a very small part—of their whole life. But the schoolmaster has his allowance to make, his concessions to grant. There are considerations

which he cannot forget when he compares his task with the task of the father or the mother. The very fact that the children are not their own often makes the master or the mistress at some crisis in the young life a wiser counsellor and a more faithful friend. Love is not inflexibly just; there are times when it will not nerve itself to deny a hurtful pleasure; or a parent sees his own faults reborn in his offspring, and to his own faults he feels that he must be merciless. Thus the extremes of indulgence and of severity often meet. Uniformity of discipline is always easier to the school than to the home.

Perplexing Problems. A perplexing problem confronts the schoolmaster when the opinions of parents come into conflict with his rules. He may desire, for the good of the one boy, to uphold the authority of the parents, the natural lawgivers; but he is bound to uphold his own authority for the good of the community over which he presides. Where the conflict of opinion is serious and is likely to be permanent, it is advisable that the pupil should be removed without delay, care being taken that no stigma of expulsion shall rest upon him. There may be many minor divergences of opinion and of practice that cause no difficulty, and the greater divergences need never occur if parents would exercise due care in the selection of a school and would then abide by its regulations; and if school authorities would always show due consideration for parents, and would make only such regulations as are entirely reasonable. The schoolmaster should think of home, not only as the place from which his pupils come, but as the place to which they must return, and in which, wherever their lot may be cast, they must spend their lives. Every boy and girl in a school to-day is preparing to take some share in the making of a home. This is readily acknowledged in the case of girls. They are expected to be home-makers, and to that end they are zealously taught the domestic arts. But a home does not live by bread alone. Habits of courtesy, of hospitality, of mutual consideration, and of mutual forbearance; the sense of chivalry which prompts the strong to defend the weak; the sense of honour which compels even the weak to do their utmost for those with whom they are allied—all these have their part in the building of a true home, and all are either fostered or discouraged by the school.

But this is not to say that there should be no difference. The best school is not necessarily like the best home, but is its complement. Nothing but the home can give the perfect intimacy of the largest family; the life of even the smallest school is, by comparison, public life. The change that comes at the end of the day or at the end of the term should be a change great enough to refresh, yet not great enough to disturb, the spirit. F. R. G.

HOME MUSIC STUDY UNION.—The Union has for its objects (1) to assist members to understand the underlying basis of the form of music and to know the history of the development of the art so that they perform or listen to music intelligently; (2) to gather together those who believe in the moral and intellectual influence of music and to stimulate the use of that influence in a suitable direction.

"Young People's Circles" are formed in schools to further the work of the Union. Membership for adults is by subscription to *The Music Student;* for children, *Youth and Music.*

HOME ORGANIZERS AND HOUSE WORKERS, THE TRAINING OF.—Particular training is as necessary for the vocation of home-organizer or house-worker as for becoming a doctor, a nurse, an artizan, or a clerk; and it is likely to receive more attention for girls over school age. War-time experiences of the servant difficulties have clearly shown that systematic and accurate methods must be brought to bear upon all the problems of daily home life, which, for the purposes of study, should be treated separately and also as part of the whole social problem. The trained housewife should be mistress of the domestic crafts and a skilled organizer; she should be acquainted with the principles, processes, and facts concerned in the management of an English home. Although excellent work is done during school-time, it is not adequate to the need for thorough training.

It is folly to think that housewives alone can afford to cling to rule-of-thumb methods, and be guided by snippets of information and chance advice. The idea that a modicum of intelligence and trained skill suffices for the large and indifferently organized army of houseworkers is responsible for much, and in some measure accounts for the scant kudos accorded to the occupation.

The work is interesting and healthy, and it pays well, but it has had to be done under conditions which prevent self-direction and development; therefore the vocation is despised socially. The hours of work are irregular and long. It has been said that in other vocations the worker sells *his labour*, but the houseworker sells *herself;* and the observation is not without truth.

There is an inborn trust in haphazard domestic methods in the English mind, and a great fear that systematic ways and a higher standard of quality would involve mechanical rigidity, lack of initiative and individuality, and the loss of all the charm and freedom that make home lovable: a calamity possible only to those who lack the saving sense of humour!

Evening classes are insufficient for thorough study in this direction, but a good deal can be done, and better arrangements may become possible.

Women's Institutes. These have begun to meet the need for suitable courses of lessons on sound lines, but more continuous work is necessary.

Cookery in all its branches, laundering, housework, the needle crafts, domestic calculations, domestic handicrafts and odd jobs, home-planning, scientific method, home organization, design applied to the needle crafts, first aid, sick nursing at home, care of health, infant care, care of women and children and the home, and child-tending are included in the curriculum of the L.C.C. Women's Institutes; and due provision is made for lessons in English and literary subjects, the discussion of topics of the day and social problems.

The London County Council has laid down, in handbooks dealing with these matters, a scheme of work on which the teachers are required to base sound and progressive courses of lessons. This plan permits scope for individuality, and is adaptable to local needs.

In cookery, dishes are made, meals arranged, and catering and marketing taught. Students are made acquainted with labour-, time-, and money-saving devices; and learn how to make the best of the energy, time, and money at their disposal. Dishes are taught as representing types, and comparisons of proportions and the likenesses and

differences between dishes of the same type should always receive attention.

During the first and second grades of work, it is often advisable to deal with only one type during a lesson, but two or three varieties of that type are often considered. The chart method of comparison of proportions is graphic and effective. Typical meals should be shown at frequent intervals. Attempts should be made to follow wholesale and retail market prices, in relation to food values and the household budget. The card index system of keeping recipes, specifications of cost, speed records, and general assessments has been adopted in some cases.

Similar methods of dealing with the other subjects mentioned have been used with encouraging results.

Students need encouragement at first to think definitely and carefully about their work, and to see how the classification of their experience may help the social problem and set a standard of possibilities; but, as knowledge and power increase, so their interest becomes keener and their study more purposeful.

In this national service there is scope for the intelligence and prowess of many more of the best women who recognize that "commonplaces are great poetic truths." C. R. G.

HOME TEACHING SOCIETY FOR THE BLIND. —"If the blind lead the blind," no longer can it be said that both will fall into the ditch. The Society for teaching the blind in their own homes was established in 1855 to supply teaching through the employment of itinerant blind teachers of approved moral and religious character. The aim of the teacher is to train the sense of touch; and the Society adapts its teaching to Moon, Braille, or other types as each appears to be adapted to the needs or capacities of individual learners. In order that the learner may profit by his new knowledge, a well-organized system of free circulating libraries of books in raised type has been established. Books and magazines in varied types are supplied absolutely free of charge to the blind in and around London, irrespective of their creed. The first books to be introduced by the Society were the Scriptures, but now many kinds of literature are supplied. The books are delivered at the homes of the readers, and at workhouses and infirmaries, and usually changed once a fortnight, so that they reach the very poorest classes; and no subscriptions are asked for except in cases where they can be well afforded. In and around London there are home teachers in residence, who control branch lending libraries; and each teacher has a definite Metropolitan district under his charge.

The Society consists of members who subscribe one guinea annually, ministers who give a collection in their churches, and benefactors of five guineas and upwards. There are sixty provincial associations by means of which the same work is carried on. Many of these were started by the central Society, and many of them have gone beyond the original purpose of teaching to read, so that we find connected with some branches large workshops, where useful handiwork is taught and practised.

The staff of voluntary writers at the office did useful service, when war broke out in 1914, by setting up weekly war reports in Braille type to be passed round to blind persons, so that they might read for themselves.

Mr. Moon, the inventor of the Moon type for the blind, helped to establish many home teaching branches in different parts of England, and was for twenty years a member of the committee of the Home Teaching Society. He had become blind in 1845 at the age of 22, and remained so till his death in 1894. His daughter, who had been a member of the Society from its inception, and actively interested in its welfare, died in 1914.

The offices of the Society are at 25 Victoria Street, Westminster, S.W.1.

HOME, TRAINING IN THE.—The newer ideal of the English home consists in the fusion of two elements: first, the right of the child to the full development of all his powers and capacities, so long as these are not injurious to himself or others; second, the acceptance by the parent of the position that it is his duty, equally with his right, to secure, as far as possible, that all immediate efforts to control or direct the child have reference to his completed growth, and not to immediate stages only.

To the former, we can trace the freedom of speech, manners, and action of the modern child—his unhindered pursuit of his own special hobbies. But this freedom cannot be absolute: it is necessarily confined within certain bounds laid down by the demands of social and moral order. Liberty for all depends upon law for all; and we must therefore connect with this modern recognition of every child's right to liberty the further recognition of the necessity for its partial curtailment.

The manner of this curtailment is determined by the second element. Though it is undoubtedly the parent's duty to curtail the child's liberty when necessary for the good of all, yet he must bear in mind that his own freedom of action is, in its turn, limited; that the lines along which he must proceed no longer lead only to immediate comfort, but extend further in connection with the child's development. Life itself is the great school for training, and home is but preparatory to Life.

The Moral Value of Obedience. For this reason, obedience in the home is no longer regarded as the primary virtue, but only as secondary to positive moral training, as an indirect preparation for the child's mastery over himself, by which he learns to subordinate his own impulses to a higher law which dwells within his own nature. From our modern standpoint, we should even distrust excellent behaviour and ever-ready obedience in early childhood, unless we are sure that they really betoken a natural capacity for self-direction and self-control. For we have become aware that they may be either the outcome of a too rigid discipline on our part, which has repressed the child's individuality, or may point to a natural lack of initiative which, in later years, will reveal itself in the child as moral weakness. "Children have no business to be so good," writes Dr. Sophie Bryant, "unless every one around them is perfect."

If, then, obedience is secondary in importance to that positive moral training through which we direct the child's future development, how far is the habit of obedience of practical value to the child, looked at from this wider standpoint?

It is only through the early habit of prompt obedience to those in authority that the tiny child can first learn to acquire mastery over himself; but the period of this unquestioning, unintelligent obedience should be of short duration. The time

comes, and comes soon, when he should begin to replace this outside control by an inner control, and this natural change will be retarded rather than forwarded by a method of continued compulsion. Whenever, therefore, outward compulsion is necessary—and at times undoubtedly it is—the nature of our compelling should be such that the child's own will is directed and controlled, not overlooked. For only in so far as he himself voluntarily acts rightly can he learn to desire rightly ; only in so far as, under the temporary guidance of our will, he freely exercises his own will can his will grow strong enough to guide itself.

The Place of Restriction. In many homes, even to-day, unquestioning filial obedience has been, and still is, the one guiding principle in the training of the child. And what has been the result ? That the apparently ordered harmony of early boyhood or girlhood, at the oncoming of adolescence, is followed, almost without exception, by a period of storm and stress, when all the restrictions previously accepted are suddenly and violently rejected, and the child's character seems to be completely transformed. For, instead of guiding and strengthening the child's own impulses in order that he might become increasingly his own master, parents have relied upon the erection of rigid and artificial barriers between which they have insisted that the stream of his life shall flow. Such insistence appears for a time to be successful, but the full flood of conscious life associated with adolescence sweeps all aside. Training can be relied upon only when it directs and controls the forces that are within: failure is inevitable when, by undue insistence upon unquestioning obedience, it has been imposed solely from without.

But what if the impulses within the child are undesirable impulses ? Are not rigid and artificial restrictions in such a case inevitable ? What should be our attitude in the home to-day towards " difficult " children, generally termed " naughty " ? And how far can the method, commonly adopted, of arbitrary punishment for failure to keep within the bounds of certain arbitrary restrictions be justified in the light of modern ideals ?

The greater number of cases of so-called naughtiness among children are, I believe, due to the ignorance and incapacity of those placed in authority over them, rather than to any real desire for wrong-doing on the part of the child. Only on occasions is the child himself really to blame; but, even in such cases, where the presence of wrong desire has incited the child to deliberately wrong action, we can *never* create right desire by the mere exercise of force. Arbitrary punishment for failure to keep within the bounds of arbitrary restrictions cannot be justified as a method of training the so-called naughty child. In the child who does not tell the truth, who is obstinate, cruel, selfish, or passionate, there is a defect which needs to be remedied—not something radically wrong which needs to be rooted out; and the nature of that defect must be diligently sought for. To train for the future, we need to aim at the harmonious development of the child's own nature; and we are working for immediate results only when, by punishment, we merely prevent the recurrence of the wrong action.

What a Parent can do. A " naughty " child cannot, then, be superficially dealt with. He must learn to desire rightly, and right desires can grow strong gradually only through exercise. Definite opportunities need to be provided for the exercise of those good desires that in him are weak; and those other desires of his, which are in their influence bad, must not be permitted to express themselves in action. He needs, therefore, above all things, to be *understood.* On occasions, even apart from right desire, right actions must be demanded of him, because, through the doing of the right action, the right desire, which has lain dormant, may be awakened into activity. But such temporary insistence on right doing—the choice which we make of the influences to which he shall be subject —is no easy matter: *it must be based on a reasoning insight into the tendencies of the child's nature.*

And how is this insight to be acquired ? Only by patient, sympathetic observation and careful study, accompanied by a wholesome self-criticism, judged not from our own, but, as far as possible, from the child's standpoint. So to judge requires a considerable effort of the imagination; but it is not merely worth while, it is absolutely essential that the effort should be made—for the child is not " man, writ small," but an unknown quantity—" man-in-the-making."

The effectiveness of the home, then, as a school for training, depends, in the first place, on the *individual* wisdom and insight of all those who are brought into contact with the child; but it also depends—and this is of the utmost importance—upon their willingness to *work together* in their relationship to him, upon their mutual understanding and co-operation as far as he is concerned.

When school age is reached, and other agencies than the home begin to exert their influence over the child, it is essential that this co-operation should still be maintained; and parents are called on to make a deliberate effort in that direction. Not only is it necessary that they should get to know the friends whom the child now gathers around him; that they should understand and enter into outside educational agencies, such as the Boy Scout and Girl Guide movements (*qq.v.*) ; but they are called on to come into contact, first-hand, by personal intercourse, with the teachers and with the school that they have chosen, in order that, through their child, they may give their loyal and intelligent support to its many and varied activities. It is impossible to over-estimate the gain to the child of such a sympathetic co-operation, not only with regard to the influence of the school, but also with regard to the continued influence of the home.

It is a schoolmaster of wide experience who writes: " It is likely that no other single reform in the matter of education can compare, in efficacy and importance, with the improvement of the relations between home and school, with the increase of a loyal and sympathetic collaboration of both agencies in the training of their common interest—the boy—with the growing recognition of their mutual rights and their mutual duties."

E. E. R. M.

HOMER IN EDUCATION.—The Homeric poems probably did not become a school book with the Greeks much before the middle of the sixth century B.C.; but from that time onward till the fall of the Byzantine Empire, they held a prominent part in literary education. Along with Hesiod they constituted a kind of Greek Bible, and children received from them their earliest instruction in religion, morals, and manners. The pupils wrote them out to dictation, read them, and committed them to

memory. From Xenophon's *Symposium* it appears that Niceratus had learnt by heart the whole of the *Iliad* and *Odyssey*, and could still repeat them in manhood. The constant quotations from Homer that occur in Greek writers, from Herodotus to the poets of the Anthology, are evidence of a widely spread acquaintance with the poems. References are found to the commentaries of teachers which at first took the form of explanations of mythological references, the meaning of words and phrases and obscure allusions and dissertations on Prosody, but at a comparatively early period there appears a tendency to allegorize Homeric mythology in order to bring it into consonance with progressive morality. Plato is the first to utter a protest against the general acceptance of Homer as an inspired teacher, in whom all knowledge was implicit; and, in view of the occasional presentation of gods and heroes in an ignoble light, he insists on the need for careful selection of the passages to be used in the education of the young. But by writers as late as Plutarch and Dion Chrysostom the poet is regarded as "the beginning, middle, and end of culture for youth and age." It is interesting to find that, as early as the fourth century and probably earlier, pictures illustrative of the *Iliad* and *Odyssey* were used in the schoolroom.

The life and manners depicted in Homer never existed: the presentation is purely ideal, but its influence in shaping the Greek national character is incalculable. Whatever is noble in the historical Greeks must be set down to the effect of the poems on the imagination of the people. With the Romans it was different. Homer was merely a part of the general culture which they borrowed from the Greeks; and, though the methods of instruction followed those of the earlier people, they did not influence the younger in the same way. The humbler note of Hesiod was more in harmony with the Roman national *ἦθος*.

In Modern Education. It has often been remarked that much of classical literature has been so diffused and worked into the modern that the originals now wear a certain aspect of triteness. This cannot be said of Homer. More than any other writer he has gone to the making of existing literature, and yet he retains his freshness and inspiring power. He is noble without a trace of sentimentality, simple and direct; there is nothing about him to grow antiquated. He has every note and every quality; he fascinates the schoolboy and has inspired the statesman and the poet. If education is to be regarded not so much as the development of natural tendencies, as "the process by which a human being is raised from his original nature into his ideal nature," there is no author within the whole range of literature to be compared with Homer in his effect on the youthful mind. His subject matter—war and adventure—is attractive to begin with, his handling of it is ideal and stimulating to the imagination, his range of interest is vast—the grandeur of his images, Shelley tells us, excels Shakespeare; and the very strangeness of his language medium, by its effect of remoteness, preserves the ideal from the smirching of the real, just as does the archaic English of the Bible.

The high educative value of the poems has never been seriously questioned, but in practice the teacher of Greek is confronted with a serious difficulty. The number and variety of Epic forms as contrasted with the Attic is bewildering to the beginner; and, though Homer is the classical schoolmaster's trump card, he cannot play it at the time when it would win the game. Boys are wearied with the parasangs and stades of Xenophon, when richer treasures than modern romance can show are lying by them. There survives also too much of the antiquated theory that aimed at laying in every child a grammatical foundation broad enough to bear the weight of learning of a Bentley or a Porson. One cannot begin with Homer as a reading book, but pupils might well be introduced to small portions of the poems at an earlier stage than they are at present. The syntax is rarely complicated, and the matter is for the most part simple and in the concrete. The tendency, of German origin, to treat the poems as an occasion for philological dissertation is happily on the wane. In relation to the beginner, the one paramount consideration of to-day is the human interest of Homer.

J. HARROWER.

HOMERTON TRAINING COLLEGE.—In 1695 the Congregationalists formed a society for the promotion of education among their members. This society founded an academy at Homerton, a north-eastern suburb of London, for the training of young men as ministers and as school teachers. In 1850 the Congregational Board of Education took over the academy for use as a training college for teachers in elementary schools, and the training of ministers was carried on elsewhere. From 1850 to 1894, Homerton Training College prepared teachers of both sexes under three successive principals—Dr. Unwin, Mr. Liddell, and Mr. Horobin. In 1894, Cavendish College, Cambridge, was purchased by the College authorities, and provided a magnificent set of buildings with fine surroundings, in which the training of women teachers has since been carried on, under Mr. Horobin until his death, and later under a lady principal. Accommodation is provided for about 200 students, who belong chiefly to the Congregational body or the Church of England, but members of all denominations are admitted. The teaching staff consists principally of lady-graduates of high qualifications, and science teaching is a strong point in the curriculum. The students have also the advantage of hearing lectures by professors of the university, and among those who have lectured to the students have been Sir Robert Ball and Professor Skeat. The matriculated students who enter the College are provided with courses in preparation for the B.A. and B.Sc. degrees of the London University.

The College possesses a great hall, a common room, a reading room, and a fine library to which regular additions are made by annual grants from the College authorities.

HOMEWORK.—The educational aspect of this subject has received little attention in Great Britain, and the inquiry of which Dr. F. Schmidt published the results at Leipzig in 1904 seems to be still the only attempt to investigate it experimentally. The hygienic aspect has been more fully illustrated, and the results ascertained must in time have a decisive influence.

Against the abolition or severe restriction of homework it is argued that the pupil's self-reliance is best developed by working without the instant supervision of the teacher; and it is, in practice, found that a certain class of work, such as original composition, is done better at home than in school.

But with work of this kind only senior pupils are concerned, who may properly be left, to some extent, to themselves. In junior classes, comprising the great majority of scholars, practical difficulties tend to limit homework to preparation of set lessons and revision of what has been learned already. Dr. Schmidt's experiments went to show, not only that such work is better done in school than at home, but that the disparity of the results is even increased on the repetition of the same work under the same conditions after an interval. Experiments made by Dr. Mayer showed that the work of pupils is actually improved both in quality and in speed by the presence of schoolfellows.

Until recent years, hygienic considerations were entirely ignored in this connection. Among poor foreign Jews in London, it was found some years ago that quite young boys were kept at lessons for ten or even eleven hours a day. Dr. Jäger reported to the first International Congress on School Hygiene, held at Nuremberg in 1894, that the mental work prescribed in Germany for boys up to 15 was never less than eight hours a day, generally nine or ten hours, and that these limits were frequently exceeded.

Reform was brought near by the invention of physical and mental tests for measuring fatigue. It has been ascertained that fatigue increases progressively throughout the day; that the relief afforded by change of subjects or by play is only temporary; that all fatigue, whether muscular or mental, is of one kind; and that the only complete cure for it is sleep. Other investigators have compared the amounts of sleep required and obtained in different stages of growth. The shortage, which is universal, varies from one to three hours per day.

Homework for younger pupils, which may be conveniently taken to include all who are not well over the age of puberty, is condemned as abridging the time available for sleep, as tending to disturb sleep, and as concentrating work which is most arduous for the weakest children on hours during which the pupil's capacity is at its lowest. A very serious count against it is that the eyes of children are unduly strained in studying by artificial light. And the best educational opinion now lays stress on leisure as an important factor in mental growth.

C. SIMMONS.

HONDURAS, EDUCATION IN.—In elementary schools, free secular education is provided for children between the ages of 7 and 15, and attendance is compulsory. Secondary schools and schools for the training of teachers are supported by the Government in several of the large towns. In the capital there is a Central University, founded in 1880; and a college for women. The Roman Catholic Church has a theological school in the capital. In British Honduras the primary schools are chiefly under Government control, and there are a few private secondary schools. Cambridge local examinations are held at Belize.

HONOUR SCHOOLS.—In university examinations, candidates who pass with special distinction in higher branches of a subject than those taken by other candidates are said to pass with "honours." It is usual to divide the examinations into two parts—one for a "pass," the other for "honours." The term "honour school" is applied in the universities to the hall in which the examination for honours is conducted, and the examination itself is frequently referred to as the "school." The studies for the honour schools are usually specialized and limited to a few subjects. At Oxford there are separate schools for English language and literature, modern languages, modern history, mathematics, theology, natural science, jurisprudence, *literae humaniores*, and Oriental studies. At Cambridge, the schools are in classics, economics, mathematics, mechanical science, natural science, history, law, theology, and languages. The newer universities have also honour schools similar to those of Oxford and Cambridge.

HOOLE, CHARLES (1610–1667).—He was born at Wakefield, educated at Lincoln College, Oxford, took holy orders, and in 1632 became master of the free school at Rotherham, where he remained for ten years. During this period he collected material, based on his own experience and on the writings of schoolmasters and educational writers, for his great work *A New Discovery of the Old Art of Teaching Schools*, to be published after the end of his scholastic career. In 1642 he held a Lincolnshire living, but was ejected by the Parliament, and then removed to London, where he opened a private school close to Aldersgate Street. In this "private Grammar School," Anthony à Wood tells us, "the generality of the youth under him were instructed to a miracle." In 1660 Hoole became Prebendary of Lincoln, and spent his remaining years as Rector of Stock, in Essex. Hoole was not only a successful schoolmaster but an industrious writer of school books, and a reformer of school methods. His books dealt chiefly with the teaching of Latin. He published *A Little Vocabulary, Sentences for the first Enterers into Latin, Comedies of Terence*, with an English translation for the use of young scholars. In the "Vocabulary" he desired to teach beginners to call in Latin things they know by English names. This, he says, should be the first step towards the gaining of any language. All these elementary books had for their aim the simplifying of the difficulties of Lily's grammar, chiefly by turning parts of that work into English. Hoole's *New Discovery* is the result of "fourteen years trial by diligent practice in London," but is rather an exposition of the old art, "the good old waie of teaching, by grammar, autors and exercises," than an attempt to introduce new methods. The first part, "The Pettie School," is of great interest, describing the preparatory school for children of 5 to 8 years of age, taught to read English with understanding. In it Hoole appeals for more English and less Latin, and the extension of English teaching to children to whom it would be profitless to learn Latin. Part II deals with "The Usher's Duty," describing the work of the three lower forms, where the chief aim is to master Lily's grammar; but Hoole complains the children learn very slowly because the book is all in Latin, and hard to be understood. The grammar notions are abstractive, dull, and lifeless, and boys find no sap and sweetness in them. Part III deals with more advanced study in the highest forms under the master, and Part IV with "Scholastick Discipline," or the way of "ordering a Grammar School." (See also RHETORIC.)

HORMAN, WILLIAM (*d.* 1535).—He was educated at Winchester and New College, Oxford; and was master of Eton College from 1485 to 1494. Late in life he became vice-provost of Eton, and died there at a very advanced age. He was a

prolific writer, and produced a large number of works in Latin for school use, of which none appear to have been printed. He also wrote epistles, elegies, poems, and scientific treatises, and a few theological works.

HORMONES.—(See ACQUIRED CHARACTERS.)

HORN-BOOK, THE.—This once indispensable aid in teaching the young usually consisted of a printed or written paper attached to an oaken board, and protected by a thin sheet of horn, which was fixed in position by nails and a narrow edging of brass. There is considerable variety in the material and even in the shape of the back. At a "Tudor Exhibition" in 1890, a specimen was shown with a beautiful back of silver filigree work. The reverse of a wooden board, too, was often covered with leather, on which a picture of St. George and the Dragon seems frequently to have been stamped; but specimens exist bearing respectively equestrian figures of Charles I and Charles II. The learner held the rectangular "book" by a small handle something like that of a hair-brush. Specimens in the shape of a cross are now extremely rare, but there is no doubt that many were made in this form.

The matter to be learned kept pretty closely to a single model. First came the alphabet in capital and small letters. Old specimens always begin and end this portion with a cross (+), and hence it is common in sixteenth and seventeenth century literature to find the alphabet spoken of as the "Christ-cross Row." Then followed the vowels, various combinations of two letters, and the Benediction; finally, the Lord's Prayer filled the sheet. Commonly, digits and Roman numerals were also included. The copies of a writing master were occasionally protected with horn or talc, and fixed to a back of wood or iron; but specimens of this type are scarce.

The earliest record of a horn-book is in 1450, but they must have been in very general use by the end of the sixteenth century, and are mentioned by Shakespeare and Ben Jonson. The earliest copies were in "black letter" and inclined to be bulky, but the use of Roman letters and decorated backs led to a decrease in size. Later specimens were printed on cardboard with a varnished surface, and were sometimes illustrated with woodcuts. Not only the wooden ones, but also the cardboard copies, were often called "battledores."

Although at one time they must have been extremely common, very few genuine horn-books now exist. At an exhibition in 1882, the Worshipful Company of Horners could collect only eight specimens; the British Museum has three, the Bodleian Library the same number, and South Kensington eleven. The use of such a device as the horn-book seems almost entirely to have been confined to England, Scotland, and America, though few American specimens exist. From old prints and pictures it is conjectured that tablets like the horn-book were used in Flanders, Holland, Germany, and Italy; but in Norway and Sweden such a thing was unknown.

William Hornbye, in a poem dated 1662, states that a penny or twopence was a fair price for a horn-book; but as much as £65 was paid several years ago for a particularly interesting specimen.

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HORNE, THOMAS. (1780–1862).—A Biblical scholar and bibliographer; was educated at Christ's College with the poet Coleridge; and became a barrister's clerk in 1796. To increase his income, he turned to literature; and, after much editing and compiling work, he was entrusted in 1808 with the compilation of three volumes of catalogues of the Harleian MSS. in the British Museum. In 1821 he was engaged to prepare a catalogue of the library at Queens' College, Cambridge; and in 1824 undertook a similar catalogue for the British Museum. He wrote many religious, historical, and legal works.

HORSHAM SCHOOL.—(See LONDON CITY COMPANIES AND EDUCATION, THE.)

HORTICULTURAL INSTITUTION, THE JOHN INNES.—By his will, proved in 1905, John Innes, a resident in the parish of Merton, Surrey, left his estate in trust for various charitable objects and chiefly for the establishment of a Horticultural Institution, which is devoted to the promotion of horticulture instruction, experiment and research. The charity is administered by a body of trustees, who, as regards the conduct of the institution, are advised by a Council consisting of representatives of various educational and other public bodies.

The work of the Institution began in 1910, when land was acquired in Merton and plant houses with a laboratory were erected. Studentships and minor studentships were established for the endowment of persons suitably qualified, or who are in training to become qualified, to take part in the work of the Institution which comprises research in genetics, mycology, entomology, and other subjects connected with horticulture. Among these, special prominence is given to plant breeding at the present time. Facilities are also, so far as resources permit, offered for duly qualified persons wishing to conduct cognate investigations as voluntary workers. Students in the ordinary sense of the term are not received, but, besides the training of scientific workers, the institution undertakes the instruction of a limited number of young gardeners, who must be at least 19 years of age and have certain other qualifications.

HORTICULTURAL SOCIETY, THE ROYAL.—This was established in 1804 to collect information respecting the cultivation and treatment of plants and trees, and to encourage every branch of horticulture, both ornamental and useful.

The work done by the Society has been from the first both theoretical and practical, and has included not only meetings, addresses, researches, and shows, but the management of gardens in which every variety of plant could be cultivated and studied. The Society Garden was at Chiswick from 1822 to 1861; then at South Kensington till 1904, when a new garden, presented by Sir Thomas Hanbury, was opened at Wisley, in Surrey, in close proximity to the well-known Bolder Mere and Hut Hotel on the Portsmouth Road.

The offices and library of the Society are at the Royal Horticultural Hall, Vincent Square, Westminster. The library contains over 8,000 volumes, and is known as the Lindley Library, the nucleus consisting of a fine collection of books and pamphlets belonging to the late Dr. Lindley, who had been long associated with the Society. The library is open daily from 10 to 5 (Saturdays, 10

to 1), and Fellows of the Society have the privilege of borrowing the books.

The Society has always ranked as one of the learned societies of Europe, and in 1909 was registered as a "Scientific Institution." In 1907 a Scientific Research Station was opened at Wisley, and this was later extended by the opening in 1915 of an extensive laboratory for the purpose of scientific experimental and research work in general gardening, and for the avoidance of many sources of loss which beset growers.

Any one, of either sex, who is interested in horticulture is eligible for election, and is invited to join the Society. Candidates are proposed by two Fellows and, on election, may pay four guineas, two guineas, or one guinea a year, according to choice. The privileges include, according to amount of subscription, one or more annual tickets admitting to all the Society's exhibitions and to the gardens, lectures, library, and meetings. The Society's *Journal* is sent free of charge to all Fellows.

Bonâ-fide gardeners or employees in nursery, market garden, or seed establishment may become Associates, and receive a free ticket, the *Journal*, and the right to use the library.

The Society admits a limited number of students to the Wisley Gardens for the purpose of studying the principles and practice of horticulture. They must be working students between 16 and 22 years of age, and qualified by general education to profit by the course of instruction provided. The fee for a two years' course covers all charges except cost of books and stationery.

Examinations and Diplomas. The desire to provide a diploma for professional gardeners led the Horticultural Society in 1912 to approach the Board of Agriculture on the subject, with the result that the Board approved the proposal, and authority was given by the Government for the diploma to be designated "National."

THE DIPLOMA is granted as the results of the Society's examination, and for the benefit of all classes of gardeners, nurserymen, seedsmen, florists, and horticultural teachers and inspectors. Candidates for examination must give evidence of previous general education up to the standard of University Matriculation. They must be 21 years of age, and have served at least four years in a garden or nursery, or taken a four years' course in an approved horticultural institution, before taking the Preliminary Examination. The questions are based on the general principles of plant-growing, and an elementary knowledge of botany, chemistry, and physics so far as is necessary to an understanding of garden practice. In the Final Examination, candidates are examined in one section, chosen by themselves out of a list of eight sections, the subjects being similar to those of the Preliminary Examination, but the knowledge required must be more specialized. The Final Examination consists of (*a*) practical tests; (*b*) written examination; and (*c*) *viva-voce* examination.

The Society holds also a GENERAL EXAMINATION (*a*) for Seniors; (*b*) for Juniors on the "Elementary Principles of Horticultural Operations and Practice." This examination is intended for pupils in the classes of county councils, institutes, gardeners' societies, etc. The Society is prepared to hold an examination wherever a magistrate, clergyman, schoolmaster, or other responsible person accustomed to examinations will consent to supervise one on the Society's behalf and in accordance with its rules.

A SCHOOL TEACHERS' EXAMINATION in cottage and allotment gardening is conducted on the same lines as the General Examination, and confined to teachers in elementary and technical schools. This is especially useful to teachers seeking appointments in rural districts, and those who have passed may become Fellows of the Society on payment of a subscription of one guinea per annum.

The papers set at the R.H.S. examinations are published in annual volumes. The *Journal* of the Society is published three times a year, and sent free of charge to Fellows and Associates.

HOSPITAL SCHOOLS.—Early in the history of the Christian Church, it was prescribed that bishops should arrange that there should be a *xenodochium* in each city where travellers, and especially pilgrims, might be entertained, and passed on to the next city. These institutions soon found further scope in the provision of accommodation for the extreme poor, foundlings, and the aged. In England they date back to the tenth century as separate institutions, though it must be remembered that the *hospitium* was a recognized part of each monastery, where the wayfarer was received; and St. Benedict, in his Rule, required that special care should be taken of the sick. The hospital proper developed in many directions (*e.g.* a guest-house, a religious house, an infirmary, an almshouse, and the poor school). It had different names—God's House, Bede House, etc. On the educational side, the school might be known as Hospital School, or simply as, *e.g.* Heriot's Hospital at Edinburgh, Christ's Hospital in London. Some hospitals were called colleges, though having no school attached. Hospitals were erected *ad hoc* when leprosy found its way into the country, some years, it is said, even before the first Crusade. In St. Thomas's Hospital, Canterbury, 1363, the terms of foundation included pilgrims, the infirm, the poor, and "lying-in" women; and in some hospitals it was provided that, if the mother died, the child should be brought up in the hospital up to 7 years of age (Miss Clay, p. 9). St. Thomas's Hospital, London, founded in 1213, made provision for "poor children," and it is clear that the inclusion of women as recipients of hospital help, sooner or later, would bring forward the problem of dealing with infants and children. In 1280 there were twenty-three boys in the Hospital of St. Leonards, York, with a woman in charge. Education was provided for them, and for thirty choristers. Sometimes boys attending other schools had board and lodging provided for them in the hospital or almshouse, evidently parallel to the institution of the almonry (with its school) in monasteries. The connection of hospitals with the Colleges at Oxford and Cambridge was close. Sometimes the funds, lands, and property left to the hospital enabled colleges to make the necessary provision for the poor, as well as to provide for the studies of students.

Schools in connection with hospitals and almshouses became more frequent in the later periods of the Middle Ages, such as God's House Hospital School at Exeter; in 1422, Chichele's School at Higham Ferrers; and, in 1500, Bishop Smyth's endowment of the hospital at Lichfield. John Stanbridge, in 1501, master of the school at the Hospital of St. John at Banbury, initiated a teaching method for Latin. Manchester Grammar School

(1515), Cuckfield Grammar School (1521), and Merchant Taylors' School (1560) were required by statute to teach grammar after the manner of the Banbury School. In 1553 was founded by Edward VI the best known of all Hospital Schools, that of Christ's Hospital (*q.v.*), now at Horsham. The funds were obtained from the confiscation of the monastery of the Grey Friars or Franciscans. With remarkable traditions, from the hospital origin it has become one of the great public schools. So, also, the Charterhouse (1611), another of the great public schools, was associated with almshouses at its foundation. F. W.

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HOSPITALLERS, KNIGHTS.—(See CHIVALRY AND EDUCATION.)

"HOUSE" SYSTEM IN A PUBLIC SCHOOL, THE.—In the majority of public schools, the "house" system has been adopted. The fabric of the house may be the property of the governing body, rented from them by the house master; or a private property licensed to receive boarders under regulations approved by the governing body, and subject to inspection by their representative. Appointments to house-masterships are generally, though not invariably, made in accordance with seniority of standing. Commonly, too, the tuition salary of a master is reduced when promotion to a "house" is made; the assumption being that profits arising from boarding fees will more than compensate the reduction. There is frequently associated with the house-master a house-tutor (usually a junior man), who may relieve his chief of some disciplinary functions, and at the same time cultivate with the boys a less formal acquaintance and be in closer touch with many of their social activities. The experience thus gained is of great value when, later, the tutor himself becomes a house-master. A limit, generally fifteen years, is often set to tenure of a "house."

A matron, who may also be the housekeeper, is responsible for the domestic details; and probably tends to the petty ailments and accidents. More serious cases are usually nursed in the school sanatorium.

In some schools the boys from every house have their meals together in one school dining-hall; in others, each house-master caters for his own boys, and maintains his own kitchens and service. Arrangements within the house are by no means always the same: in some schools each boy has his own study or study-bedroom; while in others, studies are conferred on only a few of the upper boys, the remainder living together in a common room, wherein are provided lockers for the books and other small belongings of each boy. Similarly there are diverse sleeping arrangements—the study-bedroom, the open dormitory, and the dormitory subdivided into individual cubicles all have their adherents.

Perhaps the most characteristic and valuable feature of the house-system is its influence on the boys themselves. It undoubtedly engenders an *esprit de corps* comparable to that prevailing in a good regiment: it is a unit for loyalty and patriotic fervour within the grasp of the mind even of the youngest, and as such affords an excellent training in good citizenship in later lite. Further, to a large number of boys, as prefects, monitors, captains of the various games, N.C.O.'s in the school O.T.C., heads of dormitories, and other petty officers, the opportunity is afforded of learning to use authority, to subordinate self to the general weal, and to appreciate the importance of personal example.

The internal discipline and organization are largely entrusted to boys, the management of games almost entirely; and limited penal powers are conferred for the enforcement of approved regulations; there are also privileges by way of reward. Self-government is the method on which a good house relies and prides itself; but this does not involve any abrogation of responsibility or active interest by the house-master. On the contrary, the wise house-master, by tactful friendship and confidence with his prefects, dominates the whole; and through them (and, in the eyes of the majority of the house, by their initiative) secures the administration of his own policy. O. H. L.

HOUSECRAFT IN PRIMARY SCHOOLS, THE TEACHING OF.—The teaching of housecraft, or homecraft, to girls in primary schools has not yet been made compulsory; and one of the objects of this article is to try to show that such teaching is not only requisite, but essential in the interests of the future home life of our country.

The girl of to-day is the potential mother of the future. Upon her will depend the happiness or unhappiness of some home. To what end, then, should we aim in educating her? For life, for livelihood, or for both? Is it sufficient to give her a "good general education," or should we endeavour to add to that some useful training that will help her to live her life with some prospect of comfort and success?

What is, or should be, the ideal in education? Is it not to make the pupil intelligent, honest, and true; ready to learn, ready to work with brain or brawn; prepared to adapt himself or herself to all kinds of circumstances; trained not only to *learn*, but to *do*; trained for life? As Thring puts it: "Lives, not lessons, are the true business of education."

If this be true, are we, under our present system, training our girls sufficiently in what, in ninety-nine cases out of a hundred, will be their future life-work—the life of the home—as mother, wife, or sister; as mistress or maid? Whittier tells us—

"The tissue of the Life to be
We weave with colours all our own,
And in the field of destiny
We reap as we have sown."

Beautifully expressed and perfectly true; but are we to trust to Providence to bring the child into the right environment for obtaining the threads wherewith to weave the colour scheme that will produce the harmonious whole? Are we sowing the right kind of seed to bring forth the harvest we desire? Or are we content to "muddle through" in the "good old English" fashion, and expect that home management and all that it implies will come by chance? We are reminded of the teacher who is reported to have said to an inspector: "Do you expect spelling to come to the children by the grace of God?"

We must confess to being a little tired of hearing

that women can do all things necessary in the home by a kind of intuition. It flatters, but it does not convince, because it is not true. Does intuition teach the wife, suddenly called upon to be the sick nurse in the home, how to provide the tempting, nourishing diet so necessary to the invalid, or show her how to feed her baby so as to keep it well? Is there not something radically wrong when the young mother, in lamenting the death of her seven months' old baby, recalls how it used to sit up to table and eat a "link of sausage"? Her tears over the death of her baby are the consequence of her own ignorance. The doctor knows how often his efforts to restore strength and vitality to a patient are handicapped by the fact that the anxious, loving, willing wife is unable to cook the chop or bit of fish he orders in such a manner as to tempt the appetite of the invalid.

We gather from statistics that more than 100,000 babies die every year in England and Wales, of which deaths quite half are due to preventable causes.

Should we not do all we can to conserve the lives of the little ones who will be the future citizens of our great Empire? The future of England is surely the future of the children of England.

Now is the time to concentrate our energies on devising means to teach the older girls in our schools in such a manner that, when they in their turn become wives and mothers, they may have already received such training that, not only are they educated in the fundamentals of a good, sound, English education, but all their powers—physical, moral, mental, and practical—have been equally cultivated. By so doing, we may hope to bring to the office, the school, the home, or the factory not only mental alertness, but ripened intelligence, the trained eye, the practised hand, the ordered mind that will help them to cope with difficulties, to overcome obstacles, to combat adversity, to rise above circumstances, and to reap in the "field of destiny" the result of the sowing of the seed scattered in the classroom, the kitchen, or the workshop.

What would become of the manual industries of this country if our artisans, artificers, and engineers were supposed to know by intuition how to adjust machinery, plan plumbing and draining, design buildings, fit doors and windows, and carry out the dozens of other processes that require skilled labour?

It is time we realized that there is both an art and a science of home-making; and that all the love in the world will not make a comfortable home, unless the house-mother knows something of house management—how to cook, to economize, to save, to sew and mend, to bake and make—how to plan her work; how to avoid useless labour; how to keep herself and her home clean, bright, and comfortable, often with only a small income and many calls upon it.

These things *can* be taught; and so long as we neglect to teach them, so long are we—as administrators or teachers—neglecting the future welfare of the girls committed to our care.

Of late years, many workshops and clubs have been opened to give work to unemployed women and girls, and invariably the report comes that many of these women and girls are incapable of doing the work supplied to them. And why? Because, when *they* attended school, practical teaching—excepting, possibly, a few cookery lessons—was not thought of. On leaving school, many of them entered the factory or the workshop, or became household drudges or baby-minders, and what knowledge of household management they did acquire was only by the "picking up" process or the imitation of oftentimes bad methods. As needlewomen, they are inefficient; as cooks, they too often spoil good food; as laundry workers, shirtmakers, or dressmakers, they are lamentably ineffective. We often find the working-class woman providing the mid-day meal from the fish and "chip" shop or the pork butcher's. She dresses her children in ready-made clothing got up to look pretty, but with wearing qualities—nil. She buys socks or stockings of the cheapest possible kind, and when they become hopelessly full of holes she burns them and buys more. She is, consequently, seldom able to make "both ends meet," and at last drifts helplessly into chronic poverty. In many cases, all this can be traced to the want of proper training to meet economic difficulties—training that she should have been able to obtain during the eight or nine years of compulsory attendance at the primary school.

Of course, this criticism does not by any means apply to all, or even to the greater number of working-class women. There are thousands of homes, models of what homes should be—thousands of capable, self-sacrificing mothers, whose homes and families are a credit to them; but this is often *in spite of*, not *because of*, the education they received at school.

Should we not, then, take into serious consideration the right place for teaching the subject of Housecraft, and the best methods of teaching it?

History of Housecraft Teaching in Primary Schools. Let us first, however, look back a little and trace the history of the introduction of the teaching of domestic subjects into our schools, its present position as part of the curriculum, and the difficulties attendant upon further development.

About the year 1878, a course of theoretical domestic economy, with a grant of 4s. per head on examination results, was introduced into the Code, and was retained there until the block grant system of 1900 did away with domestic economy as a grant-earning subject and thus, to a large extent, led to its abandonment. In its place, cookery teaching, which had been recognized by the Code of 1883, became almost universal—at any rate, in urban centres. Laundry-work and housewifery also received recognition as permissible subjects of instruction in 1889–1890; but the conditions under which they could be taught, and the cost of providing suitable facilities for teaching them, have hindered progress—not because local education authorities do not believe in the value of these subjects, but, largely, because of the expense of their introduction.

It is only fair to say that the Board of Education, although not bringing compulsion to bear with regard to the teaching of Housecraft, has shown considerable sympathy as time has gone on, and allowed and aided numerous experiments in various parts of the country. In some places, cottages are rented, furnished, and used for teaching purposes; in others, flats are similarly utilized; in others, domestic centres are fitted up in connection with the elementary schools of the neighbourhood: and, in all of these, efforts are being made to train the older girls in all kinds of domestic work. The teaching is of a practical character, and includes

the choice and furnishing of the home according to the means of the family; the systematic ordering of the work of the house, and its cleanliness; the expenditure of the income and the saving and investing of the surplus; the choice, buying, and cooking of the food; the health and clothing of the family; the nursing of the sick and the care of the baby: in short, all that makes for the economical management of a well-ordered home. If, then, education committees are desirous—as most of them are—of having the subject of Housecraft taught more thoroughly; if the Board of Education sympathizes with and encourages experiment; if the necessity for improving the home life of the country by training those who will be responsible for it in the future is becoming realized—what stops the way?

Hindrances to the Development of Teaching Housecraft. We are told by some that the curriculum is already overcrowded, and that the introduction of Housecraft would mean the omission of other subjects equally, or even more, important. But those who have already given practical housewifery a place on their time-tables assure us that, instead of hampering other subjects, it has had the effect of creating greater interest in school life, and of bringing teachers, parents, and children into more intimate and sympathetic relations; of stimulating mental effort, and fostering certain qualities of the mind that cannot be cultivated to the same extent by the traditional school subjects.

Others—generally speaking, parents—think it is *infra dig.* for their girls to be taught to scrub and wash, to clean grates, and polish furniture. They say such teaching should be carried out by their mothers in their own homes. To a certain extent, they are right; but how many mothers are capable and willing to give such teaching, and how many have time to devote to it? Besides, the time in which such teaching could best be given is spent by the child in the school—not in the home.

The great American essayist says: "Nothing is beneath you if it is in the direction of your life"; and we claim that the teaching of Housecraft is in the direction of life, and deserves a higher plane than is generally accorded to it. Too many girls are taught to despise housework. It is considered by some to be derogatory to soil the fingers with duster or brush. There can be no higher aspiration than that which reaches towards the perfection of happiness in the home; therefore it is important to cultivate the right attitude of mind towards this subject; to teach the true dignity of work; to make our girls realize "that skilful and accurate performance, coupled with understanding, dignifies all good work"; and perceive "that it is their privilege to transform unintelligent instinct to intelligent practice." The greatest hindrance to progress, however, does not lie with the objections of either teachers or parents. It is the old, old story—expense. The grants given for domestic subjects are so inadequate, the cost of the necessary buildings, staffing, and apparatus is so great, that education authorities are afraid to incur the additional outlay.

Constructive Policy. What, then, can we recommend as a constructive policy?—

1. That the Board of Education should make such teaching compulsory.

Until this is done, local education authorities will hesitate to introduce into the curricula of their schools another subject entailing additional staffing and equipment, besides much initial expenditure in the provision of new buildings or the alteration of old ones. Compulsion need not, however, mean one uniform scheme for the whole country. Education committees might be asked to arrange their own schemes (subject, of course, to the approval of the Board of Education), suitably to the size and kind of the schools under their authority, evolving gradually from the present provision for domestic training in the district to the establishment of a fully recognized course.

2. That Housecraft as a special subject should be restricted to the latter part of the child's life in the primary school.

At present, the age when domestic subjects can be taken for grant-earning purposes is 11 years; and, generally speaking, the girls at that age begin to attend in batches of from 14 to 18 at centres of some kind for practical teaching in the subjects of cookery and laundry-work. After certain courses in these subjects have been taken, the girls are eligible for instruction in housecraft. Such instruction necessitates a properly-equipped centre, and is at present mainly restricted to London and the large urban areas. The great drawback to this system is that ordinary class-work is subject to continued interruption by the depletion of scholars, sometimes three or four times in one week. But, apart from this interruption to the general work of the class, 11 years of age is too young for specialization. Girls at that age are neither strong enough nor matured enough to profit by such teaching, and should be required to concentrate their energies in first acquiring a good foundation in the ordinary English subjects. Again, 12 is generally considered a suitable age for transfer to a secondary school; and some of us hope that, in time to come, secondary schools may have a "side" for domestic subjects, so that the girl may decide whether to pursue a literary, commercial, or domestic course when she becomes a scholar in the higher school.

But, to return to the primary school, experience has shown that a wiser plan would be to raise the age for the commencement of domestic training to 12 or even 13 years; and then, after initial teaching in laundry-work and cookery, devote the last six months of the school life of the child entirely to English and Housecraft.

The teaching should include sufficient elementary theory in hygiene, chemistry, and physiology to make the practical work interesting and understandable. The English should include literature, composition, and practical arithmetic; while needlework, cutting-out, and physical culture should receive full attention. At least half the time should be devoted to practical work. The difficulty of settling which are the last six months of school life is now met by Section 9 of the 1918 Education Act, by which a child who comes under obligation to attend school during a school term is considered to reach the age of such obligation only at the end of that term. Definite courses can therefore be arranged to suit the dates fixed; so that every girl can get her six months' training before leaving school. The practice of leaving according to individual birthdays was anything but satisfactory, as it prevented children whose birthdays occurred before the close of the educational year from deriving the full benefit of the arranged syllabus of work. (It also caused depleted upper classes towards the close of the year, or, worse still,

uneducational promotions in order to make the classes fit the rooms.)

3. That it should be an instruction from the Board of Education that in all new schools suitable provision should be made for the teaching of practical subjects; and that, in existing schools, similar provision should be made, either by the enlargement of the premises or by utilizing centres, houses, or flats as may be most convenient.

Until such an instruction as this is sent to local authorities, it is not likely that many will voluntarily add to the expense of their building schemes by the cost of this extra accommodation.

4. That the desirability of securing suitable provision for the teaching of Housecraft emphasizes the demand for a Parliamentary grant in aid of new school buildings, or of major improvements in existing schools.

After-war conditions make it impossible at present to carry out to their full extent these most desirable reforms. The difficulties of providing new buildings are almost unsurmountable; and yet schools, at any rate in large towns, are overcrowded, hundreds of children are running the streets waiting admission, and there is an ever increasing shortage of teachers.

When, however, normal conditions are restored, among other reforms we hope that the claims of Housecraft will not be forgotten. I. C.

HOUSECRAFT, TRAINING OF TEACHERS OF. (See DOMESTIC SCIENCE, TRAINING OF TEACHERS OF.)

HOUSEHOLD EDUCATION (*Schola domestica*).—Whilst domestic education must have been characteristic of many early peoples, the Jews are especially the progenitors of the idea as it survived to modern times. The "schools of the prophets" seem to have arisen from the extension of the family idea, which permeated the Jewish people. "Thou shalt teach [the words of the Lord] diligently unto thy children"; and along with this teaching function came the special need of response from children in "Honour thy father and thy mother." Domestic ritual in the observance of the Sabbath, preparation of food, and special feasts made home and home-education sacred. All through the Middle Ages, the home-life was the deepest education of the Jewish child living in the midst of strangers.

The early Christians could not ordinarily send their children to the public schools of Rome, and much of the education must have been domestic. So, too, with the earliest bishops and preachers, training in knowledge, whether of theology or letters, must have been private and domestic.

Dr. Furnivall collected instances of the continuance of the custom into the Middle Ages (*Education in Early England*, p. xviii). Thus, the two sons of the Earl of Montfort were educated by Bishop Grosstête. Giraldus Cambrensis speaks of scholars of the same age as himself, and suggests they were under the charge of his uncle, the Bishop of St. Davids. From the household school of the bishop, the requirement arose that priests should educate children.

In the A.S. Ecclesiastical Laws of the tenth century, it is required that priests have schools in their houses. So, also, abbots brought up in their houses youths of noble families.

Warton (quoted by Furnivall) mentions that (*c.* 1450) Thomas Bromele, Abbot of Hyde, near Winchester, had eight pupils; whilst Richard Whiting, the last abbot of Glastonbury, in the course of his government, educated nearly 300 ingenuous youths, who constituted a part of his family.

In Mediaeval Times. In the introduction of the lay element to various occupations, mainly, at first, of the military and feudal type—leading to the movement called chivalry—household education pursued its continuity. Its aim, taken at its best, was the inculcation of "truthe and honour, freedom and courtesie." It advanced the ideals of personal prowess and of courtly bearing (courtesy). (See CHIVALRY AND EDUCATION.)

In the corresponding household education of girls and women, we have at least indirect knowledge of women's education; for mediaeval romances show the mother teaching the daughter spinning and weaving, and early learning the uses of herbs. The wounded knight is treated by the women with potions and fomentations, and particularly were they skilled in the treatment of surgical cases. The girl of one noble family went to the castle of another family, if possible of higher rank; and there, as a *damoisel*, led a life parallel to that of her brother who was serving elsewhere as a page. In this way, chaperonage was a necessary development, since girls came into mixed company, and the countess or duchess was the responsible guardian. The Spanish *duenna* was the outcome of household training of the young ladies of the thirteenth, fourteenth, and fifteenth centuries.

Whilst the chivalric aims and methods largely permeated knightly households, it was often the religious atmosphere of the convents that determined, in a larger degree, the household upbringing of the young, even in noble families.

Miss A. T. Drane, in her interesting account of "English Education in the Fourteenth Century" in *Christian Schools and Scholars*, gives the following summary of the rules for the regulation of his household drawn up by St. Elzear, Count of Sabran, and of his wife the blessed Countess of Delphina—

"Every one in my family shall daily hear Mass. Let no one curse, swear or blaspheme, under pain of chastisement. Let all persons honour chastity, for no impure word or deed shall go unpunished in the house of Elzear. The men and women shall confess their sins every week. No one shall be idle, but in the morning after prayers let all go to their work, the men abroad, the women at home. The life of the pious woman is not merely to pray, but to ply her work, and take care of her household. Therefore, the ladies shall read and pray in the mornings, and afterwards spend their time in useful work of some kind. Every evening all my family shall assemble for a pious conference. I have no affairs so near my heart as the salvation of those who serve me. I will have no playing at dice or games of hazard; yet I do not wish my castle to be a cloister, nor my people hermits. If any quarrel fall out, let not the sun set before it be appeased. And I strictly command all under my jurisdiction to hurt no man in goods, honour, or reputation."

Miss Drane holds that this household education of Elzear and Delphina his wife was the type of that of most of the knightly houses.

After the Renaissance. The development of household education is well known in the instances of Sir Thomas More (*b.* 1478) and Richard Pace (*b.* 1582 ?). The former was brought up in Cardinal Morton's house, and the Cardinal prophesied his future greatness from his learning as a page.

Richard Pace was trained by Thomas Langton, Bishop of Winchester, who sent him to the University of Padua. Pace states that Langton had boys and youths instructed at a school in his house. "He was delighted to hear the scholars repeat to him at night the lessons given by the teacher during the day." Sir Thomas More established in his own house perhaps the most famous of all household schools, the praises of "the school" of More being celebrated by Erasmus and Vives, who regarded the studies of youth cherished there as representative of England at its best. So, too, Talavera, at the same time in Spain, had within his house gatherings of young scholars—more like an academy than a house. In the houses of nobles these pupils were numerous. It is said that almost all the officials of Henry VIII's reign passed through Wolsey's household. Accounts of noblemen's finances show payments for schoolmasters, "masters of grammar," etc., so that instruction was not confined to manners. Even the King's Court had its youths attached, and an officer to attend to them. Furnivall quotes from the *Liber Niger* of Edward IV's reign the statement of duties of the Master of Henxman (or pages of honour), which consisted in expounding "the schools of urbanity and nurture of England, to learn them to ride clenely and surely; to draw them also to jousts; to learn them their harness; to have all courtesy in words, deeds, and degrees . . . to teach them sundry languages . . . harping, to pipe, sing, dance." Especially was he to train them in "forms curial," in accordance with such treatises as *The Books of Urbanitie.*

Traces of household culture were to be seen in the claims made by William Harrison for the ladies of Queen Elizabeth's Court (1577): "Some of the ladies exercise their fingers with the needle; others in crewelwork; divers in spinning of silk; some in continual reading, either of the Holy Scriptures or histories of our own or foreign nations about us; and divers in writing volumes of their own or translating other men's into our English and Latin tongues; whilst the youngest sort apply their lutes, citherns, prick-song, and all kinds of music." Speaking of the training by young noblemen of his time, Ben Jonson writes of "these nurseries of nobility." More frequently than Jonson, Massinger refers to household education with the nobles, so far as to render it probable he himself had been so brought up.

Household education thus established its traditions in the houses of the nobles, and largely decayed with them after the Wars of the Roses dispersed the old nobility, and with the Tudors established a new nobility. Yet the old tradition, though with a new, wider spirit, may be seen in Sir Nicholas Bacon's educational suggestions for the bringing up of Queen Elizabeth's wards, and in Sir Humphrey Gilbert's more detailed scheme for an academy for the wards, with an education—probably the broadest and most liberal scheme of education of the sixteenth century—framed on the "courtly" basis, but including all the latest developments in knowledge of Queen Elizabeth's time.

The bishops' household schools also had their survivals in the interest of both the bishops and lower grades of the clergy in the schools. Thus the Deans of Westminster have often taken deep personal interest in Westminster School. Dean Launcelot Andrewes sometimes sent for the older boys to the Deanery to teach them Greek and Hebrew. Dean Whittingham, in 1563, at Durham, had all the boys of the grammar school and song school, *with all the servants of the house*, gather together in church at 6 o'clock each morning. Whittingham was one of the earliest teachers of what became known as Puritanism, and the household religious training was one of the marked features which built up the strength of the Puritan character. One outstanding example will show the household type of education within the Established Church. Mary, the daughter of Laurence Woodnoth (*c.* 1575), married Nicholas Ferrar the elder. The family life was marked by daily practice in reading, in reciting from memory some portion of the Scriptures, and parts of Foxe's *Book of Martyrs*. Along with these exercises, the children were "made acquainted with suitable passages of history; instructed in music; in performing on the organ, viol, and lute; and in the theory and practice of singing; in the learning of modern languages; in curious needlework, etc. The attendance of the family and attendants at church worship was peremptory and habitual. Mrs. Ferrar is said to have heard 12,000 sermons. Her husband, Nicholas Ferrar, organized a community to the number of forty, living together at Little Gidding, for religious exercises and good works. The household consisted of relatives of three generations, and its school, with three masters as well as a helpful interest from the family, made a valuable experiment in education, in which both boys and girls of the neighbourhood were treated as members of the large family.

After the Restoration. In the next century, the households of the Duchess of Newcastle; of Mrs. Evelyn at Sayes Court, Deptford; of Lady Falkland at Great Tew; of Lady Warwick; or the domestic school of Jeremy Taylor—all paved the way for the influence of pietistic squires in making household education in the seventeenth century; and, when the population of the country became too large for household education in the villages, charity schools were instituted, under the direction of the squire and the clergyman. Great as were the defects of the system, the goodwill, and even sometimes sense of responsibility of the tie of a village, faintly corresponded to the older and more direct household interest. This closer interest survived more distinctly in the reception of apprentices into the houses of tradesmen and merchants in the seventeenth and eighteenth centuries. That this was widespread and important as a social and educative institution is seen by the manuals for household government of Richard Whitford, Edward Dering, Robert Cleaver, and William Gouge. This type of book was as prominent in the eighteenth as the seventeenth century.

Thus, Daniel Defoe's *Family Instructor*, relating to fathers and children, masters and servants, and husbands and wives, in two volumes, had reached the seventeenth edition in 1772.

After the Acts of Supremacy and Uniformity in Queen Elizabeth's reign, household schools were formed in the families of Roman Catholics, but were promptly suppressed. After the Act of Uniformity in 1662, the Nonconformist ministers, wherever they settled, were ordinarily eager to start schools in their houses for their own children and those of their adherents, so that children and youth should be brought up staunch in the faith. These schools, therefore, often included pupils of all stages of growth and development. These schools developed

into the Nonconformist academies. In the nineteenth century, the success of the semi-private academies led to a great development of the private school system; but often the numbers attendant brought those schools nearer in type to the ordinary free or grammar schools in their government, though often wider in their curriculum, after the model of the academies. Schools for girls—particularly boarding-schools—often have professed to follow the household type of school. F. W.

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HOUSEHOLD MANAGEMENT.—There are two methods by which household management may be taught: first, in the home; secondly, in a school. There are two objects for which household management is learned: first, for use in home life; secondly, as a profession.

In former days, when life was not so complex, the home was a home in the true sense. The mistress understood home arts, and the daughters were taught housekeeping by their mother or under the eye of a competent upper servant.

With the ever-increasing demands on their time made by the girls' education and games, home has ceased to be always the most suitable place in which to learn household management. Amongst the working-classes, the girls go straight from school to work; and there is no time in the home to learn how to cook and wash, to make and mend.

Domestic Science Schools. There is at present a limited number of domestic science schools suited to all classes of girls. The lowest rung of this educational ladder is the housewifery centre attached to the elementary school. In these centres, the girls of 11 years and upwards attend courses of housewifery and, as it is more generally called, housecraft. A cottage or house is provided; one or two teachers live in the cottage; and the children run the house, as far as possible, on home lines.

The weak points in this system are—

1. The age of the children: they are too young to profit much by the teaching.

2. The attendance is usually for one day or one half-day a week; the work is, therefore, not continuous.

In some schools, from three to six weeks are given in the last year of school life. This is a better plan, as it ensures continuity of work; but the time given is all too short.

The best type of school is that in which the girls are taught, after they leave school, for periods of time varying from three months to two years. There are household management schools of this type in Liverpool, Manchester, Dewsbury, Radbrooke, Trowbridge, etc. Some are for resident pupils, some for non-resident; but, in all cases, the staff lives in the house, and this provides work for the girls to do.

The advantages of the non-residential school are that more girls can be taught for the same money. and the parents still have their children at home, The little duties that occur in the early morning and late evening can easily be worked in by a capable teacher.

The subjects taught are cookery, laundry-work, housewifery, dressmaking, plain needlework, millinery, care of infants and young children, household accounts, hygiene, and sick nursing. These subjects are proper to all schools which teach household management, and in most schools a certain amount of time is given each day to keeping up school subjects: reading, writing, drill, singing, etc., according to the length of the course.

Dinners for teachers and pupils should be cooked by the cookery class; the household washing should, as far as possible, be carried out by the laundry class; and the work of the house be done by the housewifery class.

These classes rotate according to the scheme of work of the school. If there are five classes of work, there is a five weeks' course, repeated according to the number of weeks or months in the session. In other schools, a three or four weeks' course is taken in each subject. This is a monotonous scheme.

The increasing importance in the eyes of the nation of infant life has led to a practical scheme of teaching girls the care of infants. In large towns, a doll is no longer the object used, but a nurse and baby come in each week from a crèche or day-nursery; and thus the girls are taught practically how to wash, dress, and feed a baby.

Very small fees are charged at these schools; there are many scholarships given by educational authorities; and Government grants are earned by schools, under Government inspection, on the number of hours worked by each pupil in blocks of 200, 400, 600, and 800 hours.

Schools for Higher Class Pupils. In schools where higher class pupils are taken, fairly high fees are charged; the pupils are resident, and the courses vary in length; but the fundamental principles of all are the same. Certificates of proficiency are usually given on leaving.

Trade Domestic Science Schools. Household management is also taught in another class of school—the "Trade Domestic Service School"—of which the Newcomen School in London is a type. The schoolhouse is arranged and furnished as a good-class house. The course is for two years; and in the second year the girls specialize in whatever branch of domestic service they wish to adopt as cooks, waitresses, lady's maids, etc.

Domestic Science Teaching as a Profession. Those who wish to adopt domestic science teaching as a profession, must attend one of the Domestic Subject Colleges, which are established in most large towns. There are, at present, seventeen of these colleges. A combined course of cookery, laundry, drill, and housewifery must be taken. The course for those who wish to teach in elementary schools only is for two years, and a third year is necessary for those who wish to become teachers in secondary schools.

Students are received on the following terms: A standard of education is required up to that of the Senior Oxford Local Examination; 18 years of age must be attained; a medical examination must be satisfactorily passed. The usual fees are from

The University Senate Hall and Clock Tower, Bombay

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£55 to £65 for a two years' course, with an additional £20–£30 for the third year. These colleges are examined and inspected by Government Inspectors, and diplomas are issued on the results of examinations.

The scale of salaries for domestic science teaching is as follows—

For Teachers in Elementary Schools	£130–£200
,, ,, Training Colleges	£200–£300
,, Principals of Schools . .	£200–£350
,, ,, Colleges . .	£350–£450

In some cases, board and residence is given, in addition to the salary. H. HEAD.

HOUSEKEEPING, THE SCIENTIFIC PURSUIT OF.—The term "housekeeping" has come, in the last ten years, to include all the various crafts which concern themselves with the upkeep of the home—cooking, washing, care of clothes, rearing of children, as well as the "running" of the whole, which involves management of money. These crafts are the oldest in the world; and, in primitive times, women not only developed them, but were mainly responsible for the invention and improvement of the tools used in them. As life became more complex, the various arts were transmitted from mother to daughter: there was no need for formal teaching. Traces of conscious instruction in domestic arts appear in Europe in the early Middle Ages, where, in monastic institutions, both sexes seem to have had some teaching, including the rudiments of medicine.

After the Reformation, in the writings both of Luther and of Comenius, there is evidence of their opinion that girls should be taught certain branches of housecraft. Pestalozzi (*q.v.*), in the eighteenth and early nineteenth centuries, took up a much stronger position, and made these arts the means by which *anschauung*, sense-impression, should be realized. His first school at Neuhof educated through the practice of domestic work *for both sexes*, though in his best known work, *Leonard and Gertrude*, he makes a woman devise the scheme of education by home arts, and gives prominence to the effect on her eldest girl. His Stanz and Yverdun experiments followed the same lines.

Until the middle of the nineteenth century, however, English education took little cognizance of the need for teaching any home craft except needlework; and this was equally true of charity schools, of the monitorial institutions, or of the ladies' seminaries of the time. When the Government at last took action, there are indications of a gradual recognition of the need for further provision than the mere teaching of girls to sew. In 1846 the Privy Council discussed the need for schoolmistresses to teach Domestic Economy, in view of bad home conditions among the poor. A stronger movement in favour of instruction in a wider range of domestic arts began to make itself felt between 1850 and 1860 in most European countries and in the United States, with, it must be owned, far more success than in our own. The last pronouncement on the whole question (1912) gives Spain, Portugal, Greece, and Rumania as now the only countries where domestic crafts have not a prominent place in the curriculum. An easily comprehensible and admirable system can be studied in Holland.

As regards this country, an important landmark is the founding of the National Training School of Cookery in 1874, but it was not until 1882 and 1883 that grants were paid for cookery teaching in elementary schools, though there had been day and evening classes for some ten years. In 1889 and 1890, laundry was recognized in the code; and 1898 saw practical housewifery put on the same footing. In secondary schools for girls, though a few of the older foundations had for years made domestic training an honoured part of the scheme, there was, as Matthew Arnold remarks, parental prejudice to overcome. The attitude modified itself, however, and in 1906 the Board of Education recognized household arts as part of a secondary school course.

Modern Tendencies. All this was, for the most part, empirical; and not until 1898 was there any formal recognition of the need for the illumination of practical process by definite work in related sciences. The growing importance of such parallel work in the laboratory found expression not only in the more liberal training of teachers of domestic subjects, but in the foundation of such institutions for training and research as that of King's College, in the Household and Social Science Department, at Campden Hill, Kensington. This last improvement in teaching home arts has been mainly confined to secondary schools, but it cannot remain there; and the realization of the need for more intelligent practical performance in lower, middle, and working-class homes, has led to some attempts to improve matters in the elementary schools as well. A scheme to link up the "Centre" practical work in cookery, laundry, and housewifery with the school course by an explanatory science scheme, has been worked out at the Home and Colonial Training College, Wood Green, with a class of girls from a neighbouring school. The plan can be carried out under slightly modified classroom conditions, with homely apparatus, and has been, throughout, in close touch with *a home in which people live*. The results have been encouraging.

In the same way, Infant Care and Management is no longer a purely empirical matter. Various institutions take educated women for training on scientific lines; and the work of Miss Margaret Macmillan is too well known to need comment.

As a rule, boys, except in a few private and some co-educational schools, receive no instruction in household arts, though the Scout Movement encourages it to some extent. F. A. W.

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HOUSES FOR TEACHERS.—(See BUILDINGS, SCHOOL.)

HOUSEWIFERY, THE TEACHING OF.—The term "housewifery" has recently been somewhat superseded by even wider terms such as home-making, home organization, housecraft; and by these is meant anything to do with the management of the home, from the ordering and cooking of the meals to the care of children; and, of course,

every kind of cleaning and repairing which is possible for a housewife to undertake.

A little while back, cookery, laundrywork, and housewifery were thought of as separate subjects, and were, so to speak, isolated in water-tight compartments. By housewifery was understood all the work of the house—the cleaning, mending, warming, ventilation, care of infants and children, and sick nursing, etc.—apart from the actual buying, preparation and cooking of food, and the washing and getting up of household linen and wearing apparel. Now, home-making means anything and everything to do with the management of the home—a wide subject indeed!

In the training schools, the elementary schools, the few secondary schools, and high schools where domestic subjects were taught, housewifery was isolated in this way from its sister subjects—cookery and laundrywork—until a few years ago, although children and students were not eligible for a housewifery course until they had completed a course of cookery and laundrywork. But that water-tight condition of things has been altered, especially in the training schools, where *one* diploma is given after a two years' training in domestic subjects.

The importance of home management in the curriculum of every type of school cannot be too highly emphasized. Every woman, even she who may never actually have to do the work herself, should *know* how to organize and manage a house; and therefore every girl, from the highest in the land to the lowest, should be taught home-making at school just as she is taught to write and read; it should not be possible for any girl to escape from instruction which cannot fail to be needed by her at some time in her life for the sake of passing examinations—which up to the present rarely include domestic science as one of the compulsory sections—or for subjects which are looked upon as more academic, educational, or decorative.

Especially should this subject be taught in every secondary school, high school, private school, or college; and, further, it should be taught in the middle school, *before* the time comes to prepare for some special examination or for specializing in accomplishments such as singing, painting, or languages. The younger girls of the middle school respond more quickly to the teaching of manipulative arts than do the older girls.

This subject should be linked up wherever possible with the ordinary school subjects, and at least an elementary knowledge of physics and chemistry is necessary as a basis; for how can ventilation, warming, drainage, the changes which food undergoes in cooking and digestion, be educationally understood without a preliminary knowledge of physics and chemistry, and the action and properties of heat, air, water, etc.?

In every school where any attempt is made to teach housecraft, the syllabus should be drawn up in correlation with the other school subjects, and the specialist teacher should be constantly in touch with the form mistress. Even in needlework, the art mistress may be of great help in advising with regard to design and colour.

The cultural benefit derived, too, apart from the utilitarian point of view, from a training in home-making must not be overlooked, for it is of enormous importance. A girl who has gone through such a course becomes observant, alert, quick, methodical, accurate, energetic, and more dexterous. The eye and hand are trained, memory is cultivated, and originality encouraged.

From the health point of view, also, the gain is great, for the activity essential to the subject is good for circulation, the digestion, and the muscles, and is a relief after studies that by their nature make for a sedentary life. Education, health, and the happiness of life demand that housecraft should be seriously considered by all who are responsible for the training of the young, and no woman's education should be completed without such knowledge.

Special Premises and Equipment are essential. The premises may be a small four- or five-roomed house, a cottage, one or two rooms, or even one room—known in elementary schools as a centre. The ideal is a small house where the girls can, in turn, live for a settled period with the teacher, but, in any case, even if the house is not actually inhabited, it is the best field for teaching housecraft.

A centre of one room can be adapted with great success. A mixed course, which is in reality a course of housecraft, is given in many elementary schools, and it is believed that in future a great many more of these mixed courses will be the vogue. The syllabus consists of lessons in cookery, laundry, and housework in a well-graded sequence; and for the practical work the children divide into groups for cookery, laundrywork, or practice on the lesson of the day—the teacher being careful to keep a record book of the work done by each child, so that at the end of the course all will have had practice on every lesson given.

Because housecraft includes instruction in cookery and laundrywork, it does not follow that girls, especially in the elementary schools, do not get more instruction in cookery and laundrywork, and it is important that a good cookery and laundrywork course should precede or follow a course of housecraft, preferably the former; but if every girl cannot have instruction in three courses, (1) cookery, (2) laundrywork, (3) housecraft, she should at any rate take course 3, which now includes definite lessons in cookery and laundrywork too.

Children in elementary schools should begin a course of domestic subjects at from 12–14 years of age, occupying three or five hours a week. Perhaps the most satisfactory way of giving this instruction is for a class to attend a centre for two consecutive half sessions a week, especially for a course of housecraft.

The continuation schools of the future have a grand opportunity for continuing and finishing the work begun in the primary and secondary schools, and syllabuses should be compiled by those who are cognizant of the three types, so that the instruction begun in the elementary school and ended in the continuation school may be progressive and in sequence, and overlapping and repetition (not recapitulation) may be avoided. The syllabuses for the continuation schools must aim at progress in *necessary* education, and not be framed for an enjoyable pastime, as has been the fault of so many syllabuses—cookery especially—in the evening institutes.

The Arrangement of a Syllabus. The sections of home organizations may be arranged under the following heads and divisions, and those who draw up the syllabus should first consider (*a*) the previous instruction given, if any; (*b*) the type of girls to be taught; (*c*) the time at their disposal for a course; (*d*) the number of courses likely to be taken by the same girls; (*e*) the premises for the

instruction. Secondly, they should take from each heading and its subdivisions the matter they consider the most important, and they should arrange it in a carefully progressive scheme, taking as the starting point, and working from, the practical, the manipulative, or the scientific aspect.

I. COOKERY. (1) Buying and storing of foods; (2) the simple methods of cookery, such as boiling, baking, frying, and the foods best suited for each method—with fundamental rules and reasons; (3) classification of food-stuffs and their functions in the body. The school science can help enormously here—either in lessons of chemistry or physiology.

II. LAUNDRYWORK. How to wash and get up the usual articles of clothing and household linen, with a knowledge of the materials to be washed and the materials with which to wash and stiffen.

III. CLEANING. This includes (1) the care and method of cleaning of everything in a home—furniture, fittings, kitchen utensils, rooms, etc.; (2) the method of cleaning in order to economize time, labour, and material.

IV. NEEDLEWORK. (1) Renovating and mending garments and household linen; (2) simple upholstery; (3) simple cutting-down of garments; (4) adaptation of simple patterns, and the management of the machine.

V. PERSONAL AND HOME HYGIENE. (1) The skin and reasons for cleanliness, care of teeth, etc.; (2) ventilation; (3) drainage; (4) warming and lighting; (5) infectious diseases—disinfectants; (6) simple remedies in case of accidents or illness; (7) evils of unsuitable clothing.

VI. INFANT AND CHILD CARE. (1) Natural and artificial feeding; (2) clothing, with regard to shape and material; (3) ailments and habits, etc., etc.; (4) the general management of infants and children.

VII. SIMPLE ODD JOBBING. Such as repairing locks, taps, hinges. How to use nails, screws, and glue-pot; how to saw. The use of the simple tools which should be found in every house.

VIII. HOME PLANNING AND FURNISHING, including a knowledge of textiles and wares. E. G. C.

HOUSEWIFERY, TEACHER OF.—(See DOMESTIC SUBJECTS, TEACHER OF.)

HOWE, DR. SAMUEL GRIDLEY (1801–1876).—An American philanthropist who travelled in Europe studying methods in use for the education of the blind. In 1831 he established in Boston a school for the blind, and in the next year became director of the Perkins Institute. His most famous pupil was Laura Bridgman (*q.v.*). Dr. Howe also interested himself in the care and education of idiots and the feeble-minded, and in the abolition of slavery. He wrote a *Reader* for the blind.

HOWELL, JAMES (1594(?)-1666).—Son of a Welsh curate; educated at Oxford; travelled widely on the Continent; and became an accomplished linguist. From 1622 to 1639 he was employed on numerous political missions, and from 1643 to 1651 was kept by Parliament as a prisoner in the Fleet. After his release he made his living out of literature, and in 1666 was appointed historiographer royal of England, a post which was said to have been specially created for him. His best literary work is contained in *Familiar Letters: Domestic and Foreign*, on historical, political, and philosophical subjects. He wrote many historical and political pamphlets, several dictionaries and grammars, and a number of translations. He also made an attempt at spelling reform on phonetic lines.

HUARTE, NAVARRO.—A sixteenth-century French educationist who published in Spain, in 1575, a most remarkable book on education, entitled *Examen de Ingenios* (The Examination of Wits). This book was translated into English in 1594, and on its title-page professes to show, by discovering the varieties of men's natures, for what profession each man is apt, and how far he shall profit therein. Huarte based his suggestion on the differences in human minds, and from an examination of those differences concluded that suitable education should be obtained in different ways for different minds. He attached importance to psychological characteristics of children as a basis for classification, and considered it the duty of a teacher to decide for the pupil which course of study would be most suitable to his mental powers. Huarte's views were at variance with the common practice of his day of providing only one kind of education for all pupils, and in advance of his time in giving consideration to psychology in the theory of education, and in his study of the influence of heredity, character, and temperament upon methods of education. He was one of the earliest advocates of scientific child-study.

HUGHES, THOMAS (1822–1896).—Author of *Tom Brown's School Days;* was at Rugby from 1834 to 1838 under Dr. Arnold; and afterwards at Oxford with Matthew Arnold. He was called to the Bar in 1848. While in residence at Lincoln's Inn, he met F. D. Maurice, the chaplain of the Inn, whom he joined in the Christian Socialist movement. For many years he was associated with Maurice, Charles Kingsley, and other Christian Socialists. In 1854 he promoted the foundation of the Working Men's College in London, and from 1872 to 1883 was its principal. He is now best known through *Tom Brown's School Days*, which, however, does not represent himself and his own school days, but "the commonest type of English schoolboy of the upper middle class" so far as his experience went. His portrait of Arnold in the book is the outcome of his own acquaintance with the head master in the upper forms of the school. Hughes also wrote *The Scouring of the White Horse* and several biographies.

HUGUENOT INFLUENCE ON ENGLISH EDUCATION.—(See REFUGEES [RELIGIOUS] IN ENGLAND.)

HULLAH, JOHN PYKE (1812–1884).—A great musical teacher and composer, studied under William Horsley and Crivelli. His opera, *The Village Coquette* (1836), was successfully performed for sixty nights at St. James's Theatre, and was followed by madrigals, songs, and dramatic music. In 1840 he began a class at Battersea Training College, adapting Wilhelm's method of teaching singing. He formed another class at Exeter Hall in 1841, and in July, 1842, over 50,000 students were learning music under his system. From 1849 to 1861 his classes met at St. Martin's Hall, in Long Acre, London. From 1858 until his death, Hullah was organist of the Charterhouse. In 1869 he was elected to the management of the Royal Academy of Music, and from 1872 to 1883 was Musical Inspector of Training Colleges. His literary works include many text-books on vocal

music. His compositions are chiefly in the form of songs, and include "The Three Fishers" and "The Sands o' Dee" to words written by Charles Kingsley.

HUMANE EDUCATION.—It was long ago pointed out by Locke, in his treatise on Education, that a tendency to cruelty in children should at once be corrected. Unfortunately, it is much easier to state a principle than to carry it into effect. When humanitarians are advised to "begin with the schools," and to "get hold of the children," it is forgotten that he who would influence the children must first persuade the parents; and that the acquiescence of both parent and teacher is necessary before any ethical teaching can be given which appreciably outruns current opinion. Such limitations being admitted, it is the purpose of this article to suggest what appear to be the most trustworthy lines on which humane education can proceed. The argument will be confined to the treatment of animals, because it is usually in their attitude to animals that children display a tendency toward cruelty or the reverse.

The first and most important truth to inculcate is the *personality* of animals, the fact that they are not automata—"things" and chattels, designed merely for human use or amusement—but living, intelligent, and, in many cases, highly sensitive beings, with an individuality and purpose of their own; also that they are closely related to mankind, "not conveniences, but cousins," as an American writer, Mr. J. Howard Moore, has wittily expressed it. So it should be taught that men have *direct* duties towards those animals, whether domesticated or wild, over whom their power extends; and that these duties are the greater in proportion to the services which the animals have rendered to the human race.

A distinguished naturalist, Mr. W. H. Hudson, has indicated, as the proper attitude to adopt in the treatment of animals, "an impartiality that pets nothing and persecutes nothing." Animals are seldom unhappy, unless by the fault of man; and in dealing with them we need to cultivate the sense of *justice*, even more than that of pity. In an old book—*On the Conduct of Man to Inferior Animals*, by George Nicholson (1797)—this golden rule is laid down: "Treat the animal which is in your power in such a manner as you would willingly be treated were you such an animal." Without holding that this precept can always be literally followed, we must recognize that it is substantially sound, and one which should be kept in mind by all who would teach humanity to children.

Relation to Nature Study. Viewed in this light, many common practices will need revision. It may be doubted whether the well-intentioned encouragement to children to keep "pets"—even to keep them carefully—does not do more harm than good, if the notion is permitted that the animal—often older and, in its own sphere, more intelligent than the child—is to be a mere puppet and plaything.

Still more serious harm may result when children are indiscriminately let loose on wild animal life under the plea of teaching them "natural history." The pursuit of "specimens" and the zest for "collections" are sometimes very mischievous, as fostering in children a reckless curiosity, without any counterbalancing regard for the sensibility of the victims: for which reason the main principle in the teaching of natural history should be a recognition of the beauty and sacredness of life. It is by no means difficult to make children understand the difference between necessary and unnecessary killing.

Another practice which should be deprecated is that of caging wild animals and birds. To study wild life under artificial conditions is neither scientific nor humane; it is not natural history, but *un*natural; it is a far better form of education to take children into the open air than to the menagerie or the museum. Even in great cities this is possible: much more may be learnt from the sight of the free wild birds and squirrels in a London park, or of the sea-gulls on the Embankment, than from the study of a stuffed specimen or a caged prisoner.

Where the facts of animal life are themselves so instructive, it is not desirable to dwell unduly on the cruelties that we see around us; but a child should be preserved from participation in anything that engenders callousness. Among such practices, the most obvious is that of "sport," or, to be precise, of those forms of sport which seek amusement at the cost of suffering animals; but the slaughter house, with the various evils connected with it, is perhaps a still deeper underlying cause of inhumanity.

The whole matter may be summed up in one of the rules of Ruskin's Society of St. George—

"I will not kill nor hurt any living creature needlessly, nor destroy any beautiful thing; but will strive to save and comfort all gentle life, and guard and perfect all natural beauty upon the earth." H. S. S.

References—

Killing for Sport (1914); and other publications of the Humanitarian League.
MOORE, J. HOWARD. *The Universal Kinship.*
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HUMANITIES, THE.—In studies, the distinction between "humanity" and "divinity" belongs to the fifteenth and sixteenth century, when the term "humanities," or in Latin *literae humaniores*, was applied to literary studies that were considered to provide suitable culture for a man as a man, distinguishing them from the theological studies that had been the basis of education in the pre-Reformation schools. The humanities were grammar, logic, and rhetoric, and the term *literae humaniores* is still used at Oxford University to denote classical studies.

HUMBERT DE ROMANS.—(See MENDICANT ORDERS DURING THE MIDDLE AGES, EDUCATION IN.)

HUMBOLDT, BARON VON (1769–1859).—A great German naturalist who, from 1789 to 1799, was engaged in mining research and animal physiology, and then obtained permission from the Spanish authorities to visit their settlements in South America and the Indian Ocean. After five years of exploration in South America and the West Indies, he returned to Europe and spent some years in France preparing his great work, *Travels in Equatorial Regions of the New Continent*, which comprised thirty large volumes. In 1829 he took an expedition to Central Asia, and afterwards published an account of it in three volumes. In 1835–1838 he published another large work on the geography of the New World; and in 1845–1848 his great work *Cosmos*, one of the greatest scientific works ever published, a lucid exposition of the chief

facts of physical science and their relations to one another. Humboldt's travels in Spanish America provided the first reliable knowledge of that region, and to him we are indebted for valuable facts dealing with climate and productions, magnetism and meteorology, and for accurate maps. His Asiatic expedition secured facts of scientific value relating to minerals, magnetism, and vegetable life in the Ural and Altai regions and Turkestan.

HUME, DAVID (1711–1776).—Scottish philosopher and historian, famous for his *History of England* from the Conquest to the Revolution (1754–1761). His chief philosophical works are *Treatise of Human Nature* (1739) and *Enquiry concerning Human Understanding* (1748). In the former he denied the existence of anything "substantial" beyond our individual perceptions, and stated his reasonings against the doctrine of a substantial soul; in the latter his views are more fully stated. Hume also wrote *Essays: Moral, Political, and Literary* (1742) on politics and social problems, and the *Enquiry concerning the Principles of Morals* (1751).

HUMOURS, THEORY OF THE.—The Latin word *humor* was used to denote a liquid, a fluid, or even moisture. The most celebrated physician of antiquity, Hippocrates, a native of the island of Cos, and living in the fifth century B.C., studied the causes of diseases and divided them into two classes—one consisting of external physical conditions, such as climate, seasons, situation, etc.; the other of personal circumstances, such as the mode of life and the food of the individual. According to him, the primary seats of disease were four "humours," that is, fluids, within the body; and diseases were caused by the effects of the circumstances above mentioned on the humours. The humours were blood, phlegm, yellow bile, and black bile. Disease resulted from a disturbance in the balance of the humours; if the disease proceeded favourably, a certain change (*coction*) in the humours resulted in returning health, and in the expulsion of morbid matter at a "crisis." An excess in any individual of any one of the humours produced a certain temperament, and thus we obtain the descriptive words *sanguine*, *phlegmatic*, *choleric*, and *melancholy* (*melan chole* = black bile), according to the excess of each kind of humour, and indicating a characteristic of the individual in whom there is a superabundance of the humour.

HUMPHREY, DUKE OF GLOUCESTER.—(See RENAISSANCE, THE.)

HUNCH-BACK.—(See ROUND SHOULDERS IN SCHOOL CHILDREN.)

HUNGARY, THE EDUCATIONAL SYSTEM OF.—The Hungarians are pre-eminently a people who love learning, many of them for its own sake and others for the practical advantages which it confers. In no other country than Magyarland is there so purely an intellectual life lived by so many people. There it is not uncommon to find men and women of 60 years, of the highest official, social, and wealthy classes, metaphorically (and even actually) sitting at the feet of a teacher whose years number fewer than half their own, eagerly drinking in the words of wisdom that fall from his lips; the teacher in Hungary being held in high esteem for his work's sake; and, whatever his speciality in the profession, if he but merit the confidence of his pupils (or, in the case of the youthful ones, of their parents and guardians) he will never lack staunch friends.

Prior to 1867, Hungary, under the iron heel of Austrian Absolutism, which crushed all intellectual aspiration among the Magyars as ruthlessly as it had crushed their political liberty, had no educational system worthy the name; yet by 1914—the fateful year—she had outstripped her senior partner of the Dual Monarchy in the race for knowledge and culture.

Her universities became centres of intellectual force, whence new ideas have penetrated to all parts of the European Continent. The Siemens-Schükert system of rapid telegraphy (4,000 words a minute) was the invention of a Hungarian student; so also was the telegraphing of portraits. Discoveries of far-reaching importance and benefit to mankind, revolutionizing medical and surgical science, have been made by Hungarian physicians and chemists; while the oculists of Budapest are admitted by their British colleagues to be the most skilful in the world. The names of Dr. Fodor (the discoverer of the remedy for puerperal fever); of Baron Kóranyi; of Baron Müller; and of the eminent ophthalmologist, Dr. Emil Grósz, are of universal fame. No matter on what subject a student be engaged, he is sure to find in his text-book constant references to the works of Hungarian professors: Vámbéry, Berzeviczy, Beöthy, in addition to those of the *savants* already named.

From Hungary, scarcely less than from Germany, have proceeded those philosophic ideas that, for good or ill, have exercised so great an influence on the literary thought of England. There, Shakespeare is understood and loved far better than in the land of his birth; the best commentaries on the Bard of Avon being those of Professor Bernard Alexander and Professor Eugene Gaál, both of Budapest University. It is to men like Dr. Vámbéry that we are largely indebted for the great modern science of comparative philology; and in other departments of human intellectual activity Hungary has cleared a track for the thinkers and workers of other lands.

Budapest is especially noted for Oriental studies, the late Professor Vámbéry, whose linguistic attainments astonished the learned world, being the pioneer in that sphere of labour. Since his death in 1913, his mantle appears to have fallen on Dr. Ignatius Kúnos, principal of the Oriental Academy of Commerce (*Keleti Kereskedelmi Akadémia*), inaugurated in 1899 for the study of Turkish, Arabic, Persian, and Eastern languages generally.

Until the middle of the eighteenth century, university lectures were, in Hungary, delivered in Latin, which probably retarded the advent of that rich national literature that during the past half-century did so much to uplift the people. Latin was used to a much later date in the family circles of the aristocracy, and even to this day the classic tongue is still used in the conferring of degrees and at nearly all gatherings of an academic character.

Since 1867, when, with the coronation of the late Emperor Francis Joseph as King of Hungary, the yoke of Absolutism was removed from the people, vast improvements have been effected in the Hungarian educational system. Previously, public instruction was in the hands of the clergy—Catholic and Protestant—and, in consequence, was more or less denominational in character. One of the first

cares of the new Government of 1867 was to provide for the education of all the children not attending the schools and colleges already in existence by the inauguration of supplementary schools that should be entirely unsectarian; and in the following year an Act was passed making school attendance obligatory on the children of both sexes between the ages of 6 and 12 years.

As in Austria, there are in Hungary four grades of educational institutions: Higher (*felsö*), middle (*középi*), technical and commercial (*kereskedelmi és ipar*), and elementary (*elemi*).

Owing to the variety of races, and consequently of tongues, prevailing in Hungary, the instruction in many schools is imparted by means of two, and sometimes even of three, languages. Of the 15,486 elementary schools in 1877, Hungarian was the teaching medium in 7,024; German in 1,141, Rumanian in 2,773, Slovak in 1,901, Serbian in 259, Ruthenian in 491; two languages were used in 1,692 and three languages in 135 schools. The aggregate number of teachers employed in these schools was in that year 20,717.

Higher Education. The high schools include the two universities of Budapest—that of science (*Tudományos Egyetem*) and that of arts (*Müegyetem*)—and the universities of Kolozsvar (Klausenburg), Debreczen, Zágrab (Agram), and Pozsony (Pressburg), besides the numerous theological colleges, law academies, etc.

The Budapest University of Science (founded at Nagyszombat (Tyrnau) in 1635, and removed to Pest in 1784) has four faculties: theology, law, medicine, and philosophy. In the year 1877, the professors numbered 166, the students 2,929. At the outbreak of the Great War, this institution had some 250 professors and lecturers, and upwards of 7,000 students.

The Royal Joseph University of Arts (or Polytechnic)—founded in 1871, with 50 professors and 800 students—had, in 1914, about 2,000 students, including a considerable proportion of women. Half the students are in the engineering section, the other half being divided between the departments of architecture and of practical chemistry.

The University of Kolozsvár, founded in 1872, is similar to that of Budapest, but has a special faculty for mathematics and natural science; while that of theology is lacking. The number of students in 1914 was 2,600.

Debreczen University (Protestant) and Pozsony University were both founded in 1914, and had hardly commenced their functions when the flames of war burst over Europe, obliging their suspension.

Outside of Hungary proper, in the autonomous province of Croatia-Slavonia, is Zágráb University. Founded in 1869, it has three faculties only: Law, theology, and philosophy, with 130 professors and about 2,000 students.

Reviewing the educational past of Hungary, we find that Veszprém rejoiced in a University College even at the remote period of the Arpád kings; and Pécs (Fünfkirchen) also in the year 1367. In the golden days of King Matthias (the Just), under the influence of the Renaissance, several colleges were raised to the status of universities. In Hungary to-day there are 59 such establishments, allocated as follows: 34 to Roman Catholics, 6 to Greek Catholics, 4 to Greek Orientals, 9 to Lutherans, 5 to Calvinists, and 1 to Unitarians. Before the war these institutions employed 357 professors, through whose hands passed some 2,600 students annually. To these must be added 12 law academies, with 125 professors and 1,170 students. In Croatia-Slavonia there are also 5 theological colleges—4 Roman Catholic and 1 Greek Oriental—with some 30 professors and 200 students.

University extension had made encouraging progress up to 1914. The Urania Scientific Society, the People's Academy, the People's University College, and the Free Lyceum were all agencies working in this worthy cause. Prior to the war, the publications of the four institutions named had reached a total of over half a million annually, while nearly as many students availed themselves of the opportunities presented for their intellectual improvement. There are several schools of painting in Budapest, and others at Kolozsvár, Debreczen, Zágráb, and the chief cities of the Monarchy.

Secondary Education. The middle schools (*Középiskola*) consist of the gymnasia, real schools, and similar institutions. In 1874 there were 146 gymnasia, with 1,734 teachers and 26,273 pupils. By 1877 the gymnasia had increased to 149, teachers to 1,814, and pupils to 31,455. In 1874 there were 32 real schools, with 387 teachers and 7,743 pupils. In 1877 these had fallen to 26 only, with 383 teachers and 6,647 pupils. With the omission of a few establishments of a sectarian, technical, or special character, the total number of middle schools in 1877 in the Monarchy was 205, with 2,450 teachers and about 42,000 pupils. In 1914, in the first category (*i.e.* gymnasia), were 178 establishments, staffed by 3,341 teachers, and attended by 54,300 pupils; in the second category (*i.e.* real schools), 32, with 718 teachers and 9,680 pupils. The proportions of pupils according to nationality were: Magyar, 78·89 per cent.; German, 9·81; Rumanian, 6·13; Slovak, 2·84; Croato-Serb, 1·75; Ruthenian, 0·14 per cent.

The Training of Teachers. In the year 1877 there were 65 teachers' training colleges—51 for males (with 2,853 students) and 14 for females (with 1,138 students). Of these establishments, 16 of the former and 6 of the latter were State-maintained (*állami*), the remaining 43 being denominational (*vallásos*), as follows: 26 Roman Catholic, 3 Greek Oriental, 4 Lutheran, 9 Calvinist, and 1 Jewish. (The number of elementary schools at this period was 24 only, with 129 teachers and 1,114 pupils.)

It will be interesting to compare the foregoing with conditions in 1914. Statistics for that year show 89 teachers' training colleges—49 for men and 40 for women (a *decrease* of two colleges for the males and *an increase of twenty-six*, or 185·70 per cent., *for the females*)—27 State institutions, the remainder denominational. The students attending numbered 2,550 men and 5,408 *women*. The preponderating number of women contemplating a scholastic career was regarded with anxiety by the Ministry of Public Instruction. Possibly now it may be viewed as the intervention of a benign Providence.

Elementary Education. State schools were not established in Hungary till 1875, and in the following year they numbered 125 only, with 237 teachers and some 25,000 pupils. To-day the cost of maintaining these State schools exceeds £500,000 annually. The State assists the non-State schools also to a similar extent.

The municipal schools play a very important part in the educational life of Budapest. They number 385, accommodating 61,529 pupils—25,450 boys and 36,079 girls—and cost £350,000 annually.

about a third of which sum is contributed by the State.

The year 1877 found 15,486 elementary schools in Hungary. Of these, 13,755 were denominational or private, and the remaining 1,731 State or communal: one school for every 870 of the population. In that year the number of children under the new Education Act was 2,127,950, and of these 1,559,636 (75 per cent.) actually attended school.

The growth of popular education may be realized by a comparison of the above with the following table, which gives the figures of the return issued early in 1914—

THE ELEMENTARY SCHOOLS OF HUNGARY AT THE OUTBREAK OF THE GREAT WAR.

Character of School.	No. of Schools.	No. of Teachers	No. of Pupils.
Roman Catholic	5,316	9,452	711,882
State	2,757	5,374	317,175
Communal	1,478	4,328	265,897
Protestant Reformed	1,905	3,122	205,372
Greek Oriental	1,723	2,327	148,367
Evangelical	1,339	2,339	137,624
Greek Catholic	1,963	2,218	132,681
Jewish	467	910	36,573
Private } Proprietary }	310	(No data) (No data)	19,749 2,187
Unitarian	37	314	2,174
Totals	17,295	30,384[1]	1,979,681[2]

Special Schools. Among the State institutions for instruction in special branches of science and art are: The School of Design (*Rajziskola*); the Academy of Music (*Zeneakadémia*), founded in 1875, Dr. Francis Liszt being the first director; the Institute for the Blind, Deaf, and Dumb (*Vak és Siketnémak Intézete*); the Military Academy (*Katonai Intezet*); numerous medical colleges (especially for the study of obstetrics and gynaecology), all at Budapest, with branches in the more important provincial towns; mining institutes (*bányai intézetek*) at Selmecz, Nagyág, Felsöbánya; agricultural institutes (*földmivelési intézeteh*) at Magyar-Ovár, Keszthely, Kolozsvár, and Debreczen; the School of Forestry (*Erdészeti Intézet*) at Selmecz; and the Naval College (*Tengerészti Akadémeia*) at Fiume. A few only of these educational auxiliaries have been named; to mention them all would require much more space than that at the writer's present disposal.

Hungary is perhaps the only European country where great importance is attached to the drama and the theatre as educational adjuncts. The opera houses and national theatres of the Capital, as well as those of the principal towns, are under the control of the Ministry of Public Instruction, which fixes the pay, emoluments, and retiring allowances of the actors and actresses, who are thus placed on the footing of civil servants. Many other playhouses are subventionized by the Government. The Budapest Theatre enjoys a handsome subvention from the municipality, which in 1911 gave the site of the present People's Opera, a noble edifice in the Greek style, capable of accommodating an audience of 2,000. State recognition secures for the Hungarian Stage a respectability not always associated with its English counterpart. The sight of a procession of pupils, headed by their teachers, wending their way to the Opera or other playhouse for a *matinée* performance is, in Hungary, too common to excite comment.

Such is a brief review of the Hungarian educational system. Precisely to what extent educationally Hungary will suffer through the Great European War it is impossible to predict. The evil, however, is bound to have far-reaching effects on the rising generation of Magyars, seeing that all her elementary schools were closed for the duration of hostilities owing to the dearth of teachers; while her higher educational establishments, academies, colleges, and universities were partially closed for the same period, most of the professors and teachers and the major part of the students being engaged in military service of one kind or another.

A. L. D.

Reference—

DELISLE, *Hungary of the Hungarians.*

[1] Plus the unascertained number of teachers at the private and proprietary schools.

[2] By adding to this total the number of pupils (63,980) attending the middle schools, the municipal schools (61,529), and the commercial and industrial schools (127,763), a grand total of 2,232,953 is arrived at.

HURSTPIERPOINT COLLEGE.—(See LANCING.)

HUTCHESON EDUCATIONAL TRUST, GLASGOW.—George Hutcheson, a public writer and notary of Glasgow, left at his death, in 1639, land for the erection of a hospital for poor aged men, and provided an endowment for its maintenance. His younger brother, Thomas, who died in 1641, added to the endowment of the hospital and also founded in connection with it a charity school for orphan boys. The educational work was extended in the nineteenth century, and in 1876 a grammar school for girls was added. The Trust is now one of the most important educational institutions in Scotland.

HUXLEY, THOMAS HENRY.—Few, whether by direct effort or by indirect influence, have achieved more in the cause of education than Professor Huxley. Gifted with marvellous powers of exposition, he was able to make eminently scientific thoughts and ideas clear to the non-scientific; by his lectures and addresses, and by his pen, he brought home to the public the importance of general education, and especially the pressing claims of scientific education. "That man, I think," he writes, "has had a liberal education who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that as a mechanism it is capable of; whose intellect is . . . ready . . . to be turned to any kind of work, and spin the gossamers as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of nature and the laws of her operations; one who . . . has learned to love all beauty, whether of nature or of art; to hate all vileness; and to respect others as himself. Such a one and no other, I conceive, has had a liberal education, for he is, as completely as a man can be, in harmony with nature."

These ideals he strove to realize alike on the first London School Board, at the College of Science, as a Governor of Eton College, in drafting the programme for the City and Guilds Institute, and as member of several Royal Commissions. The School Board scheme, which Huxley was instrumental in settling, comprised—for infants—the Bible, the "three R's," object lessons, kindergarten exercises of hands and eyes, music and physical drill; for juniors and seniors—the Bible, and the principles

of religion and morality, English grammar and composition, elementary geography and social economy, English history, book-keeping, and continuation of the infants' work. Systematized object lessons leading on to elementary physical science were continued throughout the six school years. It was, nevertheless, to moral training that he assigned the first importance.

Huxley laid great stress on the value of training in the scientific theory and practice on which depends the success of the industries, urging that "the position that science is now assuming . . . is such that those who remain entirely ignorant of even its elementary facts are in a wholly unfair position as regards the world of thought and the world of practical life." He desired to see, from the infant school to the technical institute, or even to the university, an educational ladder by which the child might rise to the place for which it was fitted.

The "type" method of biological teaching is the direct outcome of Huxley's Practical Biology at South Kensington, and indirectly also the present practice in all branches of science of training in *methods* rather than in facts, and by personal observation rather than from books. It is due to Huxley, as Darwin's champion, that the theory of Evolution is now current coin in almost every province of the whole realm of knowledge.

O. H. L.

HYGIENE IN ELEMENTARY AND SECONDARY SCHOOLS, THE TEACHING OF.—A consideration of the motives for the inclusion of hygiene teaching in the curricula of elementary and secondary schools should be undertaken in the light of modern developments in education. Taught as they were, Physiology and Hygiene could not justify their place in an overcrowded time-table. Their failure rested on the erroneous idea that they could be considered with no further practical application than reference to an anatomical chart, or a reading book filled with descriptions of how to do things that ought to be a matter of daily practice with every one. If one of the aims of education is to bring the individual and his environment into greater harmony, it is evident that this instruction failed. Man is still "the sickest beast alive," and avoidable sickness is a manifestation of his inability to suit himself to his environment, and to realize the sequence of cause and effect in matters that concern himself. Herbert Spencer declared that a scientific training is an essential part of the equipment of the individual who sets out to meet the chances of this mortal life with any prospect of success. If Hygiene be defined as the art of healthy living, a motive for its inclusion in the school curriculum has been advanced, together with a suggestion as to the way in which it may be taught without fear of failure.

The scope of Hygiene is wide: it touches on every human activity. In so far as it deals with the phenomena of life, it has a biological aspect; where it is affected by modern conditions, it is a physical and chemical science. It is pre-eminently a practical matter, and must be manifested every day in the lives of those who come into contact with the young. Success will attend the teaching of Hygiene when it is realized that much of it must be given indirectly, and much included under other headings.

Reasons for Teaching Hygiene in Schools. There has been more opposition to the teaching of Hygiene than to any other subject; and the arguments advanced here do not defeat all that are brought up against it. The chief of these is that Hygiene is a matter of parental responsibility. Against this may be set several facts: first, that the child spends many of his waking hours at school, which, therefore, forms an important part of his environment; second, that there is often no practice of hygiene at home: windows are kept shut: there is no opportunity of personal cleanliness: meals are taken at odd hours and composed with no regard to food values: the hours of sleep are curtailed and, in short, every law of health is broken. The danger is lest school and home be brought into still greater antagonism through the teaching of health. It is difficult to avoid this, but the tactful teacher will know how to do so; and the fear of rupture should certainly not deter any educationist from doing what he thinks best for the welfare of his pupils. Even if the home conditions are perfect, there is need for scientific method in health teaching. A child's interest should be aroused to inquire the reason why of the things that he does and sees in his home and at school.

The argument that Physiology and Hygiene are not school subjects holds good as far as they are the province of the specialist. Practical details of house construction, meat inspection, investigations into the origins and causes of disease, anatomy, histology, the analysis of food and water samples are not suitable; but health teaching is proper to the tenderest years of child life, for without it good habits cannot be formed, nor can future citizens be brought to a full realization of their duties to the community, to the home, to themselves, and to the coming generation.

Method. Teaching must be both indirect and direct, and since the passing of the Act dealing with Continuation Schools much that was formerly taught before 13 or 14 can with advantage be postponed to a later age. It may be questioned whether the policy of teaching before 13 or 14 what belongs to a later period is a right one; but it is argued that if no direct health teaching is given in the elementary school, boys and girls will never receive it afterwards. In both secondary and elementary schools a fatal distinction has been made between boys and girls. To deprive boys of the benefit of health teaching is little short of criminal folly. Every boy should know the importance of personal cleanliness, of self-control, of the need of fresh air and pure water, and how to get them in the home. He should learn, further, how a weekly income can be laid out to the best advantage; and how impossible it is to spend large sums a day on beer and tobacco without depriving of necessary food and clothing those whose healthy growth depends on proper nutrition. Yet it is rare to find any but perfunctory teaching given to boys; and, in some cases, even this depends upon the weather. When it is fine, they drill out of doors, and there is no opportunity for the short talk that accompanies indoor drilling.

For the first years, the teaching of Hygiene should be the same in both elementary and secondary school; and should consist of careful attention to habits of personal cleanliness and behaviour, and of the observation of plants and animals. In this way, children become familiar with the manifestations of healthy life, and the effect of unsuitable environment on plant life and growth. The consequences of overcrowding, the manner in which plants turn to the light, and their dependence on

a sufficient supply of moisture, can be shown practically. Everything in the child's school surroundings should be neat, clean, and airy, being kept so partly by his own exertions. Where necessary, children must be taught in school to brush their teeth, blow their noses, and keep their persons clean and tidy. This is done for deficients, and it seems of a piece with much of our national folly that the good things in life are reserved for those who are deficient in mind and body, whilst those who should form the backbone of the nation miss training in the early years of life which the Jesuits of long ago recognized as being the only useful ones to the educator.

Hygiene Teaching in the Elementary School. After 11, training in personal hygiene and Nature study should be supplemented by more direct teaching, though efforts to establish good habits must go on all through school life. For boys and girls of 11–12, the study of air and water, and their importance to the human being, should be undertaken. Lessons on respiration and the functions of the lungs, skin, and kidneys would follow. All teaching should be impersonal, positive, and as practical as possible. For instance, chest measurements should be taken, with the lungs fully expanded, and after deep expiration. The hand and arm should be enclosed in a clean bell-jar, and packed round with cotton wool, to give evidence of insensible perspiration; then, washing out the bell-jar with a very weak solution of potassium permanganate, will show that perspiration contains organic matter. This must, of course, be checked by a control, in which a perfectly clean bell-jar is washed out with an equal volume of the same solution of permanganate. Lessons on clothing might follow; in the sewing-class, girls could be taught to make sensible garments for children (boys and girls) as a step towards rationalizing the clothing of the people.

The subject of food, its use, care, and storage, should occupy an important place in the course; which should include, besides simple explanations of the digestive system and its function, instruction on the use and care of the teeth, and the great importance of a healthy mouth. Practical lessons on the care of milk would illustrate dust and fly dangers; lessons on food values and cost would add interest to the boys' gardening and the girls' cookery.

In the matter of temperance teaching, much more can be done by showing the uselessness of alcohol and the folly of spending money to waste; and by giving boys and girls varied interests, both in and out of school, than by showing lurid posters. A good deal of temperance teaching should accompany lessons on the brain and nervous system, when the importance of quiet sleep, self-control, and self-respect could be dwelt on. Drill lessons provide opportunities for further talks to the older boys, and cookery and housecraft lessons enable the wise teacher to discuss baby-care and home-making with the older girls.

Hygiene Teaching in the Secondary School. Up to 11 years of age, the teaching in both elementary and secondary schools will be much the same. Probably less attention to personal habits is necessary in the latter, and more time can be devoted to Nature study and the observational work that lays a foundation for science teaching during the rest of the school course. A laboratory allows each pupil to work out for himself what can only be demonstrated in the elementary school.

It is essential to use practical, homely illustrations. Drill and games carried out under hygienic conditions provide opportunities for talks on health. There follows a suggestion for a four years' course in science, with some indication as to the place of hygiene.

YEAR I: *Age* 12. Mensuration, including the measurement of heat and density; elementary mechanics; solution and evaporation; the action of heat on solids, liquids, and gases.

Accurate *versus* inaccurate measurements (*e.g.* the weight of an egg in butter, a tablespoonful of flour, a teacupful of water, the "heat" of the oven, etc.). The three kinds of lever as illustrated in the body. The action of heat on well-known substances, such as fat and albumen. The solvent power of hot and cold water on air, salt, etc.; the salts in vegetables; dirt in clothing, etc., etc.

YEAR II: *Age* 13. The above continued. The dispersal of heat, and study of air and water; elementary light and electricity. Methods of heating, ventilation, lighting; the meaning of certain processes of cookery: boiling, roasting, baking. The use of different materials used in clothing.

YEARS III AND IV: *Ages* 14 *to* 15. Elementary chemistry and its application, wherever possible, to common substances used as food and cleaning materials. The composition of soap. Combustion, and the way in which body temperature is maintained. Different fuels and their behaviour.

During the last two years of school life there should be a short course of elementary physiology and bacteriology, which might be introduced by one on plant physiology. Its purpose should be to collect and summarize what has been learned in previous years, and it should be practical and hygienic in its bearings. The bacteriology should be for the purpose of illustrating dust dangers, and the care needed in the storage and preservation of food.

In the last year of school life, the ideal plan would be to arrange a course of elementary biology, which should lead insensibly and without shock to an understanding of those processes in Nature which it is so important that the adolescent on the threshold of life should understand. There are cases in which this has been carried through with unqualified success; but it needs a teacher well equipped with both scientific knowledge and a keen sense of what is needed.

Throughout the teaching of hygiene, the aim should be threefold: (1) To awaken a health conscience; (2) to teach self-control, self-respect, and respect for others; (3) to prepare boys and girls, as far as possible, for the responsibilities of citizenship and parenthood.

It has been too little remembered that, in man, instinct is replaced by self-consciousness, and that this human attribute can only come to its highest expression by an all-round training, which includes a knowledge of the way to live according to the laws of health, and of the Nemesis that sooner or later overtakes all—either in their own or in the next generation—who disregard the decrees of Nature. M. MICHAELIS.

HYGIENE, THE INSTITUTE OF.—The work of this Institute is to remove ignorance of the elementary principles of the preservation of health. Its efforts are, therefore, devoted to all that pertains to a healthy life and a healthy home. Conferences are held to discuss and deal with matters of importance affecting the public health; and lectures by

total consciousness yet not separately distinguishable) *e.g.* looking out of the window in the morning, I see ice in the rain-water tank, and the ice looks smooth and cold. As I do not touch the ice, its smoothness and coldness are apprehended by me, not in perception, but in idea. The ideas, however, are not at first (or usually) explicit—they modify the look of the ice, but are not distinguished separately, except by a subsequent special effort. Again, in their more developed forms, ideas are *free*, *i.e.* continue to engage attention independently of whatever may have suggested them, *e.g.* the sight of the ice in the rain-water tank may suggest to me explicitly the idea of frost overnight and its effects in various places beyond my ken; and this train of ideas may continue to occupy me long after I have turned away from the ice. Sometimes, however, ideas are *tied*, *e.g.* my implicit ideas of coldness and smoothness vanish as soon as I look away from the ice—they are "tied" (or "complicated") with the visual appearance of the ice, and cease with it. Even explicit ideas may be tied, *e.g.* when I return home in the dark, the top of the gate feels cold, smooth, and wet, as I open it. At once the visual idea of ice comes up explicitly; but it vanishes when I remove my hand from the gate—it was explicit while it lasted, but "tied" with the tactual perception.

The foregoing may suggest that ideas are images. That would be an erroneous identification. Ideas generally involve images, if by "images" we mean not only visual mental pictures of the (absent) things, but all kinds of auditory and other revivals, including revivals of words, and of symbols generally. Ideas, however, include more than images, namely, *meanings*, *e.g.* when we think about the Great War, we may have images of war-scenes and war-pictures, of various words and phrases. But the poorest idea of the war is incomparably more than these images. We mean so much more than we image.

Free ideas are of great importance biologically. They make possible not only plans and preparations for future needs, but also a harmless mental experimentation with schemes, the actual execution of which might prove disastrous. In life, as in chess, the wise man thinks out the consequences before he moves.

To obtain much helpful information on this subject, consult the works on PSYCHOLOGY by James, Stout, Sully, Ward, etc.; also articles on, IMAGINATION, LAWS OF ASSOCIATION, CONCEPTION.

A. W.

IDIOTS.—(See MENTALLY DEFICIENT CHILDREN; INSANITY IN CHILDREN.)

ILLUSTRATION.—Like the strong light which a scientist throws upon the stage of a microscope in order that the object of his examination shall be made clear and well-defined, so, for a teacher, an illustration is whatever may be introduced to make definite, clear, and precise the fact or idea he wishes to drive home. In accomplishing this end, it serves the additional purpose of attracting and holding the interest of the learner. The desire to illustrate, however, is apt to lead the teacher into danger from several sources. In the first place, the illustration must always be subordinate to the matter desired to be taught. Though a class be greatly interested in flames pouring realistically from a model volcano, the teacher has failed if scholars go away with the impression that volcanos are "burning mountains." A second danger manifests itself in the tendency to include irrelevant detail in the illustration. For instance, it would be unwise, in pictures illustrating architecture, to include any showing fighting men or Oriental processions, for they would tend to attract attention to the wrong points. It is advantageous with older students, and in subjects where quantity is prominent, to make use of pictures from which all but the lines representing pure quantity have been eliminated (*e.g.* a graph is often the most useful illustration of a law in Economics). Sets of diagrams, too, are often the most appropriate illustrations for lessons in science or engineering. The modern temptation, perhaps, is to over-illustrate, so that in some cases time is lost in elaborating what is already clear; and, in others, pupils grow to depend on illustrations, and fail to increase the vigour of their understanding. The nature and purpose of illustration are, to a certain extent, different as we consider, in turn, discourses, books, and lessons. A sermon, a lecture, and some parts of a lesson may be illustrated by examples, comparisons, metaphors, stories, and analogies.

Three considerations guide the illustration of school-books, viz.—

1. To help in the comprehension and realization of the printed text.
2. To make the book attractive.
3. To guide artistic appreciation.

Whether a lesson is to have actual specimens, models, pictures, or stories and metaphors to illustrate it depends entirely upon the nature of the subject-matter. Very small or very large objects are often best understood through a model (*e.g.* the working of a gas-engine or the anatomy of an insect). A picture is useful where it is desirable to create an "atmosphere," because it helps the child to imagine life in foreign countries or ancient times. Pictures drawn by the child reveal to it the looseness or thoroughness of its grasp of the subject, and to the teacher the misconceptions of the pupil. It is in literature, above all, that the verbal illustration has its place, while in the teaching of morality the use of stories is much resorted to.

IMAGINATION.—The use of the word "imagination" in psychology exemplifies the difficulty of employing for scientific purposes terms borrowed from common diction and infected with its ambiguities. The word has, in ordinary discourse, two chief meanings. (1) It signifies the production of a mental image of an absent object, as when one sees in imagination this morning's breakfast table, or hears in imagination a band of pipers, or enjoys in imagination the fragrance of meadow-sweet. (2) It is also applied to certain intellectual processes of high level, especially to the "imagination" of the inventor, the poet, the novelist, the man of science.

To avoid ambiguity the psychologist may (as in the parallel instance of the use of "force" in mechanics) restrict the scientific use of the term to one of these meanings. Thus William James, in his chapter on Imagination (*Pr. of Psych.*, ch. xviii), takes it to mean the formation of mental images and nothing else. His usage is supported by etymology but has serious inconveniences. The formation of mental images occurs as an incident in psychological processes of widely different types. For example, I may hold in my

mind an image of a man's voice in the hope that it will remind me of his name; or build up a mental picture in order to follow a friend's description of his new motor-cycle; or call up imagery to deepen my enjoyment of Keats's "sweet peas on tip-toe for a flight." Now if the mere occurrence of images in these processes makes them all instances of imagination, some qualifications are needed to distinguish the different purposes that the imagery subserves. So we have the terms "reproductive imagination" (which is practically equivalent to vivid recollection), "interpretative imagination" (equivalent to "understanding"), and "productive imagination"—the last being reserved for invention and original art and thought. But, in addition to being largely redundant, these terms are open to the objection that they emphasize the wrong thing. They suggest that the presence of images is the essential feature in remembering, understanding, reasoning, invention, whereas that feature is, in fact, often only of subordinate importance and may sometimes be almost entirely absent.

On the whole, then, it seems better to keep imagination for the higher "creative" processes, and to describe the mere production of images by some term, such as "imaging," which has no divergent associations. We are thus led, disregarding the part played by imagery, to inquire what is the common feature of these higher processes. In doing so, it is important not to be misled by the popular antithesis between the "imaginary" and the "real." The traveller who remarked that Turkish statistics are admirable if regarded as works of imagination, but valueless for scientific purposes, had this antithesis in mind, and made playful use of it; but it must also be remembered that great investigators have declared imagination to be the prime instrument of scientific discovery. That is, imagination is not only the weaver of fiction but also the light that discloses truth. What, then, is the common factor by whose virtue it produces such widely diverse effects?

The answer is that imagination, in the sense here followed, is the expression, in intellectual activity, of that creative element or spontaneity which is one of the essential characters of all, and especially of human life. Mind has the power not only of retaining its experiences, but also of selecting, remoulding and recombining them for practical ends, or in the disinterested pursuit of knowledge, or to explore the beauty and mystery of the world, or for mere enjoyment of its own activity; and this power is the essence of imagination.

It follows that imagination always goes beyond what is before the senses here and now. That fact explains both why ordinary language calls imaging imagination, and why it contrasts the imaginary with the actual. But however remote from actuality the constructions of imagination may be, their elements are always derived from reality; only the pattern in which they are recombined can be new. This is true even of myths and extravagant fiction—such as W. K. Clifford's tale about the giant whose favourite food was bread and butter sprinkled with light brown horses. But, as Professor Alexander has said (*Time, Space and Deity*, i., 146), fiction itself is not necessarily fictitious; for instance, the imagination of a great dramatist or novelist, so far from falsifying experience, brings out essential features of experience that the ordinary, unimaginative man would miss. While, as was pointed out above, the imagination that qualifies what is seen by what is not seen, and so explains it, is the very essence of science.

These observations make clear in what sense certain school subjects—literature, science, history, geography—may "train" the imagination. They cannot foster a power to create out of nothing (as teachers appear sometimes to suppose); for no such power exists. But when properly taught, they do serve to widen and deepen the pupil's vision of the actual world; and that is the most important function of imagination. T. P. N.

IMITATION.—A copying of others—and of other things. A sense-impression made by way of physical excitation passes to consciousness, and is referred to something external. Impression rouses expression, which in particular form and direction is, most frequently and in earliest stages, the outcome of suggestion, and is mainly imitative. In these first phases, imitation is purely instinctive. Gesture, resembling movements seen, is earlier than purposeful action. Ear is alert as well as eye, and motor power assists; vocal effort reproduces sounds more or less successfully, and we get the speech of interjection and, later, of onomatopoeia—the hum and murmur, and crash and splash, and roar and clink and clang of things around. Social promptings and influences make for communication: refinements of sensation and motor muscularity lead to elaboration of language; oral speech becomes rational and complex, and opens up the road to the written word. Meanwhile, an elementary draughtsmanship has copied form and modified it in detail, partly as primary Art and partly as interchange of thought; and from mere imitation of what is seen and heard, or of what another does, are evolved high examples of constructive imagination. The sympathy of numbers and the controlling impulse of society are effective through imitation, and the force of public opinion is notorious; and, in the provinces of feeling and will, imitation is equally powerful: we copy very largely the emotions and habits of conduct of others and make them our own. This is made use of in school life in emulation, and the appeal to great and good example. But the tendency requires restraint; individual initiative and independence must be encouraged, and the reflection that makes for a rational and dispassionate judgment. (See also ANIMAL EDUCATION.) A. E. L.

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY, SOUTH KENSINGTON, THE.—The Imperial College of Science and Technology was founded by royal charter in 1907. The reasons for its establishment are fully set forth in a Report of a Departmental Committee. In Germany and America scientific education and research had produced a rapid industrial and commercial expansion, largely due to the habit which these countries had acquired of availing themselves, for industrial purposes, of new scientific discoveries. On the other hand, the failure to appreciate the relation of science to industry had produced a stagnation in our own methods and, consequently, the loss or impairment of important industries. A very thorough examination of the problem which these facts suggested was made by the committee. They reported that, in England, students, by whose advanced technological education the nation would profit, were not obtaining it to the extent desirable,

and that this was due to a lack of facilities for instruction and inadequate opportunities for research. They found that there was not in England any relation between industrial progress and scientific education. Therefore, the most urgent need in education was the establishment of a centre in which the specialization of the various branches of study and equipment for the most advanced scientific training and research should be such as to make provision for a school to be the chief technical school of the Empire.

An earlier movement to establish technical education in London had been made when the College of Chemistry and School of Mines were established. The Exhibition of 1851, at South Kensington, had accelerated the appreciation of science in relation to the world's work; but, when the Prince Consort died, the struggle for a fuller recognition almost ceased. The location of the School of Mines and the Royal College of Science at South Kensington, and later the establishment there of the City and Guilds Engineering College, sufficiently indicate, however, that the ideals of the Prince Consort had not been altogether forgotten. The work of the Royal College of Science, so closely associated with Huxley, in relation to technical education is well known, and the indebtedness of the technical schools throughout the country to this great training school for teachers is fully acknowledged. When, therefore, this urgent problem was presented to Government, the work of South Kensington on the lower plane being remembered, the revival of the tradition for still higher work was natural; and the amalgamation of the three great schools, under one governing body representative of Science and Industry, followed. To attain the object which the Departmental Committee had in view, the governing body at the outset sought the advice of four specially appointed committees. From the reports of these committees (published in the Report of the Royal Commission on the University of London), it will be seen that the recommendations put forward amply covered the ground and set the aims to be attained. It should be noted that the governors were able to offer to the committee assurances that the ideal could be realized, for, since within the College itself there could be no conflict of Science with other faculties, their resources were at the disposal of Science only, and this was sufficient encouragement for devising a comprehensive scheme. Such was the origin of the Imperial College.

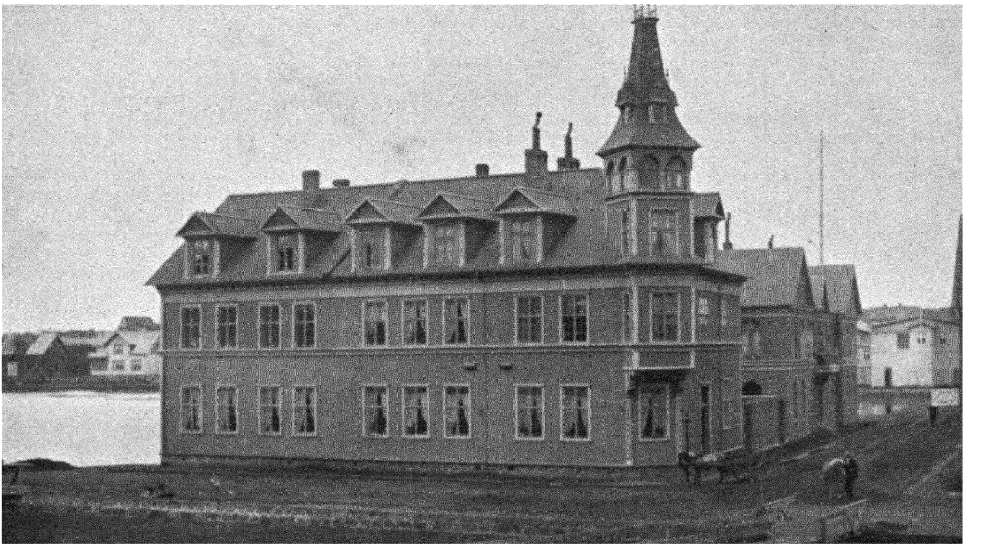
Aims. The aims of the governors were defined. The needs of the industries were to determine the scheme of education and research. Consequently the fullest powers were delegated to the professors. Researchers and advanced workers were to be offered the fullest facilities; the education was to be wide and unfettered by academic requirements; and it was recognized, fully and frankly, that the industries themselves must play a part in determining the curriculum. So ambitious a project as that put forward by the Departmental Committee, and worked out in detail by the specially appointed committees, required funds for building and equipment and staff, as well as ample resources for subsequent development. These were supplied by munificent gifts from the State, from the Commissioners of the 1851 Exhibition, from private persons, as well as from the Goldsmiths' Company. The governing body has thus been able to proceed with extensive building operations, with the provision of the most ample scientific equipment and with sufficient funds for future needs, supplemented by annual grants from Government and from the London County Council. New Chairs were established; large additions to the staff made; and, indeed, it may truly be said that nothing has been wanting on the part of the governors to assure the success of the undertaking—that is, the establishment of the chief technical school of the Empire.

Now the constitution of the governing body afforded a sufficient guarantee that, while all that was best in academic methods would be retained, the needs of the industries would be the dominant consideration. This principle already ruled in the smaller technical schools and polytechnics, though the influence of university syllabuses tended to deaden the freedom of the teachers. In every great institution this influence has been felt, and the assertion of the freedom of the professors to train in accordance with the requirements of the professions is the chief achievement of the Imperial College. These views were not in the year 1906 entirely acceptable, though to the three Kensington schools they were not new. It remained for the Royal Commission on the University of London, later, frankly to recognize them.

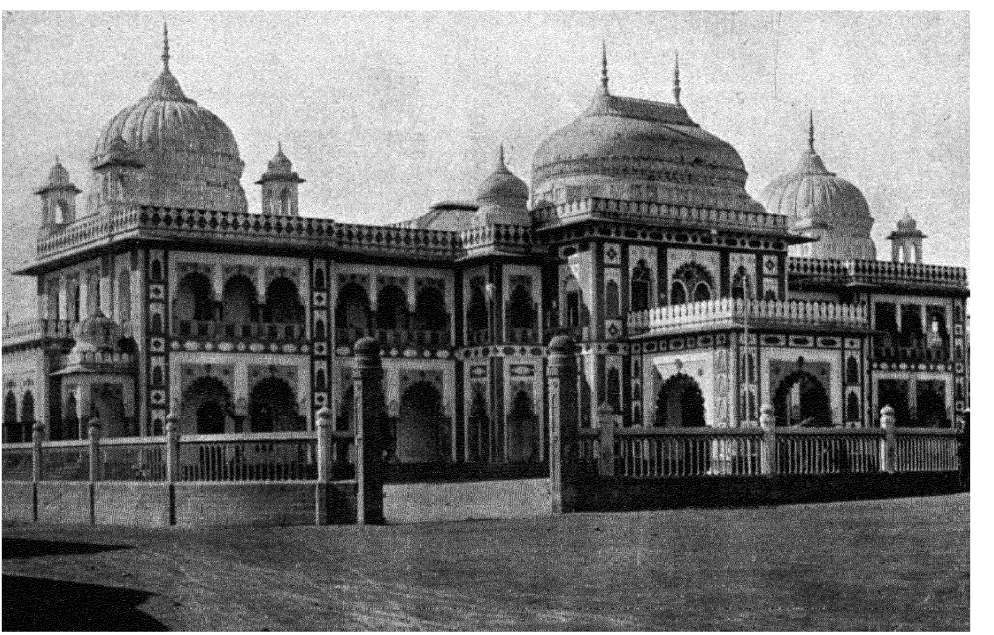
Accomplishments. To ensure the aims which the governors had in view, the establishment of a direct connection between the workers in the various industries was necessary. It was as necessary for the College to know what problems are before the workers as for the workers to know that the resources of the College were at their disposal.

A specific example will serve as an illustration. The once great Royal School of Mines had shared in the common neglect. Compared with institutions in Germany and America, its importance and utility as a great school of metalliferous mining had dwindled. It was no longer in step with the rapidly-marching industry. The co-operation of the mining profession, as represented by the Institution of Mining and Metallurgy, was therefore sought, and under the continued care of the Institution it is to-day the chief mining school of the Empire.

But the conception of the originators of the College was greater than has here been outlined. It was intended that the heads of the scientific departments of other colleges should affiliate themselves to the movement and seek, in a combined effort, the means of emancipation from their traditions. The aim of the governors was quickly recognized by technical school teachers, but hardly at all by others. By a transference from Kensington of the higher work in departments for which ample provision might exist elsewhere, and a removal to South Kensington of departments of schools insufficiently equipped and organized, for which better provision had been made in the Imperial College, a great step in co-ordination and economy could be taken. A corresponding transference to or from the Imperial College of students at appropriate periods of their training, early or advanced, is an obvious corollary. It was not intended to locate at Kensington departments representative of every branch of Applied Science; but by connecting the Imperial College with technical and scientific departments of other institutions in London or elsewhere the fullest advantages of co-operation and co-ordination of scientific education in London could be secured. It was hoped



The National Technical School, Reykjavík, Iceland



The High School, Bhavnagar, India

PLATE LI

that, by such co-operation of the various institutions, separate departments could be conducted in detached colleges; and it was contemplated that in time the buildings at Kensington would become the higher educational and research departments of all the institutions—the resort of researchers and the common property, so to speak, of the industries and the men of science, available for the continued education of the student of technical schools and of industrial workers throughout the country; while the scientific qualifications for admission steadily rose.

It is obvious, therefore, that the duties of the governors lay in two directions: On the one hand, the establishment of departments at Kensington fully and completely equipped and staffed, and brought, as to their methods, to the highest pitch of perfection; on the other hand, the establishment of a connection with other institutions, with professors, and with the industries. Of these two departments of work, the first has been successfully completed; the second has been in abeyance owing to the appointment of the Royal Commission on University Education in London. If some of these ideals have not yet been realized, nevertheless the great object has in the main been achieved. There has been a great increase in the number of students, especially of advanced workers, and an increased output of researches on industrial problems. A definite connection with industries has been established, and the laboratories are fully and freely at the disposal of accredited researchers. The governing body have, therefore, provided facilities for instruction and opportunities for research. A relation between scientific education and industrial problems has been established. The urgent need for a chief technical school has been met.

A. K.

IMPERIAL INSTITUTE, THE (of the United Kingdom, the Colonies, and India).—Was erected at South Kensington as the National Memorial of the Jubilee (1887) of Queen Victoria, who opened it in May, 1893. The principal object of the Institute is to promote the utilization of the commercial and industrial resources of the Empire by displaying and exhibiting the natural products, arts, and manufactures of the Colonies, India, and other British Dominions. It also makes provision for scientific investigation of their resources, and for the spread of information concerning them.

From its foundation until 1902, the Institute was managed by a governing body, of which the Prince of Wales (afterwards Edward VII) was president, and an Executive Council including representatives of all parts of the Empire. During this time it received little encouragement from the British public, and its valuable work and collections received little attention. In 1900 the building became the property of the British Government, and in 1902 an Act of Parliament transferred the management of the Imperial Institute to the Board of Trade, assisted by an Advisory Committee of representatives from the oversea parts of the Empire and the Board of Agriculture. In 1907 the management was transferred to the Secretary of State for the Colonies, and a committee of management of three members was appointed, one nominated by each of the three Government departments chiefly concerned.

The first Director of the Imperial Institute was Sir Frederick A. Abel, Bart., G.C.V.O., K.C.B., F.R.S., who held the office till the autumn of 1902; and was succeeded by Professor Dunstan, C.M.G., M.A., LL.D., F.R.S. The staff of the Institute consists of persons specially qualified in the many branches of scientific and technical knowledge related to agriculture, and the commercial utilization of the economic products of the Empire.

Exhibition Galleries. The galleries, which are open to the public on weekdays from 10 to 4 in winter and 10 to 5 in summer, contain collections in charge of technical superintendents. They represent the economic products, natural and manufactured, of almost every corner of the Empire, and are arranged on a geographical system. Special arrangements are made for conducting parties from schools and institutions, for educational purposes, through the Colonial and Indian collections. For the supply of information and the distribution of literature, a Central Stand and an Inquiry Office have been opened in the main gallery. Handbooks, pamphlets, and circulars containing information relating to the industries and products of the Colonies are available for gratuitous distribution or for sale. Information concerning emigration and the Emigration Branch of the Colonial Office may also be obtained.

Research Department. This department was established in order to provide for the investigation of new or little-known natural products of the Empire, with a view to their utilization in commerce. Laboratories and workrooms are provided in order to furnish trustworthy information and advice on matters connected with agriculture, trade, and commerce. The Foreign Office assists in the work of research by sending to the Institute, for investigation, specimens of the natural products of foreign countries, if they are likely to be of interest or use to British manufacturers or merchants. Materials examined in the Institute are afterwards tested by manufacturers in order to discover their commercial value.

In the Reference Sample Room may be seen the materials which have been tested and valued, and full information is there available.

The department issues many reports to the Governments of the Dominions, the Colonies, and India; and published, in 1903, a first volume of *Technical Reports and Scientific Papers*. Selected reports have also been issued in succession on fibres; gums and resins; foodstuffs; rubber and gutta-percha; oilseeds, oils, fats, and waxes. Mineral surveys in Ceylon, Northern and Southern Nigeria, and the Nyasaland Protectorate have been made the subjects of a number of reports issued as Parliamentary papers.

Library. The library and reading-rooms of the Imperial Institute contain many works of reference and important official publications relating to India and the Colonies, as well as a regular supply of the principal newspapers and periodical publications from all parts of the Empire. Permission to use the library regularly can be obtained by making special application in writing. Provision is made for meetings and receptions of representatives of the Dominions and Colonies in three specially decorated conference rooms.

The records of the work of the Imperial Institute are published quarterly in the *Bulletin of the Imperial Institute*, which contains accounts of the principal investigations carried out by the Institute, and articles on tropical agriculture and the utilization of raw products.

The recent development of West Africa has led to the publication by the Institute of a series of handbooks, edited by the director, on the agricultural and forest productions of British West Africa.

The London University is established in a part of the buildings of the Imperial Institute. The following societies also have their offices there: International Association for Tropical Agriculture (British Section); British Women's Emigration Association; Colonial Nursing Association; Tropical Diseases Bureau; Universities' Bureau of the British Empire.

IMPERIAL INSTITUTE EXHIBITS, THE.—No one who has travelled widely can fail to perceive the prejudice which still lingers in England about things educational. He observes with impatience the conservatism of our ancient universities, which yield gradually and grudgingly to the pressure of public opinion and to the calls of modern scientific needs. The great public schools are equally hidebound, being tied to the educational skirts of the universities. The primary schools of 1870 and following years, while admirably conceived, were sterilized by the fatal policy of aiming at "marks and grants"; and the multiplicity of subjects imposed on them by the Board of Education has made the instruction largely wooden and mechanical. The bulk of the nation have no zeal for educational progress: still less do they visualize the resources and possibilities of the Empire of which they are the heirs. This lack of visualization has caused the nation to lag behind the other great peoples in commerce and the industrial arts. It is this lack of visualization in the sphere of Imperial development which the Imperial Institute in its inception in 1887 set out to supply. It has got together the most complete mass of instructive material that has ever been gathered under the roof of any museum in the world. Unlike other collections of arts and industries, the exhibits are grouped by countries, so that the student or would-be emigrant can visualize as in a living frame the complete conditions of the country of his study or choice.

In the long galleries, for instance, appropriated to Canada, he can see, as he moves from case to case, the whole energies of the people concentrated, and descriptively and scientifically labelled: the products of the orchards of Ontario and the Okanagan Valley; the inexhaustible fisheries of the Atlantic and Pacific Coasts; and the gigantic harvests of the Prairie Provinces. There confront him also the huge products of the lumber camp, and countless specimens of mineral wealth—coal and iron, corundum and asbestos. And he will learn not only what has been done, but (what is even more important as an asset of the Empire) what is still left to do.

Then, if he pursues his pilgrimage to the Australian Court, he will see how the rivalries of the separate States were composed at the beginning of the twentieth century, and how the consolidation of the Commonwealth has yielded fruits of increase beyond all conception in less than twenty years. He will be able to study how it is that the climate and soil of the countries under the Southern Cross are better suited to sheep than any other regions on the face of the globe. There before him glitter models of those nuggets, discovered by the pick of casual diggers, who populated Australia in the early '50's, and made Ballarat and Mount Morgan household words. He will be able to trace the processes of the sugar industry of Queensland, and see how they differ from the primitive methods in vogue in India; and he will learn something of the perplexing problems which beset a "White Australia."

In the New Zealand court he will linger over specimens of the most wonderful gum in the world —the tears of the kauri tree, some of them dropped in prehistoric forests centuries ago, and brought to light by the iron prod of the Maori. And here, again, he will watch the wonderful working model of the loading of ss. *Remuera*, that brings frozen meat, and cheese and butter to the London Docks.

South Africa will attract him with its problem of irrigation in the Great Karroo, and with the vineyards of the Cape. The magnificent ostrich feathers will remind him that ostrich-farming has fallen from its high estate. In the diamonds of Kimberley and the gold of the central trophy he will recall the slow-drawn tragedy of history arising from the fact that a race of farmers had squatted on a golden reef in which they did not care to dig.

But, perhaps, the most educative of all is the court devoted to India. With its population of 317,000,000, and a configuration ranging from the stupendous heights of the Himalayas to the lowest strand of the Ganges, the visitor will find here a bewildering variety of earth's choicest stores—silkworm culture, jute-making, the various stages in the production of tea, sugar, lac, opium, and cotton are all shown. The visitor will gain results of profound educative value by studying, in the court specially assigned to Indian works of art and industry, the people who designed and executed them.

In the Ceylon court, hardly less instructive problems will be encountered. Tea-growing, rice cultivation, cinnamon, rubber, pearl-fishing are successively presented for study with carefully-labelled explanations.

Another court is that of the West Indies, richly endowed with cacao, rubber, Trinidad asphalt, and sea-island cotton. The growth and manipulation of the last named (perhaps the most important industry of all) are exhaustively set forth in the exhibits and illustrations of machinery in an upper gallery.

Passing to the courts of British Malaya and Hong Kong, there is opportunity for studying products such as nutmeg, pepper, pineapple, tapioca, and cassava; while the processes connected with the great tin industries are arranged in true scientific order.

The court appropriated to Newfoundland is full of interest. Beautiful models of the fisheries are shown, while the pulp mills and the various processes employed in paper-making are elaborately illustrated.

The exhibits of the Fijian Islands and Western Pacific include the coconut palm, one of the most wonderful products of Nature; and labels showing the different uses of the coir, the nut, the kernel, the toody, copra, and poonac, arrest the eye of the visitor.

Even Mauritius and the Seychelles have courts of their own, where coco-de-mer, tortoises, vacoa, and fibre of all kinds are displayed.

When we come to East Africa there is rather a different tale to tell. The complete exploitation of British East Africa, Uganda, and Nyasaland is yet

to come, but the results of experiments with rubber, tea, and cotton are worthy of careful study.

On the western court, however, the galleries are full of interesting exhibits. Cotton, palm oil, and especially the cacao of the Gold Coast, open out a field for development; while Nigeria, with its oils, butter-nuts, fibre, cotton, timber, and, perhaps not least, cowries, used as money-counters, is shown in an excellent series of exhibits.

Enough has been said to show how important the Imperial Institute might prove in the scientific education of the people. Efforts have recently been made to popularize the Institute. Situated in the outskirts of the great city, it has not commanded the attention which its intrinsic value undoubtedly deserves. The London public will not go far out of its way to any exhibition, however interesting. There is a lack of imagination in the Anglo-Saxon temperament which makes it a difficult task to stimulate the intellectual side of an Englishman.

Systematized knowledge is the very soul of a museum. There must be correlation of the facts—there must be a central idea and purpose in the grouping and in the particular order adopted. Nothing is more useless than to wander about from exhibit to exhibit without any attempt to correlate the whole. And this aimless wandering is to be seen every day in every exhibition of arts and industries.

But it is of no more educative value than the practice, in which some indulge, with the vain thought that they are gaining profitable knowledge, of desultory reading in a library, pulling down one book after another without any idea of correlating knowledge. Both kinds of trifling result in little more than mental paralysis. In other words, here, as elsewhere, the skilled human factor must be brought into play.

Scientific knowledge, if it is to issue in valuable developments—valuable both to the individual and to the Empire through the individual—must be systematized.

The importance, therefore, of lectures, not necessarily by specialists, but by skilled, trained minds, descriptive of the countries in which the exhibits are to be found, and illustrated by lantern slides, cannot be overestimated. They should be followed up at once by a visit to the courts, and explanations given at lecture-time enlarged and emphasized by an appeal to the objects themselves. No better, or more effective means, could be found of inspiring the imagination of the public with the extent and grandeur of the Empire of which they are the inheritors. Few can afford the time or means for extended travel; but it is open to all—especially during boyhood and girlhood—to visualize the different parts of the Empire, to make the dry bones of museum-cases become instinct with life through the agency of the skilled human factor.

And such a visualization of Empire, if it permeates through the community as a whole, must have the most fruitful and beneficial results, by leading them to grasp the essential importance of the extremities of the Empire to the security and consolidation of the organic whole. H. B. G.

IMPERIAL STUDIES COMMITTEE. — (See HISTORY, TEACHING OF COLONIAL.)

IMPRESSION AND EXPRESSION.—We conceive the individual as set in a universe: a universe not empty, but of full content, unceasingly affecting and modifying all within it and unceasingly affected, and modified in turn—and the whole total moved by intelligence and itself intelligible. An infinite complex of energy and movement is its abiding characteristic. In the field of consciousness the individual is a complex of nervous apparatus as physical, and interpretative power as mental. Sense-impression is the excitation of nerve carried forward to brain-centre, and there interpreted in terms of consciousness and of something external: the *impression* is from without, and has its effect in modification of consciousness, addition to the mental stock, and motor action by command of brain. Some form of *expression* results, and is from within. Development brings increased complexity. Multifold impression will mean multifold expression; from earliest forms of mere reflex action to gesture and imitative utterance and speech; more and more elaboration of language, and—with almost even steps, but with individual variation—pictorial form, at first in outline and at last in the highest art.

A. E. L.

INCIDENTAL EDUCATION.—Apart from the formal subjects of instruction included in the organized curriculum of a school, much training and development of mental capacity is secured by incidental application of knowledge obtained in the study of those subjects. Much attention has been given in recent years to the training of the moral faculties, and attempts have been made to employ an organized system of teaching morals. On the other hand, the development of the moral sense is secured incidentally in lessons in history, biography, and reading; and the concrete illustration of a virtue is more powerful in its influence on the child mind than a formal abstract lesson on the merits of that virtue. Again, the scientific lessons on hygienic subjects produce incidentally results which tend to lead to habits of cleanliness and temperance. It is a matter of importance to teacher and pupil that the incidental training should be kept in view, so that, while the child is consciously aiming at one end, he is being carefully led by the teacher to employ activities which afford him training in other directions of which he is at the time unconscious.

INCIDENTAL METHOD, THE.—This consists in the incidental use of facts belonging to one subject to assist the teaching of another subject. Much incidental teaching results from the correlation of subjects of study. Thus the historical ballad studied as an aid to history affords scope for incidental teaching in literature and geography. In the modern direct method of teaching a foreign language, many of the forms and rules of grammar are taught incidentally in reading and composition. It is, however, rarely possible to teach incidentally more than a very limited part of any subject.

INDEXING, HOW TO TEACH.—The universal need for direction and quick reference makes easy the approach to the subjects of indexing. It is simple to elicit from even young pupils instances of indexes of various sorts—sign-posts, tables of contents, etc. The index finger, so naturally used in pointing out things, may be referred to effectively in introducing the subject; one can give a general idea of the direction of an object by a motion of

the head, but the pointing of the index finger is more definite. Definiteness is *the* necessity in indexing.

The register of the names of the students furnishes a ready illustration of arrangement; sometimes strict alphabetical order is followed, or the names beginning with the same letter are placed together in any order. This order of priority has in it no suggestion of order of value. Alphabetical order is universally known, and so serves for classification. But what about the names of new students? They must be put at the end of the register or, at any rate, at the end of each group, so that permanent alphabetical order is impossible. Could a method be adopted which would ensure alphabetical order for the names of all the students, including those who join late? Yes; loose slips or cards could be used; but, in this case, all the purposes for which registration is necessary could not be so well fulfilled; therefore, the list or book form is used, notwithstanding disadvantages of order. For arranging in order, at first individual slips are preferable to entries on foolscap sheets. It is the method followed for indexing the contents of books. A useful exercise may be given at this point: that of preparing an index of a dozen pages of a textbook which has no index. Treatises on law would lose half their value if they were not well indexed. Here the importance of such indexing may be easily illustrated, and the qualities necessary for success in it set forth.

Book Indexes. On interrogation, students will soon tell the kind of names that business men must record—customers', clients', manufacturers', etc.—and the need for arranging these names is obvious to them. Students' own names and addresses serve as illustrations, additions of *Sons, Bros., & Co.*, etc., being made if desired; and, with others, may be used in subsequent exercises. The arrangement of these in an Address Book—starting with a nucleus of names properly arranged, following with any other as that of the next correspondent, and continuing haphazard—will emphasize the limitations of the book index, especially when changes of address are recorded and correspondents' names are struck off and others added.

Indexes should now be prepared with numbers representing the pages on which copies of letters may be found in the Outward Letter Book, or the pages of the Ledger on which accounts of customers and creditors may be found. The cross-reference as applied to Letter Books should be explained, as saving certain references to the book index.

Vowel indexes should be illustrated with the names previously used. Little fuss should be made about exceptional names such as Ahn, Epps, etc., which have the initial guide and no secondary vowel guide such as is required by the vowel index. The third-letter index, giving over 600 divisions, may next be introduced, still with the same names, also other forms (with or without extension indexes), such as artificial classes based on common combinations of letters (*e.g.* A. Al, Am, Ap, Ar, At; E, Ed, Eg, El, Et, Ev, etc.).

The Card Index. The Card Index should then receive attention. Its advantages over the Book Index will readily appear: revision is simpler and more economical of time; particulars may be typewritten; quicker reference may be made; and, best of all, strict alphabetical order may be preserved. Of course, the vowel index may be used with the card system if desirable.

The teacher should make it clear that the thing of prime importance is saving the time not of those who prepare the index, but of those who use it (and there are many uses), and he should not give the impression that the card index is always the best. For permanent indexes, such as those showing the contents of books, or having few names infrequently altered, and for indexes of catalogues (the index being suspended from the shelf containing the catalogues), the book index is preferable.

A cloth-covered box will serve the purpose of illustration. The advantages and disadvantages of the rod holding the cards; the utility of the sliding box; the advantage of slit cards, allowing the extraction of a card by a twist of the rod, instead of, as with the other variety, requiring the rod to be pulled out; and the important points respecting guide cards, tabs, colours, metal indicators, and cross-references, will require thorough treatment.

The many purposes to which the card index may be put should receive careful attention: in particular, the supplanting of the Address Book; the indicating in a thoroughly efficient scheme of filing of the numbers of the folders in which individual correspondence may be found; the recording of particulars of credit; etc.

The Filing of Correspondence. The important function of pointing to correspondence involves the explanation of several methods of filing applicable to businesses of different sizes, and the discussion of arrangements for special names. Correspondence may be preserved for reference by being filed in date order and afterwards bound with an index; placed in pigeon-holes after being folded and arranged alphabetically in bundles; filed under daily dates after an Inward Letter Register has been entered up; filed alphabetically or numerically in flat or vertical files. In pigeon-holing and alphabetical filing, the documents themselves are arranged more or less according to the principles of indexing. The necessity for docketing, because of the folding of letters, should be explained and illustrated in connection with pigeon-holing. From the simple arrangement of putting all documents from firms whose names begin with the same letter in a division of a "concertina" box, or flat file, with copies of replies thereto preserved and indexed in Outward Letter Books, to the allocating of separate folders for each correspondent (after the passing of more than two or three communications, filed conveniently in a "Sundries" file), in which folders are put the copies of replies to, as well as the original letters received from, correspondents, the teacher will have scope for interesting lessons. But he should take care lest confusion becomes "worse confounded." About three good actual examples of differing methods should suffice, the best and most efficient for the majority of large firms—the numerical—being the last. The contrast with alphabetic filing will require careful handling, or the students will fail to see why the direct reference may not be so good as the reference to folders via the card index.

A summary of the chief instructions regarding arrangement and a few illustrations may prove useful. Dictionary order is well known—*baby, back, bad, bag, bait, bake.* Directory compilers have definite ideas of their own, but no complete agreement among themselves. The presence of names of firms and companies, and of individuals with initials or forenames, and of many identical names,

causes a deviation from strict dictionary order in directories.

Classification is decided by—

1. Initial of surname.
2. Initial of first surname, as in Marsden & Foster (M).
3. Initial of important word in the permanent name rather than the initial of the surname of an individual (this is generally the first word of a full name except *The*).
4. Initial of *last* part of compound names—Baden-Powell (P).
5. Firm name (including names of Companies, Societies, Institutes, etc.) should be together, preceding those of individuals.
6. Names should follow the general alphabetical order, omitting consideration of *&* and *The*.
7. Names having initials *instead of* forenames should precede names having forenames with the same initials.

ILLUSTRATION OF RULES 1-4—

Haworth Ashworth	A
Haworth & Ashworth	H
John MacDonald c/o James Graham & MacDonald	G
Manager, The Frigid Meat Company, Limited	F
Sir Henry Maden, J.P.	M
Goods Manager, The London & North-Western Railway Co.	L
The Rev. Bertram Lewis, B.D.	L
The Right Honourable D. Lloyd George, M.P.	G
Sir John Bothwell-Maye	M
The President of the Board of Trade	T
The Secretary of State for the Colonies	C
Dr. Barnardo's Homes	B

FOREIGN NAMES—

T. von Bethmann-Hollweg	H
S. von der Pfordten	P
F. d'Amely	A
A. van Lennep	L
Mme. San Carolo	C
Lord De La Warr	W

ILLUSTRATIONS OF RULES 5-7—

Smith, A., & Sons
Smith, Albert, & Sons
Smith, Arthur, & Co.
Smith, B., & Co.
Smith & Brother
Smith & Brothers
Smith Brothers
Smith & Brown
Smith, C. A., & Co.
Smith, Charles, & Co.
Smith, E., & Co., Ltd.
Smith, E. A., & Co., Ltd.
Smith, Ernest & Frank
Smith & Jonas
Smith & Jones
Smith & Son
Smith & Sons
Smith & Sons, Ltd.
Smith, W., & Co.
Smith, W., & Cook.
Smith, William, & Co.
Smith, W.
Smith, Walter
Smiths, Ltd.

Jackson, A.
Jackson, A. B.
Jackson, A. S.
Jackson, Albert
Jackson, Arnold
Jackson, B.
Jackson, B. W.
Jackson, Ben.
Jackson, Benjamin
Jackson, Benjamin James
Jackson, C.
Jackson, C. A.
Jackson, Charles
Jackson, Chas.
Jackson, James
Jackson, John (Aberdeen)
Jackson, John (Bolton)
Jackson, John (Manchester)

The last two lists might be combined with the same surname, but the points of importance will probably be better apprehended from the two lists —at least, at first. V. E. C.

INDIA, EDUCATION OF BOYS AND MEN IN.—The Indian child begins its education at about the age of 6 in the primary school. Instruction is given entirely in the vernacular, and the aim is to give an education, complete so far as it goes, and adequate to the requirements of the pupils in life. They are taught to sum, and to read and write their vernacular. Beginning with the geography of their own village and district, they go on, if they complete the course, to the geography of the province, of India, and of the world. They learn, in outline, the history of their country. The vernacular readers contain lessons on various matters, and include simple moral lessons. With a view to awakening the faculties of observation and reflection, the lessons are supplemented by object lessons; and in the lower, or infant, classes the kindergarten method is extensively used. Singing in chorus is taught. In the better equipped schools, simple manual training is given; and elementary lessons in gardening and agriculture are given on a plot of ground attached to the school. Drill, or some form of gymnastic exercises, forms part of the curriculum. Attendance at school is not compulsory; and in the poorer rural districts it is difficult to induce parents to keep their children long at school. In a country of peasant proprietors, the labour of boys on the land becomes of value at a very early age. To meet this difficulty, there are simpler standards, known as rural standards, prescribed in poor districts, which do not go much beyond the "three R's." At the end of the vernacular course, an examination is held *in situ* by the inspecting officers, and the candidates who pass are qualified for the lower grades of the public service.

The schools are held either in a substantial schoolhouse built by the Government Public Works Department, if the district can afford it; or in a hired house, which is generally very inconvenient; or in the verandah of a temple; or in the village *dharamashala*; or even in the open air. In the country districts the schools are maintained by the local boards, with the aid of grants from Government: but they are generally administered by the Government inspectors. There is an inspector for each division, and each district has a staff of deputy and assistant-deputy inspectors, some of whom must be Mohammedans when there are Mohammedan pupils. In the towns, the schools are maintained by municipalities, who also receive grants from

the Government. Municipalities manage their own schools with the advice and assistance of the inspecting staff.

Boys belonging to the depressed classes are in an unfortunate position. They are not admitted into the classroom with boys of higher caste, but must sit outside on the verandah. In some places the Government maintain special schools for them, as also for boys belonging to criminal tribes. Many of them are taught by the different missionary bodies, who receive financial aid from Government. Many of these missionary schools are very good indeed, and many of them train the boys to trades and handicrafts by which they can afterwards gain a living. There are also scattered up and down the country private schools, which may be either recognized or unrecognized. Recognized schools must satisfy the requirements of Government in the matter of housing, curriculum, staff, management, etc. They have the privilege of sending up candidates for the vernacular final examination —a privilege which is denied to unrecognized schools.

The teachers in primary schools are prepared for their work in Government training colleges, of which there is one for each division. The Principal is always an Indian, and is generally chosen from the subordinate inspecting staff. These are well-equipped institutions, but they cannot turn out all the masters that are required. Many teachers have not done more than pass the vernacular final examination, and in many cases, unfortunately, it is found necessary to employ men who have no qualifications at all.

According to the latest report issued by the Government of India, there were four and a quarter million boys receiving education in primary schools; and of a total direct expenditure of Rs. 17,962,453, Rs. 11,791,788 were contributed by Government and boards, the balance being derived from fees and private funds. In addition to this, Rs. 119,902 was given in scholarships by Government and boards. (Rs. 15 = £1.)

Anglo-Vernacular Schools. When he has passed a certain standard in the vernacular or primary curriculum, a pupil is allowed to pass over to a middle or Anglo-vernacular school. This may be an independent institution with a building of its own, or it may be attached as a higher department to a primary school, or as a lower department to a high school. As the name implies, this stage is intermediate between the primary and the high school course, and its distinguishing characteristic is that in it the pupils begin to study English through the medium of their vernacular.

Secondary Schools. The policy of the Government with regard to secondary education has long been to subsidize voluntary efforts. It is true that the Government maintain certain high schools of their own, which are intended to serve as models; and a few of them have English head masters. They are generally situated in the chief town of a district. But the majority of pupils are educated in private-aided schools. Some of them belong to missionary bodies, others to societies and committees, others to private individuals. Before receiving aid, they must satisfy the Government as to the adequacy of their buildings, their staff, their curriculum, and their rate of fees (which is nearly always lower than that charged in Government schools). In addition to the ordinary grant which they receive, grants are also made to them in aid of buildings. All aided secondary schools are subject to inspection by officers of the Educational Department. The Government publish from time to time lists of books sanctioned for use in secondary schools, and masters may not go beyond this list without special permission. Formerly, pupils who had neither relations nor friends in the town in which their school was situated, lived in lodgings of their own choosing. These were often insanitary, the boys were ill-fed, and were subject to no discipline out of school hours. Of late years, large sums have been spent on providing high schools with good playgrounds and with hostels, in which the pupils are boarded and lodged, and are subject to the control of a resident master. The ordinary curriculum embraces English, a second language chosen by the pupil from a sanctioned list of classical languages, history and geography, mathematics, and elementary science. The study of drawing is encouraged and is supervised by the Provincial School of Art. The curriculum of a high school is, in effect, determined by the requirements of the Local University Matriculation Examination, though many of the pupils will never enter the university. To obviate this anomaly, the Government have sanctioned an alternative curriculum with a more practical aim. At the end of it is a school final examination, open to pupils from all aided or recognized schools, success in which qualifies for employment in the public service. The Government do what they can to encourage boys to take this course by refusing to recognize a matriculation *testamur* as a qualification for employment. In theory, the distinction between the two courses should correspond to the distinction between the classical and the modern side in an English school. But, in practice, the distinction is not very well maintained. The staff of a school is seldom sufficient to allow of two really distinct courses being taught; and the advantages of a university degree are so great that every boy cherishes the hope that some day and somehow he will be able to enter a college. The head masters and most of the assistant masters in high schools are graduates. Secondary training colleges for masters have recently been opened. According to the latest report issued by the Government of India, the number of scholars in secondary schools was 900,000; and the total direct expenditure on secondary schools was Rs. 16,631,536, in addition to which 4 lakhs was given from public funds in the form of scholarships. One of the most striking circumstances in the India of to-day is the increasing demand for English education. English is the only language in which people speaking different vernaculars can make themselves intelligible to one another. A knowledge of English is required by the universities, it is essential to advanced students, and to the many who contemplate a visit to Europe; it is indispensable to those who are ambitious of political or social distinction; it is becoming more and more useful with the rapid expansion of trade, industry, and commerce; and the use of it is extending in all Government and public offices.

Universities. The final stage is from the high school to the university, through the matriculation examination. In recent years the tendency has been, especially in the arts course, to specialize and narrow the range of subjects; and there is a danger of this tendency being carried too far. It is true that an attempt to embrace too many varied subjects may lead to superficiality in all of them. But

it is equally true that, the narrower the range of subjects, the more the pupil can rely upon his memory alone. Besides, there are subjects which ought to form part of a course in arts, and under the present system many of these are excluded or may be avoided. Four years' attendance at a college is required of candidates for the B.A. degree, for which there are generally two examinations—the intermediate and the final. For the first of these, a knowledge of English and of a classical or vernacular language is required; and to these two subjects are generally added a voluntary subject selected by the candidate from an approved list, and perhaps elementary logic, or mathematics, or science. For the final examination, English language and literature, a classical language, and a voluntary subject are generally prescribed. Candidates for the M.A. degree generally specialize in one subject—language and literature, mathematics, philosophy, etc. There are special colleges for candidates for the degree of LL.B., who must be graduates in Arts. So, also, there are special colleges of medicine, science, engineering, agriculture, and commerce. Immense sums have of recent years been expended on the different scientific colleges, on the enlargement and improvement of their staffs, the provision and proper equipment of workshops and laboratories, and the endowment of research. Such expenditure is required in the interests of Indian industries; and, besides, it is felt that it ought to be possible for Indians to obtain an adequate scientific and technical training in their own country. It ought not to be necessary to put them to the expense or expose them to the dangers and temptations of residence in Europe.

Many of the colleges affiliated to a university are remote from the university town, and for a long time the function of the university was confined to regulating terms and courses, and to conducting examinations for degrees. One great drawback to this system was that every college, to be efficient, required the equipment of a complete university, and this it was impossible to give. The staff in any one college is barely sufficient to give the instruction required by candidates for the different examinations. Even in large cities where there are two or more colleges, it is difficult to establish a system of inter-collegiate lectures on account of the climate, the long distances, and the difficulty of moving quickly from one college to another. Until quite recently, there were no good university libraries open to students, nor were there any common university laboratories. The only resource of a student, who could not get the instruction that he wanted in his own college, was to migrate to another. This was generally inconvenient, and led to a weakening of the affectionate devotion to his college which characterizes the Indian student who has passed his whole career in one college. During the last few years an attempt has been made to establish a closer connection between the universities and the colleges. The universities hold periodical inspections of the colleges, and decide in what subjects and for what degrees a college shall be licensed to teach. University professors are appointed, whose special function it is to lecture to those reading for the higher degrees. An attempt has also been made to engage readers from Europe for short periods to guide students in the paths of research. Libraries have been improved and facilities afforded for their use. But, after all, such provisions are of comparatively little use to students in up-country colleges, who are reading for the first degree. And so far it has proved impossible to find the teachers for whom salaries have been provided. A man of established reputation is not likely to be able or willing to leave his home for two or three years; and the object of the university would not be secured by the appointment of anyone who still had his reputation to make. Indeed, it is becoming increasingly difficult to find Honours men from England for the ordinary staff of an affiliated college. The number of men required is continually increasing, while at the same time there are every year new openings for young men in the younger universities in England. Moreover, it appears certain that young Englishmen are less willing than they used to be to enter on an Indian career. In missionary colleges the staff consists mostly of Europeans. In a college managed by Indians there may be no European at all. In Government colleges the staff is mixed. The Chairs of English, History, Political Economy, and Philosophy are generally reserved for Englishmen. Students do not necessarily reside in the colleges to which they belong. It is sufficient that they keep terms by attendance at lectures. But residence is encouraged, and all colleges now have hostels attached to them, or rooms forming part of their buildings, as at Oxford and Cambridge. At Aligarh there is a Mohammedan College, and a Hindu University has just been sanctioned at Benares. The last Viceroy, on leaving India, declared that, so far as university education is concerned, the number of students in arts and professional colleges during the past quinquennium has increased from under 30,000 to over 50,000, and the expenditure from 60¼ lakhs to over 91 lakhs. (A lakh is 100,000 Rs.)

Technical and Professional Education. Outside the universities there are schools of forestry and veterinary colleges, and the country is covered with a network of trade-and-craft schools of different grades. Their character and the form of training given in them are largely determined by local needs and industries. At the top of the scale may be placed the Indian Institute at Bangalore, founded especially for scientific research in aid of Indian industries. Of quite a different type is the Victoria Jubilee Technical Institute in Bombay, which is specially concerned with the mill industry; but has also special classes, as, for instance, for the training of motor-car drivers. Then there are schools of art which teach drawing and painting and modelling, métal, wood, and leather work. Sometimes a school of pottery is attached. They also train instructors in all these subjects.

There was a time within the memory of the writer when literary education was regarded by the authorities with dislike or fear or contempt. It is now recognized as one of the most important political and social factors with which a State can have to deal. The Government now endow it liberally, and have every desire to guide, direct, and support it. Degrees in pure science are granted by the universities, and students in arts may select some branch of science as their *voluntary subject*. At the same time, liberal provision is made for the endowment of every form of scientific, professional, and technical instruction. Nor is there any subject which interests the people of the country more than that of education, or any department of Government policy which is watched with a more constant and jealous criticism. The Indian educational system is sometimes charged with turning out men

who are vague, superficial, and unpractical. But it must be remembered that in no country are the majority of those who pass through a university great scholars or accurate thinkers. It must be remembered, further, that an Indian labours under special disadvantages. He has to study through the medium of a foreign language, and he has not the same opportunities of acquiring information that a resident in Europe has. But, above all, we cannot isolate education and judge it apart from the general condition of the society in which it exists. "Studies," says Bacon, "are perfected by experience"; and a French critic has wisely remarked that for an appreciation of Cicero's letters: "il faut avoir plus d'habitude de la vie qu'on n'en prend d'ordinaire dans une université d'Allemagne." It is this *habitude de la vie* which the Indian, as a rule, wants. The more he is brought into contact with men and affairs, the wider the scope of his political and social opportunities, the better does his education appear to be. A system of public instruction must not be condemned for defects which can only be remedied by experience of the world. F. G. S.

INDIA, TEACHERS IN.—A bare outline of the qualifications and the conditions of service of teachers in India, necessarily couched in general terms, cannot indicate adequately how the educational system is adjusted to the varying conditions of society in different parts of that Empire. Racial, political, social, and religious differences involve differences in the *personnel* as well as in the aims of the educational service. For our present purpose it must be taken as sufficient to differentiate between European and Asiatic races, between European and Indian teachers. Eurasians rank for some purposes as Europeans, for others as Indians.

European Teachers. The financial, if not the professional, status of European teachers varies considerably. If a teacher is a member of the Indian Educational Service, he is a civil servant. To attain this status, he must usually be a graduate, have been trained as a teacher, and have served satisfactorily for two years. Appointments are made by the Secretary of State for India. The salary commences at 500 rupees a month, and rises by annual increments of Rs. 50 a month to Rs. 1,000 a month, with a possible increase to Rs. 1,100 a month.

The work of a member of the Indian Educational Service is either professional or administrative, the posts being those of head master, professor, principal, or inspector. There is a possibility of promotion to the rank of "director" with a maximum of Rs. 2,500 a month. A pension may be earned, the full pension—after thirty years' service—not exceeding £437 10s. per annum.

European teachers not in the Indian Educational Service may be engaged by local governments (including the rulers of Native States) to discharge duties similar to those of their *confrères* in the service; or they may be missionaries acting as teachers. The former group comes into direct contact with Indian pupils to a degree intermediate between the official relationship of the civil servant and the intimacy which the missionary enjoys. The salaries are in a similar order, those of missionary teachers usually being very low.

Native Teachers. Indians constitute a large proportion of the teachers appointed by local governments. There are two main bodies: the provincial service and the subordinate service. In the provincial service, Indians are on the same footing as Europeans; salaries range from Rs. 200 or Rs. 300 a month to about Rs. 700, though rare cases of a maximum of Rs. 1,000 a month exist. A pension not exceeding Rs. 350 a month may be earned by thirty years' service.

General Conditions. For both services, most teachers are recruited in India; but, if recruited from Britain, are engaged by representatives of the local governments, not by the Secretary of State. Generally speaking, the teachers in the provincial and subordinate services are both recruited and trained in India. The training of teachers is making steady progress in India, both for secondary and for vernacular schools. European teachers, who teach in vernacular schools as a part of their missionary duties, are not professionally graded according to qualifications, except in so far as a scale of salaries implies professional grading.

Salaries in the subordinate service are low, but apparently sufficient. Pupil-teachers receive Rs. 3 a month. Six pupil-teachers constitute an "apprentice class" in a selected school, on the staff of which there must be one special instructor who has been trained in a normal school. This instructor receives a minimum salary of Rs. 12 a month. It is hoped to raise the average salary of vernacular instructors to Rs. 30 a month. These figures indicate the salary of an Indian teacher in a vernacular school.

There appear to be four grades of vernacular teacher in India—the pupil-teacher, the teacher-in-training, the trained teacher, and the untrained teacher. The qualifications of a teacher in a given grade must vary considerably, but any in excess of the minimum appear to bring no improvement in the official status. It is not surprising that many trained *gurus* (vernacular teachers) seek other employment than teaching.

A. C. C.

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INDIAN BASKET-WORK.—(See BASKET-WORK, THE TEACHING OF.)

INDIAN CIVIL SERVICE, APPOINTMENTS IN THE.—(See PUBLIC SERVICES, EDUCATION FOR THE HIGHER.)

INDIAN STUDENTS IN ENGLAND, THE EDUCATION OF.—Until India passed under the direct control of the Crown, few students came to Europe for education; they were chiefly medical students; and at the first open examination for the Indian Medical Service in 1855, an Indian headed the list. With the East India Company passed away also its system of patronage, and appointments in the Indian Civil Service were made after an open competitive examination; but it was not until 1863 that any Indian candidate was successful. Three years later, the first Indian was called to the Bar. In the '60's, a voyage to England was still, for the Indian student, an adventurous undertaking; the Hindu outraged the sentiments of his community and ran the risk of being outcasted; while the Mohammedans, on the other hand, had still too little sympathy with Western education to make sacrifices for the sake of it. So it was not until 1865 that the first Indian matriculated in the University of Cambridge, and none entered the University of Oxford until 1871. In 1867 there were

only 25 Indian students in this country, and even after this beginning their number increased slowly. The Secretary of the National Indian Association, who was in touch with most of those who came, published a list of 160 in 1885, of 207 in 1890, and of 323 in 1894. But from this period the increase in numbers was rapid. The majority studied at the Inns of Court, being attracted thither by the prospect of the privileges that a barrister-at-law enjoys in India. A much smaller number of Indian students joined the Universities of Oxford and Cambridge; and, to encourage them to do so, the Government of India, in 1886, instituted scholarships of the value of £200 a year (for three years), to be awarded to candidates selected by the Indian Universities in rotation. The University of Edinburgh attracted the students of more limited means (the first Indian name in the list of graduates occurs under the year 1876) and, as their number increased, granted them special concessions to facilitate their passing the preliminary examination. For the study of agriculture—of supreme importance in a country like India—a few Indians went to the Royal Agricultural College, Cirencester, whose diploma was first awarded to an Indian student in 1880. The importance of technical training was recognized last of all; and it was not until 1904 that the Government of India began to award Technical Scholarships. Scholarships are now awarded for study in this country by several of the Native States in India (*e.g.* Hyderabad, Mysore, Patiala, Travancore, etc.); by some of the Indian Universities; by bodies of trustees such as the Tata Trustees and the Wadia Trustees; and societies such as the Association for the Advancement of Scientific and Industrial Education of Indians, the South Indian Industrial Association, the Indian Officers' Association, etc.

The number of Indian students in this country in 1912 was believed to be about 1700, a total that has probably not been exceeded since. Most of these were studying law in London. Nearly 200 were members of the University of Edinburgh, over 100 were at Cambridge, 74 at Glasgow, and 62 at Oxford; while smaller groups were distributed over the Universities of Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle, Reading, and Sheffield. As the regulations of the Inns of Court in London have recently become more stringent, an increasing number of law students have joined King's Inns, Dublin. Law is still the favourite study, and a few qualify as solicitors or chartered accountants; but, as from the outset, there is a certain number of medical students, and many are trained as civil, electrical, or mechanical engineers. Agriculture and forestry attract an increasing number of students, who either join one of the agricultural colleges or take a degree or diploma in a University (*e.g.* Cambridge, Edinburgh, Newcastle, etc.). Among other subjects studied by Indian students are tanning, dyeing, weaving, milling, pottery, printing, photography, etc. A few have undergone training as architects, painters, or sculptors.

Associations and Societies. As the number of Indian students arriving in this country increased, arrangements were made by persons interested in their welfare for their assistance and guidance. The National Indian Association (founded in 1870), whose objects are mainly educational and social, in 1885 began to undertake the guardianship of younger students, but few parents availed themselves of this opportunity. The Northbrook Society, which developed out of a sub-committee of the National Indian Association, and was incorporated in 1884, formed a club with the object of facilitating social intercourse between Englishmen and Indians, and also undertook to render assistance to Indian students on their arrival in England. The Indian Students' Committee, established on a distinctively Christian basis in 1903, was formed to help Indian students with advice and to show them hospitality. In Edinburgh the Indian students themselves formed an Association, in 1883, for the assistance and guidance of newcomers. No official agency for the assistance of Indian students was established until 1909, when an advisory committee, composed chiefly of Indian gentlemen permanently residing in this country, was nominated by the Secretary of State for India; and an Educational Adviser was appointed, whose functions were to provide information on educational matters to Indian parents and students; to undertake the guardianship of students on the expressed request of parents in India; to assist students with advice on social, financial, or educational matters, etc. Advisory Committees acting in co-operation with the London Bureau were established in each of the provinces of India to provide preliminary information to the students intending to go to England. Local advisers were appointed at Oxford and Cambridge, which in 1916 established independent organizations of their own for the benefit of Indian students; and at Edinburgh, Glasgow, and Manchester, as well as London. There is also a special Adviser for engineering students. For the benefit of Burmese students (the number of whom is about 100), a separate organization has been established by the Burma Society.

T. W. A.

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INDIAN UNIVERSITIES.—During the last few years, the question of university organization and expansion in India has evoked keen interest. There has been a movement in favour both of the creation of new universities of a new type (as at Dacca, Aligarh, and Benares), and of breaking up the excessively large areas over which the jurisdiction of some of the existing universities extends (as in the proposals for the establishment of universities at Patna, Rangoon, and Nagpur). Probably a great change will soon come over the position and character of university education in India.

Historical Sketch. At the beginning of the present century, five universities existed in India: Calcutta, Madras, and Bombay, which date from 1857; the Punjab, and Allahabad. All five owe their constitution and powers to Acts of the legislature. " Before the days of British rule, the higher education of the Hindu community," to quote the words of Lord Curzon's Committee (see *infra*), " was in the hands of Pandits, who imparted a knowledge of Sanskrit grammar, logic, philosophy, and law. In Bengal, the students lived in the houses of their teachers, and were taught and boarded free of expense. Mohammedan learning was cultivated in schools of similar character. It is part of the tradition of Indian scholarship that

places of study are also places of residence, and that the teacher should exercise a paternal authority over his pupils." This tradition has not been without its effect on higher education in India, even when university legislation has appeared to disregard it.

Long before 1857, a movement had been going on for providing higher education and spreading Western knowledge. Colleges grew up of differing types, some directly under Government control, some the result of missionary effort. They varied in character and efficiency, but there is no doubt that in many of them valuable work has been done. Many an earnest and efficient Principal, aided by a competent staff partly Indian and partly English, has exercised really powerful influence, not only by imparting knowledge, but also by training character. Hostels are attached to many of the colleges; some have excellent playing-fields for cricket and football. In spite of difficulties due to their isolated positions as well as to diversity of religion, race, and social position, there does exist in not a few colleges something of corporate life. The earliest was founded in Calcutta as far back as 1782. The Government colleges in Poona and Bombay date from 1821 and 1827. The mission colleges have been the work of the Church of England, of Presbyterians, and of Roman Catholics; and, in recent years, Indian associations have taken up the work with enthusiasm. Assistance has been given by the Government both in the shape of annual grants and of "non-recurring" grants for special purposes. Donations have also been made from time to time by private persons.

The earlier colleges devoted themselves to instruction in "Arts" subjects—a general education with an English basis. Special colleges for engineering and agriculture, and schools of medicine, law, and commerce have since been established.

The Granting of Degrees. The growth of such institutions for providing higher education led to a demand, which took definite shape in Bengal about 1845, for the establishment of universities having the power of granting degrees. The general idea was that the proposed universities were "not so much to be in themselves places of instruction as to test the value of the education obtained elsewhere." Their principal functions were to be holding examinations and conferring degrees. The University of London, as it then existed, an examining board with affiliated institutions, was the model. On this model, universities were, in 1857, established by Acts of the legislature for each of the three Presidencies: Bengal, Bombay, and Madras. The Governor-General of India, and the Governors of Bombay and Madras, were the respective chancellors. The Punjab University was incorporated in 1882, and one at Allahabad in 1887. At the beginning of the present century the number of affiliated institutions had largely increased. Calcutta had 46 institutions of the first grade and 32 of the second grade; Madras had 15 first grade and 39 second grade; Bombay, adopting a more cautious (and probably wiser) policy as regards affiliation, had 10 first grade colleges and only 1 second grade. These figures, however, include only the colleges recognized as giving instruction for degrees in arts. There are also schools of medicine, law, engineering, agriculture, and commerce, providing regular courses of study and affiliated to the university. The system thus established gave rise to much criticism, in many respects only too well founded, both as regards the constitution of the universities and the nature of their work and influence. Ultimately, under the viceroyalty of Lord Curzon, the Government appointed a committee "to inquire into the condition and prospects of the universities established in British India, and to recommend to the Governor-General in Council such measures as may tend to elevate the standard of university teaching and to promote the advancement of learning." In 1902 the committee issued an elaborate report on the whole subject, proposing a number of reforms; and in 1904 the Indian Universities Act was passed, making important changes—the subject of much bitter controversy at the time, but now generally admitted to have produced beneficial results. The committee, however, while recognizing the need for improvement, stated expressly that they were not disposed to confirm the sweeping condemnation sometimes passed on the university system. "Many of the colleges command the services of able and devoted teachers, and we do not consider the students as a class to be wanting either in natural talent or in industry." In this opinion, those who know the Indian universities best will heartily concur. At the same time, it must be admitted that the exaggerated importance attached to examinations and the granting of degrees, which has often had, and still has, an evil influence on university education in England, has had still worse effects in India. This fact has been clearly recognized in India. Mr. Justice Heaton, speaking as Vice-Chancellor of the University of Bombay, summed up the position: "To our students we, as a corporate body, are little more than a forbidding sentinel at the gates of academic success; to the public, little more than a machine for stamping or rejecting educational tokens."

Possible Future Developments. A vigorous movement has been going on during the last few years in the Indian universities themselves for providing more advanced teaching, and for promoting research. At present this movement is only in its infancy, but an enormous field is open in India for investigation in medical science (especially in preventive medicine), in agriculture, and in the history, archaeology, and ethnography of India; and also in its languages, literature, philosophy, and religions. There is every reason to believe that the Indian universities will no longer be mere examining boards, and will, in spite of much delay and many mistakes, approach more nearly to a true university ideal. It does not follow that the system of affiliating colleges, if of proper standard, may not be retained with advantage. Many of these colleges have undoubtedly done very valuable work. The close personal relation between teacher and student is as important in India as in the West; and in some of the colleges this personal relationship has been well maintained. The students, however, have come ill-prepared; the classes have been far too large; and the object constantly before teachers and students has been the passing of examinations. As stated in the "Resolution" issued by the Governor-General in 1904: "In recent years, examinations have grown to extravagant dimensions, and their influence has been allowed to dominate the whole system of education in India, with the result that instruction is confined within the rigid limits of prescribed courses, that all forms of training which do not admit of being tested by written examinations are liable to be neglected, and that both teachers and

pupils are tempted to concentrate their energies not so much upon genuine study as on the questions likely to be set by the examiners." One of the interlocutors in the interesting *Confessions of a Graduate*, by Professor Oza, says: " The attainment of a degree is all the intellectual ambition of young India, and this chiefly for its mercantile value; our students have a wonderful acquisitive power of a very superficial kind, and are utterly wanting in the constructive applications of their acquirements." It is truly replied that this remark is " too sweeping," but it is a forcible statement of a real defect.

Excessive numbers of ill-prepared students flocked to the universities in the hope of obtaining degrees which would lead to some Government employment or to the legal profession, which is overcrowded. The standard of the matriculation examinations was far too low. What India needs is not a crowd of half-educated graduates who have managed, after years of effort, to pass certain examinations, and may become fairly fluent talkers and writers, but a limited number of scholars of real learning, capable of higher study and research, and a due supply of men well trained for taking the lead in practical work, in promoting the development of industry and commerce, and, above all, of agriculture. The realization by the Government, and by the universities themselves, of existing deficiencies and past mistakes is the first step towards progress; but there is some risk of too sudden a reaction, of insufficient recognition of what has been done by existing institutions, of attempting revolution rather than fostering development on sound lines. In educational, as in all other reforms affecting India, there is a danger in pressing the adoption of the newest Western theories and ideas without first learning and understanding the special conditions existing in India, and the modes of thought and capacities of the people, among whom there are so many differences of race, of language, of religion, and of character.

A. HOPKINSON.

INDIAN VERNACULARS, THE TEACHING OF. —(See ORIENTAL EDUCATION IN GREAT BRITAIN.)

INDIANS, THE APOSTLE OF.—(See ELIOT, JOHN.)

INDIGENT BLIND, THE ROYAL SCHOOL FOR THE.—It was not until the close of the eighteenth century that attempts were made in England to teach the blind to do anything towards earning their own living. In the last ten years of that century, four institutions were established for training the blind in an industry: in Liverpool, Bristol, Edinburgh, and London.

The Institution in London, known as " St. George's School," was established in the parish of St. George, Southwark; and, after incorporation by royal charter in 1826, a new building was erected in St. George's Road and opened in 1834. Here the school remained with very few alterations in the Institution till 1902. The School and site were purchased by the Bakerloo Railway Company, and a new building was erected for the Institution at Leatherhead, in Surrey.

In 1911, King George V signified his approval of the work done by granting the title " Royal " to the name of the School, and became a patron.

The building consists of two departments, male and female. Each has a quadrangle of about 90 ft square, surrounded by cloisters, which are used for exercise in bad weather. Schoolrooms, workshops, and dining-rooms open into the cloisters. In the centre of the block are the central hall, gymnasium, common rooms, and the administration departments. The chapel is on the side of the main building, and the Institution is so planned that almost all parts communicate with one another under cover.

The industries taught are as follows: Basket-making, chair-caning, mat- and rug-making, brush-making, and pianoforte-tuning among the men; needlework, hand-knitting, chair-caning, brush-making, sewing by machine, sash-line making, Japanese curtain work, machine-knitting, and pianoforte-tuning among the women.

The growth of the Institution has been from about half-a-dozen blind pupils a hundred years ago to accommodation for 250 pupils at Leatherhead, with ample opportunities for extension.

Pupils are admitted on the results of two elections annually, in January and July. Subscribers of one guinea annually, donors of ten guineas for a life subscription, and honorary members are entitled to vote at the elections. The candidates for admission must be so blind as to be incapable of being educated by ordinary means at an elementary school, between 12 and 26 years of age, in good health, not mentally or physically deficient other than by blindness, able to wash and dress without assistance, and not subject to chronic diseases.

On leaving the School, every pupil who has gained a certain standard of proficiency in any of the trade training shops receives a certificate signed by the chairman, the principal, and the instructor. These certificates distinguish the competent workers, and help to ensure future work and employment for the holders.

In connection with the School, and for the benefit of its old pupils, a factory was established in Waterloo Road, London, S.E., in 1904.

INDIRECT VISION.—This is the perception of external things while the vision is directed to something else. Direct vision concentrates the organ of sight on one central object which occupies the most important place on the retina, but indirect vision takes place on surrounding portions of the retina. The power of discrimination decreases outside the fovea, and sensitiveness to colour changes from the centre of the retina outwards, so that perception of space is less in indirect vision, and lights appear brighter. To some colours, however, the retina is blind.

INDIVIDUAL JUDGMENT AND ITS EXERCISE. —In simplest phase, judgment rests on abstraction (or the formation of concepts as distinct from the sense-perception of things) and passes forward to reasoning. Necessarily; for, in essence, judgment is a comparison of concepts, and reasoning a comparison of judgments. This is thinking, and is helped infinitely by language. Judgment finds a relationship and expresses it: something is or is not something else—subject and predicate, with copula. Its exercise in the individual implies independence and initiative of willing, calmness of feeling, accuracy and range of knowing; indifference to authority and the multitude, and the dispassionate attitude of the " impartial spectator."

A. E. L.

INDIVIDUALISM.—In its widest sense, "individualism" means any view which attaches greater importance to individual units than to the whole which they constitute. The term is used occasionally in metaphysics and in moral philosophy, and very frequently in economic and political discussions.

(*a*) In *metaphysics*, "individualism" is sometimes used for the view (more commonly called "pluralism") that the world consists of an aggregate of self-determined units (atoms or monads, etc.), the relations between which are more or less external. Ancient atomism, mediaeval nominalism, and modern monadism are typical forms of metaphysical individualism. Opposed to it are various forms of monism (including pantheism), according to which individual or particular things are relatively unreal or transient phenomena of the one universal reality—substance or God, etc.

(*b*) In *ethics*, "individualism" stands sometimes for a certain atomic view of human relations, according to which social life is of no fundamental importance in the life of man. The ethics of the Epicureans might serve as an example. Occasionally the term is also employed to designate an extreme form of egoism which treats selfishness as the proper motive of conduct, and regards the so-called social obligations as a mere hindrance to individual freedom. Some of the ancient Sophists and a negligible handful of their modern kinsmen are the only representatives of this view.

(*c*) In *economics* and in *politics*, "individualism" means the view that the individual citizen should be allowed as much freedom as is compatible with the security and welfare of the State and with the equal freedom of others. Economic and political individualism do not necessarily imply moral individualism (see preceding paragraph). State individualism is perfectly compatible with the most social moral ideal. True, it advocates free competition, and this tends to encourage selfishness. Nevertheless, it is a grave mistake to identify economic or political individualism with moral egoism. Historically, indeed, it was mainly an expression of the Humanism of the eighteenth century. Adam Smith, one of the apostles of individualism, certainly had in view the interests of society, especially of the poor, when he pleaded for the removal of industrial restrictions. His view was that the best way to secure the welfare of the whole State is to give each citizen as much freedom as possible to pursue his legitimate interests. "The natural effort of every individual to better his own condition, when suffered to exert itself with freedom and security, is so powerful a principle, that it is alone, and without any assistance, not only capable of carrying on the society to wealth and prosperity, but of surmounting a hundred impertinent obstructions with which the folly of human laws too often encumber its operations" (*Wealth of Nations*). Philanthropy was also a distinctive feature of the utilitarian movement, to which individualism owes so much. Bentham's ideal was "the greatest happiness of the greatest number." But, like Adam Smith, he believed that the free pursuit of the enlightened self-interest of the individual would, in the long run, be found most conducive to the best interests of the whole state. "Security and freedom are all that industry requires; and industry should say to Government only what Diogenes said to Alexander, 'Stand out of my sunshine'" (*Manual of Political Economy*). So long as legislation was dictated by the interests of a privileged minority, the cry of individualists was naturally, "Hands off"—*laisser-faire*. But the bare removal of such hindrances is not really enough. Bentham already recognized this sufficiently not to endorse the *laisser-faire* policy without qualification. He tried hard to devise positive aids to social improvement—"a mill to grind rogues honest (the so-called *Panopticon*), a reformatory for curing paupers, and a system of national education."

State Interference. With the progress of democracy and the growth of representative Government, the individualist's attitude towards State interference has become less hostile. It was natural enough to cry out against overmuch government when much government meant much jobbery; but the case was altered when government of the people was becoming more and more also government by and for the people. John Stuart Mill frankly confessed to Socialistic leanings. And the difference between State individualism and State Socialism may be described as one of degree rather than of kind. Socialism does not want the State to do everything, nor does individualism want the State to do nothing. The question between them is, *how much*, or how little, the State should do. According to individualism as expounded by Mill, the State should not interfere in anything that concerns only the life of the individual, and does not affect others except through the moral influence of example. But beyond this Mill finds it difficult to specify the bounds of State interference. He admits that "the functions of government embrace a much wider field than can easily be included within the ring-fence of any restricted definition, and it is hardly possible to find any ground of justification common to them all, except the comprehensive one of general expediency." The best safeguard he can suggest is that *laisser-faire* should be the general practice, and that the burden of making out a strong case should be on those who favour Government interference in any particular direction.

Functions of Government. That a strong case could be made out for State interference in various matters not directly pertaining to the obviously necessary functions of government, of this Mill had no doubt. He himself tried more than once to make out such a strong case. His plan for free, compulsory education is a notable case in point. Education, he argued, cannot be left safely to the care of the individual. "Those who most need to be wiser and better usually desire it least." Yet their ignorance is injurious, not only to themselves, but to the community at large. Hence the need for free, compulsory education. But, while insisting on this, Mill remains true to individualism, and utters a strong warning against complete Government control over national education. "To possess such a control, and actually exert it, is to be a despot. A Government which can mould the opinions and sentiments of the people from their youth upwards can do with them whatever it pleases."

It is noteworthy that Mill is much in favour of Governmental activity in obtaining and disseminating useful information (*e.g.* by means of blue-books). He would put no limits to such advisory or educative work, so long as people are left free to use it as they think fit. What he, and individualists generally, want to set limits to, is the *authoritative* interference of the Government by way of legal prescription. And the principal

reasons for individualist jealousy of excessive State-interference may be summarily stated as follows—

1. Excessive State interference may pamper and pauperize people, and undermine their sense of responsibility and self-reliance, which are among the most valuable of human qualities.

2. Even if the State machinery should work perfectly, there is the danger of official preference for the stereotyped or uniform official hostility towards all that makes for individuality. Yet individuality is one of the greatest human assets.

3. As a matter of fact, many individual and social needs are met more efficiently by private enterprise than by Government machinery.

4. The greater the powers, and the more extensive the functions of the Government are, the greater is the danger of bureaucratic tyranny. The tendency will be for all the more ambitious and adventurous spirits to become hangers-on of the Government. But the more powerful and able Civil Servants become, the less likely are they to be either servants or civil. The result may be general bondage to red tape.

The best thing for the State to do is to encourage self-reliance and a sense of personal responsibility. When people need help, they should be helped to help themselves, not to become permanently helpless. Initiative, enterprise, and individuality should be encouraged as much as possible. And outside Government offices, sufficient scope must be left for the legitimate ambitions of able and energetic people, so that the bureaucracy might be saved from tyranny and inefficiency by the wise criticism of those who are not State-officials. A. WOLF.

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INDIVIDUALITY.—This term implies a variation from the average or normal type, and is often used to designate the sum of the qualities which mark off one person as different from another. A better usage is to adopt the term " individual differences " or " variations " for these qualities, either separately or in the mere aggregate, and to reserve the term " individuality " for the organized personality which is reached by a process of development, in so far as the given person owns systematic tendencies to react to his environment in ways different from other persons. Individuality is, then, the capacity to make a specific contribution in a given situation. In general, this term implies approval: there is a marked tendency to use it only of desirable or laudable qualities; we speak of the originality of a burglar or murderer rather than of his individuality. The undesirable extreme of individuality is eccentricity.

Individual Variations. Differences between individuals may be common to classes of individuals. The characteristics, for example, which mark off a saint from a sinner may be common to all saints; so the psychologist investigates the mental outfit of a criminal or a philanthropist, an imbecile or a genius. But, as Münsterberg remarks, there are individual differences in a narrower sense; that is, " the differences in which we cannot recognize the traits of a large group such as sex or race, but in which the individual really differs from his neighbour " (*General and Applied Psychology*, p. 228). Such differences are those of character, intelligence, etc. Again, individual differences may be either qualitative (*e.g.* differences in types of mental imagery) or quantitative (as differences in sensory acuity or in capacity for sustained attention). Various classifications may be useful in different cases. Perhaps the classification most generally useful for educational theory is to group the differences as they belong to the affective, conative, or cognitive processes respectively. Of these, it is mainly the last, namely, differences in cognitive process, that have been exactly investigated. Sensory acuity, memory, general intelligence, etc., may be tested in a considerable variety of ways; but there is room for difference of opinion as to the degree in which education is thereby aided. From individual variations there arise two problems for the educator. The first is the question of subjects of instruction, the second is the question of methods. As to the first, it is evident that there are some subjects which everybody must learn, whether with or without an aptitude for them. The heaven-born genius, musician or poet, cannot be excused his multiplication table. Of course, the more scope for the individual bent, beyond this necessary limitation, the better; and the fact that aptitudes themselves are often owned by groups helps the practical problem. As to the second, individual differences do not, in practice, interfere to any considerable extent with class teaching, provided always the class be not too large and, above all, the teaching skilled and sympathetic.

Individuality Proper. Individual differences, as we have seen, are not yet individuality in its highest sense. Rather, they are part of the raw material on which the educator has to work. His problem is so to train a human being that peculiar endowments shall not be lost in the process, but be fostered and developed into a system of capacities and tendencies which, as a whole, possesses a specific nature of its own. So individuality, thus understood, is a goal and an ideal, not a starting-point.

Individuality, then, implies spontaneity, energy, and originality in thought and in action, and on it depends the onward drive of whatever progress there is. It may be said to be a mean between mere passive obedience to custom and the established order on the one hand, and eccentricity and the innovations of the pure crank on the other. There is, of course, no merit in mere diversity. The value of individuality lies in the fact that no human being touches experience at all points, and so special capacities and points of view are an enrichment of humanity.

Mill (*Essay on Liberty*, Chap. III) drew a somewhat gloomy picture of the attitude towards individuality in his own times: " Individual spontaneity is hardly recognized by the common modes of thinking as having any intrinsic worth. . . . We should think we had done wonders if we had made ourselves all alike." Nowadays there is little danger of forgetting its claims; perhaps there is more danger of its becoming a catch-word, ill-understood and carelessly applied. With every desire to give spontaneity, energy, and genius the fullest scope, it must be remembered that there are such things as concerted actions, in which spontaneity has no place, and that individuality does not mean doing

things differently from other people when other people do them in the best possible way.

There is a good deal said as to the danger of destroying individuality, and, in particular, its aspect of initiative, by systems like military training. The Prussian military system, for instance, is said to destroy initiative and individuality. Such a result is no doubt possible, but that it is not inevitable may be proved by a glance at the British Navy. And in some of the instances alleged it would be relevant to know how much individuality there was to destroy.

What, if anything, can be done to evoke and develop individuality? The question is a hard one, for it may be easier to hinder than to help. Positive instruction seems almost excluded by the nature of the case, but much is still possible—sympathetic encouragement and the provision of a free field of varied opportunities. And this should begin in the early years of life, for individuality is not a flower that can grow and blossom in a day. A marked individuality will out, not only without fostering care, but even in the face of direct opposition and hindrance. Yet it is a real loss to the world if the feebler forms be crushed or starved out. Hence the supreme importance of determining what is the special aptitude of each individual child.

A. ROBINSON.

INDIVIDUAL READING.—In the days of "payment by results," before 1890, the annual test in reading required every pupil to read aloud a few lines to the examiner. This necessitated regular training and practice for every child; and where classes were large, simultaneous reading was employed to ensure that every child obtained practice. Since 1890, the preparation has been less strenuous; much silent reading is done by the majority of a class, while smaller groups take their reading practice; and the reading lesson is not spoilt by compelling a whole class to listen to, and to follow, the reading of each individual.

INDIVIDUAL TEACHING.—In its strictest sense, this expression denotes the work of the private tutor, whose pupils are few and are taught separately. In connection with schools and classes, it denotes any arrangement whereby the teacher is enabled to give increased attention to the specific needs of each pupil. The plan is impracticable where classes are large; but in preparatory schools where classes do not exceed twelve children, and in the highest standards of elementary schools, it is often possible.

INDUCTIVE METHOD, THE.—Let us first mark off the deductive method. Here we lay down general principles or rules, and proceed with their help to particular instances. The teacher furnishes the child with these general rules before he calls upon him to apply them to problems or examples. Before the child attempts a sum in arithmetic, or a sentence in a French exercise, he is referred to the rules of arithmetic or of French grammar which he is to employ. The rule or principle is treated as if it were something which existed before the instance.

In the method of induction, however, we start with the particular instance in which we are to trace the operation of the general rule. For example, we may determine by actual measurement in a particular case the fact that if, in either of two triangles, two sides and the included angle are respectively equal, the triangles are also equal in other respects. It is sometimes said that we go on to infer the general principle from its occurrence in the particular instance; that, for example, we infer the equality of the two triangles in question from the results of our measurements. But this is not the whole of the truth. The general principle is not merely inferred as something separate from the particular instance. Rather, the instance is the ground where we meet the principle face to face.

Special Application in Teaching.—Hence the inductive method in education has for its purpose to substitute for a knowledge of general principles embodied in symbols, an *intuitive* knowledge of general principles as they are embodied in particular instances. Observation and experiment, therefore, are not subordinate processes; they are involved in the intuitive attitude. The child who weighs one substance in terms of another, through his handling of the scales, is in actual contact with the operation of gravity.

But he has not to observe or to experiment without some guidance as to the directions in which he is to seek his results. He may even be furnished with the rule of which he is to discern the illustration. But the rule is not treated as something already sufficiently established. It awaits verification or realization in the particular instance. The intervention of the teacher is not like that of an external authority who furnishes principles to be taken on trust. He is rather a friendly guide who indicates the road along which we may profitably journey. So far as, in the inductive method of teaching, the result of the enquiry is anticipated, so far as the teacher's guidance is complete, to that extent the case differs from the scientific induction which discloses hitherto unknown principles. But even in scientific research, we usually start from what is already known; we have some clue towards the object of our investigation. Each fact enters into a large number of relations with other facts, so that the mere enumeration of these different relations would hinder rather than help us, unless we could disentangle what is of importance for our purpose. The term "heuristic," therefore, as applied to the method of induction is a misnomer. Our object is not so much to teach the child to discover fresh principles, as to help him to select those aspects of the object before him which embody certain principles.

When the method of discovery is thus blended with the observation of principles for oneself, an appeal is made not only to the abstract intelligence, but to the independent initiative of the child. His consciousness of power is excited, and he enters into a sympathetic attitude towards the course of the world. This aim, lofty as it may seem, has been realized by teachers like Froebel (*q.v.*). For in the more perfect forms of the inductive method, the teacher is the hierophant introducing the learner to the shrine, but he leaves the learner himself to draw aside the veil.

Along these lines the activities of school become more closely parallel to the activities of life in the great world, and the transition from school life to life's vocation is rendered more easy. And the attitude of the teacher to his class is changed. Instead of stating principles in an authoritative way, and dealing simultaneously with many pupils, the teacher finds a separate problem in each individual scholar. But we must not exaggerate the demand which is thus made upon the teacher's

time and attention. The clever child can often be dealt with at a glance, thus leaving more time for backward pupils. The group of pupils thus working together will rather resemble a laboratory than a classroom. The teacher will be like a foreman going round a workshop advising, correcting, or encouraging craftsmen, each occupied with his own task. And the silence and order which are the traditional accompaniments of teaching by general precepts will give way to some extent to the movement of a laboratory.

But there are two limitations to the application of the inductive method. In the first place, some subjects are best treated in an authoritative manner. This is probably the case with religion, morals, history, literature, and art; that is to say, humanist subjects. But, even here, we must bring the child face to face with the corresponding facts.

In the second place, the inductive method involves a greater mental strain than the method of passively receiving principles from another. And it is necessary to watch for symptoms of overstrain. F. G.

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INDUSTRIAL EDUCATION.—Industrial education in Britain is an aspiration sanctioned, but not enforced, by law: industrial employment is a necessity forced upon more than half the male population. Workshop and factory conditions are now such, that education beyond that generally obtainable in everyday employment is of vital necessity to every industry, if its position (relatively to other countries) is to be secured or advanced and to every individual who is not content to be merely a hewer of wood or a drawer of water. Foreign competition in industry is assisted in certain countries by a compulsory system of industrial education, which has been proved to be a very valuable asset. The motives which have dictated industrial education in this country are, on the one hand, philanthropic, with the underlying aim of producing better citizens; and, on the other hand, economic, with the definite object of producing better workers, and, consequently, improving trade and commerce.

Primary education has gradually changed in public recognition from a self-sufficing entity to a preparatory system for life work, but the change is as yet far from complete. The capacity to read, write, and reckon has been reinforced in many schools by definite training in handicraft and in the principles of science. The prevailing idea of fitting a child for further education grows steadily; and, whilst secondary and university education have long been recognized as natural consequents for the few, industrial education related to a trade or calling has only recently become recognized as an essential consequent for the many, who must earn their livelihood by daily toil at some handicraft or trade.

Apprenticeship. Apprenticeship was formerly regarded as providing a complete industrial education, and under the conditions then prevailing was effective. The statutes of Elizabeth were sufficiently explicit and effective for the needs of the times. The apprentice lived and worked with his master for a period of seven years; saw the daily transactions of all business; took a part in all kinds of work passing through the shop in that time; saw how materials were bought and tested, how goods were made up and disposed of; and how his master kept his accounts, meagre as these might be. The time was sufficiently long, the variety of work was sufficiently limited, and the personal relations were sufficiently close between master and apprentice to enable the latter to gain all the experience necessary to make him a master of the craft by the time he reached his majority and became free to journey about or to set up in a similar business on his own account. Machinery and special appliances were few, and handicraft skill was of supreme importance. Moreover, the market was, in most cases, a defined and restricted one, for railways, canals, and steamships were non-existent, and foreign trade was a relatively small matter. Under these conditions, apprenticeship happily and completely fulfilled local and national needs. These fundamental conditions have entirely altered, but the relics of the old time apprenticeship survive in many forms and in many industries. The statutes of Elizabeth were abolished early in the nineteenth century; and the policy of *laissez faire* which prevailed subsequently has, in the region of industrial training, persisted to the present day in this country.

The fundamental changes which have ousted beyond recall the old apprenticeship are the growth of capital and the development of large and new industries, the growth of population, the introduction and development of machinery and the consequent subdivision of labour, the development of transit and transport, and the internationalization of industry and commerce. The old apprenticeship in its entirety may yet be seen in remote country villages, but a new species of factory life and work is in existence for the majority of the population in forms unknown a century and a half ago. Whilst a complete training is yet obtainable in rare cases under Elizabethan conditions, there is at the other end of the scale the case of the boy called, by tradition, "apprentice," who is limited to one of many hundred processes in a huge organization, and whose outlook cannot possibly be made to grasp more than a minute fraction of his trade. For such, and others with a wider chance, the need for industrial education is insistent; and such education cannot be secured in the routine of daily life, or an apprenticeship indefinitely prolonged. The State had not grappled with the problem save in a minute degree and in a permissive fashion until the Education Act of 1918 was passed, but many types of solution of the problem are in practice—none of them co-extensive with an industry, few of them co-extensive with the operations of a single firm.

Industrial and Continuation Classes. The forms of solution for the problem may be broadly grouped under pre-apprenticeship and trade schools; industrial and continuation classes; and technical education. Trade schools (*q.v.*) are dealt with separately. Industrial and continuation classes are accessory to, or supplementary of, workshop training. Technical education (*q.v.*) is frequently assumed to be something of a higher order—more suitable for the leaders and managers of industry—and is separately dealt with. Industrial education may be defined as training in the scientific and technical principles and practice of a particular trade. Leaving aside general education, which frequently has to be included in such training, a broad classification may be made of scientific and technical principles, including drawing, calculations, science and technical methods applied to the trade; and workshop or factory practice. In addition, a wider view will

include suitable physical training and development, with health and hygiene teaching; the general relations of the worker to his employer and the State; the commercial aspects of raw materials; buying and selling for the trade; finding markets; and developing processes to meet local or foreign conditions.

In Britain, France, and the United States, provision is made in technical schools: it has been customary to allow pupils to select their own subjects of study, and these have not, in many cases, had any direct bearing on their trade. In Germany, it had been made compulsory before the war that boys from 14 to 18 years of age should attend courses of study related to their occupations, and employers were required to grant time off for attendance at such classes. A definite objective and regular attendance were thus secured, and secondary results accrued in the confidence of employers and the satisfaction of pupils. A typical weekly time-table of a four years' course of training for compositors in Munich, one of the most advanced of German centres in industrial education, was as follows—

	1st Year.	2nd Year.	3rd Year.	4th Year.
	HRS.	HRS.	HRS.	HRS.
Religion	1	1	—	—
Trade Composition	1	1	1	1
German Language	2	1	—	—
Foreign Language	—	—	1	1
Arithmetic and Book-keeping	1	1	1	1
Citizenship and Trade History	1	1	1	1
Materials, Tools, & Machine Knowledge	1	1	1	1
Practical Work	—	1	2	2
Trade Drawing	2	2	2	2
	9	9	9	9

The width of the curriculum is noticeable, and there was careful co-ordination of the syllabuses and teaching in different branches. The results of this systematic training, enforced by law on all young compositors, were very great; and through this education, the solution of the apprenticeship question was found in Germany.

The Position of Great Britain. Courses of study have been arranged in evening classes throughout Britain, but their scope is restricted; and attendance at them is voluntary, except in a few cases where firms require their workers to attend classes. The London County Council re-organized its evening school system in 1913, and now requires attendance at a course of study and restricts admission to such courses to those engaged in the trade. A typical course in a Junior Technical Institute in London is as follows—

	1st. Year.	2nd Year.
	HRS.	HRS.
English and Foreign Words	1	1
Calculations	1	1
Drawing	1	1
Tradework	2	2
Gymnastics	1	1
	6	6

After two years' attendance at such a course, nore advanced work may be taken up at a technical nstitute.

Classes on similar "course" lines are extending in England, and employers are conceding very slowly "time off" to their junior employees to follow such studies. Such education cannot, however, be said to have become an essential part of apprenticeship or training, although some indentures of apprenticeship are now drawn up in which such attendance at educational classes is an integral part.

"Works" schools have developed considerably with firms providing premises and holding classes in working hours; the teaching staff has been either employed by the firm, or provided by the local education authority. There is naturally a tendency to organize the instruction in such schools so that it shall be distinctly applicable to the operations of the particular "works," and this forms the chief point of criticism of such schools by those who favour a more liberal education. Such schools are specifically recognized in the Act of 1918.

Industrial education for different trades has advanced very unequally. In engineering, education is much more widespread than in any other trade, as the traditions of the trade are of comparatively recent growth, and the need for drawing, mathematics, and scientific principles is so readily evident. Other trades, such as building, printing, and silversmithing, have, however, developed very considerable systems; but in certain trades—such as pianoforte construction, glass manufacture, and tailoring—comparatively little progress has been made.

The operations of the Science and Art Department for the past half-century have done much to establish instruction in the principles of science; whilst the work of City and Guilds of London Institute as an examining body since 1878 has been directed with ever-widening scope to the technology of trades.

The whole situation in respect of education relating to trade and industry in the earlier stages is now changing rapidly as local education authorities are elaborating their schemes for compulsory day continuation schools (*q.v.*). J. C. S.

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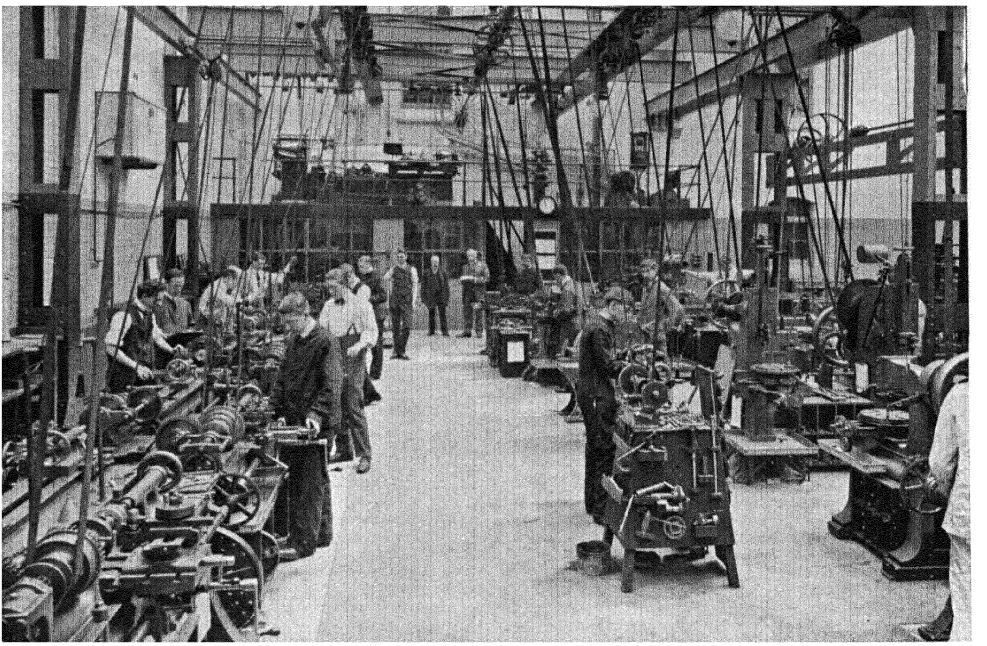
INDUSTRIALISM, QUALITATIVE FACTOR IN.—We have reached a point in our competitive development when the qualitative factor must be considered not only in itself, but in the inevitable reconstruction of English education. Whether in England, America, or Germany, the war brought this home to all reformers.

By the qualitative factor, we mean the making of things with reference to some standard of excellence or inherent quality, rather than of their number. We are thinking, first, of the thing; and only secondarily of its likeness to a pattern, or of its saleability. The standard is in the thing itself, and not in some type outside to which it has to conform. Hence the method of making things for their intrinsic goodness differs from the method of quantitative production. Things may or may not be "good" under the latter method, but their goodness is not the first consideration. A ship, a



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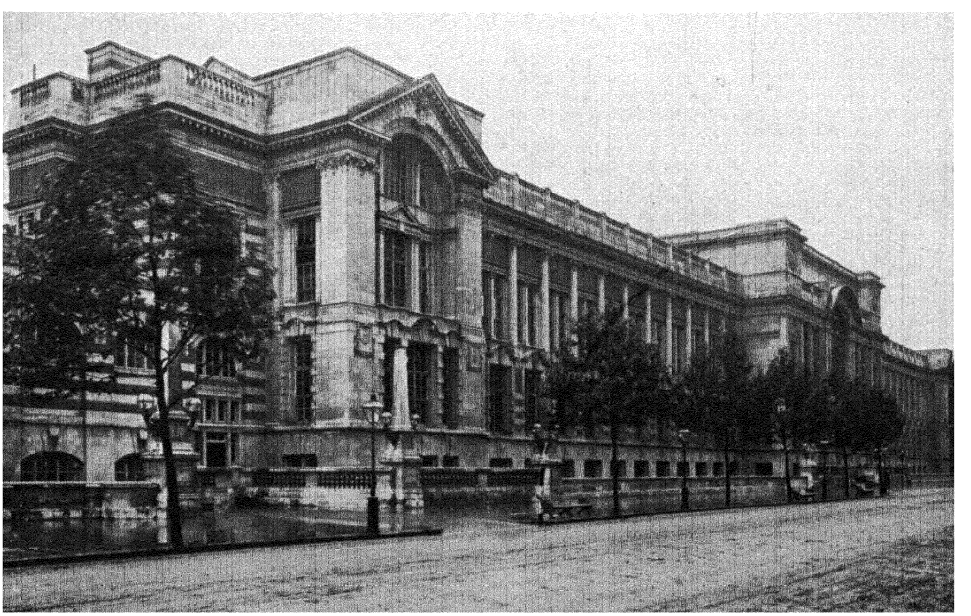

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Departments of Chemistry and Physics, Royal College of Science
PLATE LII

house, a " Ford " motor car, a brooch that has the personal touch of the craftsman, have each their different ways of successful execution, and their conformity to either method differs accordingly.

When we realize this difference of method and consider its ethical significance, we find that the products of human labour divide roughly into two: those which it is right to make by machinery, and those which it is right to make by hand. In some cases, either method may be justifiable; in others, the question of right has not yet been determined. But this we know for certain, if we confuse the processes, we have chaos. If we make by hand what ought to be made by machinery, we have chaos; if we make by machinery what ought to be made by hand, we have chaos. American " Big Business " and English " Arts and Crafts " best illustrate the two extreme types of method. Both are right in their way. For example, munitions and motor cars, made to one model, must not be made by hand processes; and works of art and craft, the personal and human things, must not be made by machinery. It has taken us 200 years to learn the first part of this truth and order our society accordingly, the second we have still to learn.

The competitive chaos of the nineteenth century, and its misery, were largely due to the displacement of hand by mechanical processes, regardless of whether these processes were in themselves sound, or whether it was right or wrong to do this. The constructive purpose of the twentieth century will be to work out the ethical problem with which the nineteenth century did not concern itself, to determine what are the limitations of the machine, by whom it is to be owned, to what purpose it is to be put. This is sometimes called the socialization of industry, sometimes the socialization of art. Both in the United States and in Germany they are in many ways ahead of us in the practical working out of this problem.

One of the greatest social discoveries of our time —we might call it the re-discovery of an ancient truth—is that quality of goods and quality of human life—" things " and " men "—react upon one another. This truth once accepted and guiding legislation, the social problem crystallizes into one of human organization. For instance, it is no good organizing our factories, if at the same time we are destroying the homes and their mother crafts by drawing the women out of them. Or again, if English agriculture cannot be carried on except at a starvation wage to the labourer, it is better the industry should be destroyed, or that machine processes should replace human labour. Or again, if lead glazes kill men, it is better we should give up using glazed pots.

The Future of Industrialism. The future of industrialism, then, seen from the qualitative point of view, means a new educational policy. We are no longer concerned with fitting men to occupations, but with fitting them for citizenship. For instance, the State having once recognized the qualitative factor, it is no longer right that a national system should have as its object the turning out of children for the purpose of supplying cheap labour to masters of industry or farms. It follows from this that new types of school will be needed, children from 13 to 17 will be given more guidance and protection, and more co-ordination will be brought into our national system.

What, then, are the inferences. English education is admittedly unsound—good in parts, wanting in unity, narrow, confused, and generally " in a muddle." Its new objective might be stated thus—

1. The formation of character, no matter what the occupation. Whether I am a doctor, a schoolmaster, a mechanic, a labourer, the same applies.

2. More democracy. We have talked much about the " ladder ": it has many rotten rungs. We must clear away the hard-and-fast divisions between elementary, secondary, public school, and university.

3. More provision for the application of science to industry and agriculture.

4. More thought for the Arts. By the Arts are understood not easel pictures, statuary, or the frills of life, but all those non-mechanical pursuits where imagination and the qualitative method enter. All the existing art schools should be reconstructed, and the endowments and grants used for the maintenance of productive guilds of art and craft. The teachers, supported if necessary on the basis of the minimum wage, should teach by process of apprenticeship, and be forbidden to teach unless they went on practising their crafts. Thus should we rid ourselves of the amateurishness of the existing art school, and turn thousands of willing and skilful hands now wasted on to the building and beautifying of our cities.

Such teaching is the most important of all, because it is synthetic and human. Where the teaching of science is analytic and specializes, the teaching of art takes man as a whole, and helps him to live. Man under industrial conditions has forgotten the art of living. *Le véritable objet de l'Art,* says the French psychologist, *c'est l'expression de la vie.* In a sense, the practical discovery of the qualitative factor in industry and education is an English discovery. Where the Germans have contributed, for good or evil, the centralized State, and the Americans " standardization," our contribution has been the discovery of the qualitative factor. We have now to give it consistent shape and purpose in education. C. R. A.

INFANCY IN EDUCATION, THE SIGNIFICANCE OF.—The pre-eminent importance of early life as a formative period is universally accepted. That it is important psychologically in inverse ratio to the age appears increasingly probable, but is by no means as obvious; indeed, the common belief would appear to be to the contrary if one may judge by the usual practices of those in whose hands lies the arbitrament of the first years. Less training and skill are demanded of the first educators of babyhood than of their successors. Less care is exercised in controlling the indirect influences which bear upon the somnolent, unobserving infant than is deemed necessary in the case of older children. Before the unconverging gaze of baby eyes, and within the hearing of unheeding baby ears, are said and done many things that few of us would venture in the presence of an inquisitive child of 8. Yet it is not improbable that the sensory impressions then recorded in the nervous system both reinforce by summation the " core," and also provide material for the " fringe " of later perceptual images, thus determining which elements in the environment (of all those competing) shall claim and hold the attention; and consequently which of the manifold possible reactions shall, through repetition, acquire ascendancy in the future.

The contention that the earliest years, indeed the earliest months of life, are of supreme importance from the educationist's point of view is found

to gain support from several sources, including some of the most recent fields of modern research. To begin with, the most evident tradition and observation emphasize the importance of impressions made on the plasticity of the immature. This point of view is expressed in the familiar idea that, as the twig is bent, so the tree grows. The pleasure or unpleasure which given experiences will produce in the young child, the type of behaviour which will consequently become habitual to it, are not these initiated in the cradle ?

On *à priori* grounds, too, the hypothesis that ontogeny repeats phylogeny being granted, is it not to be expected that during those short years, into which are compressed untold ages of phylogenetic experience, the elements of the personality-to-be being so labile, as well as so numerous and so diverse, there would be every chance of modifying profoundly the combinations of those multitudinous elements, which shall result—did we know more of the laws of mental growth and functioning.

What is Infancy ? The length of the period designated by the term "infancy" varies considerably. Taken in its widest sense, the arbitrarily determined limit of legal minority terminates it abruptly. Regarded from a biological angle of vision, it may be taken to cover the period of the first dentition. Acute observers of human nature have long claimed the first seven years of life as the essentially formative ones, during which are laid the entire foundation of the *possible* future superstructure. Certain other authorities, again, define infancy in a narrower sense, severally preferring five years, four years, two years. For the purposes of the present consideration, the narrowest of these limits is intended, namely, that of about two years. This must, however, be regarded as a rough approximation. It should be taken to cover a period varying somewhat in duration in different individuals, and not delimited from the succeeding one by any sudden change, yet marked by characteristics both physical and psychological which distinguish it from the period immediately succeeding it. Wherein precisely these changes reside and what are their causes are among the problems awaiting investigation.

The Evidence of Psycho-Analysis. In pursuance of the thesis that the psychological care of infancy is of paramount importance for the future of the individual, we now pass from general and *à priori* considerations to evidence contributed by researches which may claim to be regarded as scientific in method. Although this description may be disallowed by some in the case of a recent development in psychology, a promising method of investigating the subconscious infantile material stored in the mind is nevertheless afforded by the exact technique known as psycho-analysis (*q.v.*). Through the application of this method, early percepts, early concepts, early emotions, and early conative trends are brought up into consciousness, laid bare for the introspection of the one who originally experienced what is now fragmentarily reproduced. With an overwhelming insistence, the mass of psycho-analytic *data* speaks for the determining force of the earliest situations—those situations for example, concerned with the often painful process of infantile efforts at motor self-control, whether of sphincters, the muscles of locomotion, or of facial or vocal expression, to say nothing of the social pressure during the short but urgent recapitulation of the long and tedious phylogenetic stages of "coercion to domesticity !"

Similarly, ineffaceable traces are left by the earliest experiences of the "not-I," of the properties of inanimate objects (strangely reminiscent of the animistic beliefs and magical practices of the races of the lower culture !), of the qualities of the Woman, the Man, the other Child, and the Animal, which by association laid the foundations of all future loves and hates, and yielded standards of behaviour valid for the emerging intelligence.

But, however far back the process penetrates, it reveals the sensation-filled life of the infant and the importance of cutaneous sensibility—sensations due to visceral activity, intense special-sense memory-images, etc.

The Evidence of Direct Investigations. The evidence afforded by the psycho-analytic method is, however, convincing to few who have not been either subject or analyst; and, were the evidence forthcoming confined to this largely subjective sphere of investigation alone, the popular opinion regarding the inaccessibility of infancy to the more subtle and indirect influences of the environment might remain almost unaffected. But confirmatory evidence is far from being exhausted. Methods of research, hall-marked by controlled experiment and the precise technique associated with the laboratory equipment of modern science, provide fresh corroboration. Much, it is true, remains to be done in the direction of interpretation, but the *data* furnished are full of suggestion for the educationist.

Modern histological researches on the development of the mammalian cortex cerebri or neopallium, both from the ontogenetic and phylogenetic aspects, tend to confirm the importance of infancy. Meynert, Bevan Lewis, Henry Clarke, and Flechsig among the earlier investigators; Bolton, Brodmann, Campbell, Elliott Smith, Mott, and others more recently, have contributed a mass of *data* to what is nevertheless a science still in its initial stage. Stated in the briefest way, the facts are as follows. The structure of the neopallium or cortex cerebri is found to consist of cells and cell fibres arranged in laminae, which have been variously classified by different neurologists. Bolton (see References) describes five which are constant for the entire cortex, though severally varying in depth and complexity of structure in different areas. These are: (1) The superficial layer of nerve fibres (outer fibre laminae); (2) the layer of pyramidal cells (outer cell laminae); (3) the layer of granules (middle cell laminae); (4) the inner layer of fibres (inner fibre laminae); (5) the layer of polymorphic cells (inner cell laminae).

To compare the above as regards function. The inner layer of polymorphic cells, together with the fourth, or superincumbent, layer, subserves the lower voluntary and instinctive activities of the animal economy. Of these laminae, Watson (quoted by Bolton), who has investigated the cortex of various vertebrates, says: "They are concerned with associations necessary for the performance of the instinctive activities; that is, all that are innate and require for their fulfilment no experience or education. They form the basis of many complex actions necessary for the preservation of the individual and the species. Next above these laminae is the middle cell layer (Bolton's third). The main function of this is the "reception or immediate transformation of afferent impulses arising direct from the lower sensory neurones, or from other

regions of the cerebrum." In the mammalians this layer is remarkably developed in the visuo-sensory area, particularly so in the primates and in man.

Finally, we see in the outer pyramidal cell layer (Bolton's second) the latest developed, ontogenetically and phylogenetically, of the neopallic laminae. Speaking of this layer in the vertebrates, Watson says: " It has to do with all those activities which it is obvious the animal has acquired (or perfected) by individual experience, and with all the possible modifications of behaviour which may arise in relation to some novel situation; hence with what is usually described as indicating intelligent, as apart from instinctive, acts, the former being not merely accompanied but controlled by consciousness." Again, we must compare the three-cell laminae of the cortex in respect to the degree of development at birth. No. 5, the inner polymorphic layer, associated with instinctive functioning, presents at this period a depth nearly 80 per cent. of the adult. No. 3, the middle granular layer, associated with the reception of sensory stimuli, has attained at birth 75 per cent. of the adult depth. No. 2, the outer pyramidal layer, associated with the highest psychic functioning, has attained about 50 per cent. of the adult depth.

The inverse degree of development at birth of the physical bases of the instinctive, sensory, and psychic activities respectively, is to be specially noted.

Inferences from Evidence. Thus we see the human infant already endowed at birth with a cerebral equipment as complete on the instinctive level as that of any lower adult mammal. Over and above this, he possesses a higher endowment than theirs, providing for a more ample reception of sensory stimuli. On the other hand, that part of the cortex which subserves " voluntary attention, inhibition, and selective co-ordination " is still only half evolved at birth. There appears, therefore, every reason to conclude that the stimuli pouring in on the infant cerebrum initiate therein appropriate instinctive impulses; which, however, on account of the lack of capacity to co-ordinate motor responses, are unable to be discharged in intelligent and intelligible action. None the less, it may be inferred that time-related, sensorial memories cannot fail to add their quota to the sum total of formative experiences. All the foregoing evidence, gathered from various sources, emphasizes the dynamic aspect of mind. Mind develops in immediate response to environment—the environment, therefore, is the chief factor to be taken into account by the educator. This is already a well established fact, but what has yet to be conceded is that the special control of the environment which is of the essence of education cannot be exercised at too early a period of life. J. MURRAY.

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INFANCY, THE PSYCHOLOGY OF.—Childhood differs from all later periods of human life in this: that in the earliest years all is in rapid flux, and this movement is quickened or slackened, confused or harmonized, directed or misdirected not merely by formal lessons in school, but by everything that affects the great mass of varied elements out of which the nervous system is built up.

In the first years, there can be no formal lessons —no formal attitudes even—and yet, in these months and years, education goes on more rapidly than at any later period. Not heredity alone, but every detail of circumstance and place, habit and experience is playing a part in this natural education; and, by the time a child is 7 years old, so much is done or undone, that the teacher enters at last to look not (as was long supposed) on a beginning, but on a little person who is far advanced along the road of life. She is not dealing with a beginner when she takes in hand even a 2-year-old child.

Birth itself is, of course, not a beginning, though it is a new starting-point. So well advanced are things even at this period, that the character of the education which the new-born child has received is not hidden from the seeing eye. He reveals almost with his first breath the nature of the life he derived even when he had no brain, no spinal cord; and was formed as in a mould through the influence of the life currents of another being. For months before birth, the foetus is far more sensitive than the mother. It re-acts to any and every kind of stimulus. A loud noise, a strong odour—things that appear to have very little effect on her—will have a great effect on *him*. Every slight emotion also of the mother's—surprise, pleasure, or sorrow—he re-acts to, showing, in some cases, the terrible and permanent results of what was to her only a passing event or feeling.

The Development of Sensation. We see the well-born, who is in some cases a child from a mean street, start on his journey. We see the less fortunate (often from the same street). We see, also, the " war baby," whose mother's life, while he was still unborn, was filled with shocks and trouble. The chances of life have overtaken them ere they began an independent existence; and these happenings, whatever their nature, play a part in the shaping of a nervous system. It is the fate of a nervous system which is, after birth and before it, in the balance. It develops fast in the early years, though not nearly so fast as was assumed in older systems of education. During the first four years at least, the Grand Sympathetic nerve plays, as Séguin (*q.v.*) declared so long ago, " the part of a great tramway in the midst of the life citadel." To the organic sensations which form the base of consciousness, and where in the first years consciousness itself flits like a light in a cellar, belong, for example, sensations of breathing, of circulation and nutrition, and also sensations of the muscles and nerves in exercise. To these belong also what is often called " the muscular sense," the sense of resistance, of weight or pressure, with all its attendant pains and pleasures. The sensation of heat and cold are probably far less vivid in the young child than in the adult, though he has very little power of resisting extremes of heat and cold in the earliest months and years. It is certain that the consciousness of a young child is filled very largely with sensations that accompany acts and movements which for older people have become entirely automatic.

In this world of effort and labour, where he is tempted to try every one of his powers in succession, the child's instinct of play has, of course, a great *rôle*. It is preceded, however, by a kind of appetite for sensation. The child touches and feels everything it can lay its hands on. But it does not deal only with solids. It appreciates odours at the age of a year or more, greedily holding out its hand and pressing to its face one herb after another.

It listens with delight to loud noises and sounds, tapping its spoon on the table, ringing bells, and smiling on its shouting or laughing brothers and sisters. It delights in gay, bright colours; in shining objects; and bright flowers. Not only every sense, but every nerve and muscle is brought into activity as soon as its centre arrives at any degree of organization. At first, the child uses its sensés and muscles for the pleasure of the sensation; but soon a new instinct unfolds itself and urges him to carry his self-education much further. He begins to play.

The Development of the Play Instinct. The first games in which the toddlers of 2 and 3 appear to be greatly animated are those of pursuit and escape —" Robbers," " Hide-and-seek," " Giant running after little people "—all running-away games. The little ones keep in a large troop or horde, and thus supporting one another derive great joy from the game. All, save one or two of the boldest, dislike to be separated from the troop. Even when the game is over, they group themselves; and in lying, standing, or sitting together, appear, as Séguin declared, to fall into the same formation as the blood-globules. From such natural groupings they emerge, to test their individual powers and, above all, their new-found muscular powers.

It is necessary to have hillocks, platforms, and big tree-stumps, or raised mounds in the gardens. They climb these like lambs or young goats. (At a certain age they resemble goats even more than lambs.) They also show a great desire to use the large muscles, and to handle tools that are too large for them. Thus I have often seen a little child struggle to lift an elder boy's spade, and to get hold of his hammer and file. On fine days, the covered way in front of the toddlers' shelters is full of little ones who try to trundle hoops, push toy perambulators and even low carts for children. A small wheelbarrow is eagerly pushed, and it is clear that even dull children, *if not prevented*, will quickly learn to use their limbs and handle things. These experiences have a great educational value that can be traced later on in a great variety of ways.

Play as a Factor in Education. The years between 4 and 7 are the " play-epoch " *par excellence*. Hearing and vision games are not very numerous in the little child of to-day. They are probably artificially restricted, for " silence lessons " are popular, not only in class, but sometimes even in the playground. Among vision games, ball-catching in all its varied forms is no sooner known than it is warmly appreciated. The child of 4 will spend hours trying to throw and catch. The little ones, when at all excited, use their feet instinctively. In children whose opportunities in life are small, the games are mostly of a fighting and teasing character, and the play often ceases to be mere play and degenerates into real fighting.

At every point in his development, the child assists himself through the instinct of play, his inventiveness and industry in play being the measure of his advance. For example, neglected children are slow to speak. They invent little and even avoid speech altogether. But the baby no sooner manages to utter even a vowel-sound, than he repeats it again and again, in varying keys and with an industry and energy that distresses his institution-trained nurse. If forcibly silenced, he will fall into an inert state, and will remain for hours seated at a table or on the floor.

About the age of 3 a child enters on a new play-epoch. From this time forward, he begins to attempt memory plays—plays with visual and aural memories—and new orders of imitative play—going on, it maybe, to will-test plays, and even a kind of drama. It is the epoch when the child himself aids his instructors by self-imposed tests of attentive power and will-training, which are certainly not the less valuable because they are spontaneous. Attention is, in its earliest manifestations, a means of furtherance in the struggle for life. Warned of the meaning of danger, the child braces himself to look, to listen, to keep his muscles tense, and also to keep his own powers in check. And the instinct to live through all these experiences, even in the toddler, is intensified and refined in the older child. He not only uses his superfluous physical energy in running, throwing, and climbing; but directs his attention to the things and persons that appeal to new aims and desires. " Let us keep shop," cries an older girl. And forthwith the group finds ways and means which the teacher certainly never dreamed of. They make a counter of an old plank, fix a balance by putting one piece of wood on an upright stone, gather the crumbled fruit of one grass to sell as tea, and sand to sell as sugar. They put stones for weights, and proceed to sell and buy, imitating the words, voices, gestures, and manners of grown-up people. It is more realistic than any grown-up invention of such play can be, and involves the exercise of attention of varied orders. The same is true of the play of other children making tunnels and waterways in the sand, or building houses, and placing cranes near the stopping-places on the " river."

The constructive play of children in war-time was remarkable, and showed, in its ingenuity and daring, the stimulus to creative energy given by the greater emotion which children, in common with their elders, experienced. Instinct is usually defined as a hereditary and clearly defined motor reaction to a given stimulus. No fixed hereditary bias can be claimed as the origin of all the motor 'buses, bi-planes, water-planes, bomb-projectors, and electrical apparatus with which children now cover tables at exhibitions. Nor are these toys mere imitations of things seen, though in every instance, adults have, of course, supplied the original models on which they are framed. In many there is more than a suggestion of real improvement of existing models, if not of actual invention. It would appear that imitation, far from being a purely hereditary reaction, marks rather the point where childhood escapes from the thrall of hereditary impulse. It has to vary its play in presence of models that have had no complete precedent, but belong to an ever-changing succession of things. More than one adult inventor, examining the work of a boy, has been startled now and then by its suggestiveness, and has realized more than ever before how far the play impulse may pass beyond the fixity of the hereditary orbit.

It is certain not only that children have a certain advantage (which is lost later in life) in registering fine impressions, but that the very simplicity with which they group and disconnect these impressions opens to them the doors of invention. It was to the play of children that the science of optics owed its initial impulse. As to the fineness of touch impressions in early childhood, this was made use of notably in the silk industry, where, for some branches of the work, only little children under the age of 7 were engaged. But it is only in very recent days that we have begun to use these peculiar gifts

and aptitudes in the school training of young children.

Sense Training. A few of these methods may be described here. To begin with, I have had large letters made, the form of which has been sunk in hard clay, and the child puts a tiny forefinger in, so as to feel the whole length and curve of every form. After a while it does this blindfold, and even learns to name the different letters by merely feeling them.

For little children, I have graded wooden blocks, by which they can begin to compare different lengths and thicknesses; I also use wooden tablets of very simple construction, with geometrical forms inset, beginning with the square and circle, and later adding prisms, cones, spheres, cylinders, etc. I have also painted insets of animals and, in a very short time, children get used to handling them. Meantime they begin to swing circles on the blackboard and blackened tables (for the tables can all be used as writing boards). The first consecutive lines they make are curved for the most part, and they tend to reproduce the curve in other lines. Not all, however, show this tendency. Some babies of 3 and 4 draw wonderfully good straight lines—vertical and horizontal, and later oblique. It seems that the motor control necessary to draw carts, barrows, houses, can be won easily in early childhood, and must simplify the whole problem of learning to draw, though one has to confess that the power of observation and comparison necessary to fix the relation of the different parts of anything does not come easily even to children who draw any simple geometrical form freely and well.

Reading, Writing, and Drawing. All this practice in motor exercises and sensory experience does, however, serve a child in good stead when he comes to deal with other school subjects. The fact is that the children profit by their tactual experience so rapidly, that they soon pass beyond it. By using the wooden letters and tray, a very indolent and rickety child learned the letters in two days. Later, he laid the letters so as to form words and sentences. After a month or two, these exercises were discontinued. Our experience goes to show that such concrete methods, precious at first, should not be carried on longer than a month or two. It would seem that, though a child is helped at first by the use of wooden letters, through the sensations of movement as the eyes move over their large surfaces, and as the fingers touch and handle and place them, yet, for the actual storage of visual memories of words, this kind of exercise helps not at all. Letter memories are stored in Broca's convolution. But word-memories are stored in another region of the brain, and *attention* to written words depends on the waking of a higher centre, whose activity appears even to be hindered by long use of letter memories and motor memories connected with what is for beginners a good system. For this reason, we paint large words in bright colours—names of things that are to be found in the school, such as door, sand, chalk, book, coat, girl, spade, barrow, etc.—and give them to the children of 5 as early reading exercises. When these are learned —and the children are very eager to find out the words on the cartons—short sentences are printed up and easy reading books opened.

So far as writing is concerned, however, the progress made in drawing lines and circles, and in drawing or filling in outline geometrical forms and patterns, is much more striking and rapid than the advance in reading. Here the muscular memory plays a great *rôle*, following the principle already laid down that the large route of the nervous system must be well beaten out first, while the farther and finer tracks and by-paths are reached later. The first movements in writing or drawing are large arm movements, and control of the lower arm, wrist, and fingers is aimed at later. Control of the large muscles is won very quickly, even by the 4 and 5-year-olds. It is true that, in order to succeed, the teacher must aim at giving much practice. The child must draw, not five lines, but hundreds, without being afraid to go on and correct his fault by practice. A child of 6 who had never learned to write at all made such rapid progress in this way, that in a month or five weeks he wrote a better hand than any of the 9-year-old children in the class; and this rapid progress showed itself from the moment that he turned from drawing curves, lines, circles, etc., to drawing letters and putting them together in words. The explanation, of course, is that he had learned to make all the necessary movements, and had only to note the new adaptation of forms and figures, no one of which offered any difficulty to him. One may note that even very little children learn to draw and write well without any guiding lines at all.

Apparatus. All the apparatus needed to help young children in the development of their motor and sensory powers can be made very cheaply. For weighing exercises and tests, I have used pill boxes; and for dressing exercises—such as lacing, buttoning, etc.—strips of cloth nailed on boards answer the purpose very well. Such apparatus was used by Séguin. Of course, one does not keep to these alone. In a garden, and among leisured friends, a child learns fast, defying the keenest eye to follow the veiled processes of unfolding life.

It is astounding how soon many children pass beyond these aids. One girl of 4, for example, used the knot-tying board only for one day.

Observational lessons can be given very well by means of a colour wheel and coloured papers; but for details of this I must refer readers to a book published in 1904, *Education Through the Imagination*, in which I have tried to show the *rôle* played by Memory as a stimulus to the Imagination.

Speech-training. Owing to the want of physiological method, hand-training was long left out of account in schools for young children. And even now, for the same reason, speech-training is often passed over. Very often one hears the two subjects put in opposition, as if they had nothing to do with one another. Yet it is hard to see how man worked out his power to speak unless aided by hands, and certainly the neurones of the motor and visual centres associated with the auditory centres are developed in proportion to the specialization of the fore-limbs.

Most of the children in our schools have speech defects, and a great many of them have *serious* defects that affect even their health.

In support of this, I can cite the work done in the Evelyn Home with pupils of 8 to 14 years old. Most of these pupils were girls, but there was a good proportion also of boys from the elementary schools. They were not selected because of speech defects though most of them had had an operation at the Home for the removal of adenoids. They had great difficulty in using the lips, or saying even a very easy word beginning with a consonant. The nostrils were of course, very tight, and for this humming

as well as breathing exercises were given. These defects vary a little from generation to generation. They are not found always in districts where a dialect is spoken (a dialect is often vigorous speech enough), still less in old forms of speech that have been given up by the "cultured classes" and city dwellers. But there is a pathological kind of speech which is common enough, and it is always the result of a kind of weakness or failure.

Briefly, we may say that the great falling off is in the *labials*. The toddlers, for their part, are eager to use these sounds, and begin to practise them ardently, doubling them always in their early efforts, as in *Ma-ma, Da-da, Bo-bo*. It is necessary only to encourage them in these exercises in the nursery, and they will go on to others that are more difficult. The first and easiest exercises are, however, those which the child himself practises first, that is, sounds beginning with a consonant and ending with a vowel, such as *Ni, ma, do, gee, na*, etc. When he has really mastered these, he will start on more difficult syllables and words such as "Black," "plate," "drove,' and in doing so he will be already floated past many of the shoals on which our older children have made shipwreck. Such difficult words as "alp," "elk," "oil," and others beginning with a vowel, can follow. Where there is one special failing, as in children who cannot say "s," they must be taken alone. All this forms a very great work for the nursery school. It is not easy to correct speech defects at the age of 12, or even 9, when the vocal organs have adapted themselves to a bad habit of speech. At 8 or 10, indeed, it is almost time to start another language, such as French, the oral learning of which should help to perfect the speech-training.

The Relation of Sense-training and Intellectual Training. From all this it appears that to deal with sensory and motor training is to give intellectual training, for the two cannot be separated. Take, for example, the visual image of a word. It is received and stored in its own special part of the brain, but it is also referred to a higher centre whose awaking involves attention and consciousness of the meaning of the image. This awakening of the higher centre (attention centre) is the great desideratum, and it is the real triumph in all forms of sensory exercise. The blind man has not a keener or finer touch-sense than seeing people. But he interprets his touch sensations, and often his hearing, in better ways. This is why he knows the things he touches, and also senses the lull about a large object (a lamp-post, for example) in a way that amazes us. (There is always a noise and rumour going on even in a quiet atmosphere. Where a big object stands, this is broken or silenced. The lamp-post makes a quiet interruption, as it were, as a stone makes a stop in a running stream.) This is why Helen Keller, deprived of the two great senses of Hearing and Sight, yet interprets the vibrations and surfaces around her so as to build up a fine mental and spiritual life. In schools and out of schools, it is the power of *attention* that is trained in all these sensory drills, and this is the power that fixes the status of any human being.

The educational systems of yesterday busied themselves mainly with instruction; and no one can afford to despise them, for, not only were they successful in turning out good scholars, but they also gave incidentally a training in will power. They failed signally not with the gifted or average child, but with the abnormal and sub-normal, with children whose condition they did not understand. Modern education may be said to have begun with the study of the abnormal. By turning back to these, it begins to understand failure as well as success. And failure is not nearly so terrible, so final as it used to be. It is found that there may be an evolution of power by exercises that one can learn, by drills that fix the attention on stimuli offered to the various senses. They may, and do, render consciousness clearer and life more vivid. A still greater thing it is to know that the millions of children born may be raised to a higher level by having their childhood and youth freed from overwork and semi-starvation. They can be assured of food, clothing, and shelter, and trained in the use and management of these. They may have a physical education that will ensure the nervous system. This kind of preparation should fit children later to profit by a liberal education. For lack of one and all of these things, a great part of all the money, time, and strength spent on elementary education has been wasted; and the producing and saving power of the race has been diminished to an extent we can but dimly imagine.

We want thousands of nurseries with nursery schools (*q.v.*) attached to them, and thousands of young girl probationers to learn the new arts of nurture. We want to give nurture as we once gave book-learning to the masses, because nurture is more important in its effects than mere lessons of any kind can be. M. McM.

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INFANT CARE BEFORE SCHOOL AGE.—Life is a series of changes—revolutionary as well as evolutionary—and the nation that is most alive to the need of adaptation to changing forces is the most likely to survive through all vicissitudes. To resist blindly, or to ignore them, means suicide; to study whither they lead may mean national regeneration and avoidance in the future of many a blunder of the past.

The years 1914-1916, with the world-war—surpassing in magnitude and horror anything dreamt of in the past—saw the crashing of many an ideal and hope; but they saw, too, the birth of new ideals, new hopes, and new methods of approach of problems old as the human race itself. The drain of resources produced by human endeavour—the drain of manhood, ay, and of womanhood and childhood, too—bids us pause to take stock of our national reserves.

National expenditure must depend on national supply, and the supply lies with the coming generation—the children born or about to be born, whose heritage will be the task of building up anew much that we have destroyed under stress of national necessity.

There is now a magnificent opportunity to regenerate the nation through its growing children; to reject all that retards and stunts human development, and to foster all that has passed the experimental stage with regard to infant and child welfare.

The pioneers in this movement, who pressed steadily forward, full of faith in spite of discouragement and misunderstanding, are now hailed as deliverers: they "builded better than they knew," with their crèches, their schools for mothers and infant welfare centres, with voluntary health visiting, milk depôts, and dining rooms for expectant and nursing mothers.

Dr. Priestley, reviewing " Recent Public Health Work " in *The Practitioner*, truly says—

" The well-known maxim that every child born has a right to live may now be enlarged and extended so as to read: ' Every child born and every child, even when unborn, has a right to live.' Ante-natal clinics, maternity clinics, infant clinics, milk depôts, pre-school age and school clinics, will, under the fostering care of the L.G.B., become the routine of all administration."

It has been said that infantile mortality is a measure of the virility of a nation. But long before vital statistics were invented the physique of the Army was an index of national strength; and the problem of physical deterioration, first recognized in the Army, gradually extended to that of the stamina of the nation in general; thence to school children; and, finally, to the babies, which logically leads us to the problem of the mothers and pre-natal conditions.

Government Measures for Infant Care. And so, characteristically, in 1907 we made medical inspection of school children compulsory, with little provision for treatment, and notification of births within thirty-six hours of the event a purely voluntary measure.

There are valuable circulars and memoranda of the Board of Education and Local Government Board (now the Ministry of Health), 1914,1915, and 1918, urging local authorities to extend their activities in the interests of maternal and child welfare, and promising financial support to the voluntary and municipal establishment of clinics, day-nurseries, and schools for mothers to the extent of 50 per cent. of the expenses of all institutions approved by Government.

The Committee on Physical Deterioration reported, in 1904: " The people perish for lack of knowledge." Perhaps in the fullness of time we may see to it that our Educational Code recognizes " Preparation for Parenthood " as an apt subject for schools, with practical demonstrations given in institutions for infant and maternal welfare.

The Value of Infant Care. Nothing but the force of public opinion is needed to convert the theoretical into the practical.

The Royal Commission on Housing of the Working Classes reported in 1884: " What at the present time is specially required is some motive force, and probably there can be no stronger motive force than public opinion."

Here, at home, our babies in thousands of poor homes grow up anyhow, tended now by the harassed mother, now by a baby but a few years older, under conditions of overcrowding which show little sign of abating without this long looked-for force of public opinion.

" Where overcrowding exists in a sanitary sense, almost always it exists even more perniciously in certain moral senses. . . . To be subject to these influences is a degradation which must become deeper and deeper for those on whom it continues to work.

" To children who are born under its curse it must often be a very baptism into infamy.

" When you ask why so many of the working men betake themselves to the alehouse or gin palace, the answer lies in the detestable state of their homes. I have had it from hundreds of both women and men that this cause, and this cause alone, has driven them to the use of ardent spirits. Nine-tenths of our poverty, misery, and crime are produced by habits of intoxication; and I trace these habits, not altogether, but mainly, to the pestilential and ruinous domiciliary condition of the great mass of the population of this metropolis and the large towns of the country." (LORD SHAFTESBURY, in 1861.)

The little ones suffer—mentally, morally and physically—for lack of any national scheme of training in parenthood and the requirements of the home. And yet, where is this public opinion to be cultivated ? Where, but in those institutions suggested by the Government Departments, and actually in being under the pioneers who started them on a small scale ten years ago !

The material is in abundance, the means are surely not lacking, the opportunities are with us; and the active minds working in Government Departments, aided and stimulated by pioneers outside, have grasped the situation and made it possible for baby-saving and the care of little children to advance henceforth on national lines.

In the small French commune of Villiers-le-Duc, we are told that, for ten years together, the infantile mortality rate was zero.

" Not one baby died for ten years, not one child died; every child born in that commune was, at the end of those ten years, *vivant et vigoureux*. There had been no miscarriage, there had been no death of a mother in childbirth." (BENJAMIN BROADBENT, *The Times*, 10th Sept., 1915.)

With us there is grave need for baby-saving without delay. Whether in peace-time or war-time, of our 800,000 annual babies, nearly 100,000 die in the first year, another 100,000 before they reach 15, and 120,000 in the pre-natal period. Further, one-fifth of the total infant mortality occurs in the first week, one-third of the total infant mortality occurs in the first month, half of the total infant mortality occurs in the three months; and: " A high infant death rate in a given community implies in general a high death rate in the next four years of life." (Dr. NEWSHOLME, *Chief Medical Officer*, L.G.B.)

The damage rate cannot be estimated in figures; but assuredly it is far higher than the death rate, and of far graver import to the nation which has to support these wounded survivors in its midst. Yet the needs of the babies are so simple: Clean food, clean surroundings, clean influences, and a mother's care. The home is the unit of the community, and in it are bred the future citizens. How many homes have we in our midst that we know are totally unfit for the nurture of children !

Work Accomplished and Ideals. Women whose womanhood is crying out for scope in woman's work are ready to help in saving the babies. The Government's action makes it possible for them to set to work on the lines of these existing centres adapted to local requirements.

The Local Government Board's circulars to local authorities on the working of the Notification of Births (Extension) Act, 1915, and more recently the Maternity and Child Welfare Act, 1918, urging the establishment of clinics controlled by committees which shall include women, is a direct call to the women of England to save the children.

Every aspect of the home-life of mother, and of child up to the time of entering school, can be covered by adequate practical work at such clinics. Simple talks on hygiene, infant care, clothing and feeding of children, cooking, sewing, nursing, etc., will gradually build up an enlightened community

of mothers—and fathers, too—who will be forewarned against the pitfalls that menace them, which owe their existence to ignorance, and the continuance of which often results in irreparable damage to the innocent.

Besides paying attention to ante-natal and natal conditions, the circulars point out, very rightly, the enormous scope and need for provision to continue this work in relation to children during the next four years of life, which form the link between babyhood and school days. The Jesuits say: "Give us a child until he is seven"; the baby-saver asks for but six years—one before birth and five after. The result, if carried out nationally, can compare with Villiers-le-Duc.

A recent Board of Education Report states—

"*Defective nutrition* stands in the forefront as the most important of all physical defect or defects from which school children suffer."

Let us add "defective nurture," and our path is clear: so to feed and educate our children that they shall become fit parents, living in homes with human standards of nutrition and nurture. Then, indeed, shall we confound the accusation of the African Chief Kama—

"England takes care of her things, but she throws away her people."

The Maternity and Child Welfare Act, 1918, together with the Memoranda thereon of the Ministry of Health, constitute a magnificent charter of the children, setting out in minute detail the activities and power of local authorities and voluntary agencies.

The scheme has been thought out so carefully, that, given a healthy conscience in the community and far-sighted enthusiasts to lead, there is no period in the span of life—from its very creation to school age and beyond—that may not be safeguarded or, if damaged, healed, or at least eased.

Since the establishment of the first Infant Consultation in 1906, we have cast our vision both before and after the baby, introducing care of the expectant mother, as well as of the ex-baby and school child.

And so have arisen our ante-natal clinics and maternity hostels; treatment centres for teeth, throat, nose, ear, eye, and minor ailments; observation wards for slightly ailing babies; venereal clinics; sale of milk, foods and drugs; literature and clothing stalls; classes for mothers—all of which bid fair to establish themselves in connection with every infant welfare centre in the land.

With our ex-babies entering upon school life with a clean bill of health, the problem of school hygiene becomes, in the main, preventive rather than curative; with our school children leaving school and entering upon their life work as healthy adolescents, they will carry with them a better heritage than our C3 population enjoys at present. If we are to believe the representation of the nation from the findings of the Ministry of National Service —of two and a half million recruits examined, 36 per cent. were of normal standard of health, and more than 10 per cent. totally and permanently unfit for any form of military service. B. T.

INFANT MORTALITY AND ALCOHOL. (See ALCOHOL.)

INFANTS, THE TEACHER OF.—The teacher of infants, whether in a kindergarten or in the infants' department of a public elementary school, is distinguished from the teacher of older scholars in one or more of the following ways: (1) She has usually undergone a rather more severe training in methods of teaching; (2) the hours of teaching are usually slightly shorter, but, because of the comparative shortness of the lessons, they tend to be more crowded with work; (3) her prospects of promotion are, in general, less bright than those of a teacher of older scholars.

The National Froebel Union (*q.v.*) examines teachers and candidates for the teaching profession. The examination subjects include those with which a teacher of infants must be familiar, and in particular the "craft" side of those subjects (*e.g.* English includes story-telling; handwork includes theory and the actual practice of manipulating material). In addition to this part of the examination, there is a severe test in actual teaching. The higher certificate of the National Froebel Union is, therefore, a good "qualification" for a teacher of infants, though the Board of Education considers this certificate as qualifying a teacher for recognition as only an "uncertificated teacher."

The personal qualifications of voice and manner, of temperament and insight, are, however, of even greater importance than the paper qualifications. The conditions of life in an infants' school or kindergarten are such that a great deal of real work has to be done without loss of the play spirit. There is to be a steady development from the play of the mere babes to the more serious work, with frequent intervals of play, which has to be done by those expecting promotion to the senior department. One of the greatest contributions of Dr. Montessori (*q.v.*) to education is her re-affirmation of the possibilities of development of the child, and her insistence upon the correct attitude of mind of the teacher.

The salary of the teacher of infants is, as a rule, similar to that of an equally qualified teacher of older scholars. Her prospects of promotion are less, especially in kindergartens. In public elementary schools the necessary limitation of the size of an infants' department accounts for the limitation of the teacher's financial prospects. A. C. C.

INFANTILE PARALYSIS.—(See INFECTION AND SCHOOL CHILDREN.)

INFECTION AND SCHOOL CHILDREN.—An infectious disease may develop when infection has gained access to the system of a susceptible person. Infection is a living particulate body which develops during the course of the disease. It breeds true, and therefore repeats the same disease which gave it origin. Susceptibility to attack varies, since each person possesses a certain amount of resistance. Concentration of infection, resulting from the presence within the four walls of a room of a child suffering from an infectious disease, is more likely to cause an outbreak than exposure of the same child in the open air, where air currents dilute the infection. Immunity from attack may be natural or acquired. The commoner form is the acquired, which follows attack. Acquired immunity varies in permanence. In some diseases, as influenza, it is slight; in others, such as measles or scarlet fever, it is more permanent; whilst diphtheria occupies an intermediate position. Some diseases render a convalescent child more prone to attacks of other ailments, *e.g.* pneumonia after influenza, and pneumonia or tuberculosis after measles. Two attacks of the same infectious disease in childhood are not common, though not unknown.

The onset of an infectious disease is preceded by a period of incubation, during which stage symptoms are absent or slight.

Symptoms at Onset of Disease. The more or less characteristic onset is usually associated in children with headache, feverishness, rigors, sickness and vomiting. After the onset, the disease runs its usual course, and characteristic symptoms develop. In some instances rash is a prominent feature. Catarrh of the nose and eyes, with a rash following after the third or fourth day, is observed in measles; sore throat and a scarlet rash in scarlet fever; sore throat and membranous exudation on the fauces in diphtheria; water blisters in chickenpox; papules, which develop through the stage of blisters to pustules, in smallpox; and so on. After a time the disease declines, and convalescence is restored. Unfortunately, infection is not invariably completely thrown off when convalescence is reached; and some children, particularly after scarlet fever and diphtheria, may continue to be infectious for some time after they are apparently completely restored to health. Cases are also atypical, and the illness so slight and transient that the exact nature of the ailment is not recognized. These patients are capable of spreading infection; and, therefore, when an infectious disease is prevalent among school children, slight ailments should be investigated with every care, particularly attacks of sickness and sore throat in the case of scarlet fever or diphtheria. Other children appear to harbour infection without developing the disease, a fact which should be remembered when outbreaks occur in a class and no known contact can be discovered. What are apparently minor complications, particularly catarrh of the nose or sore throat, require medical investigation if they develop soon after convalescence. In the case of measles, the early symptoms of catarrh are indistinguishable from those of common cold; and, although a child is excluded after the rash appears, other children may have contracted the ailment during this period of catarrh.

The chief points which require to be observed in schools are the following—

1. A register should be kept containing the past history of each child, and this should be kept up to date.

2. In residential schools, a certificate stating that the patient has not been exposed to infection for three weeks previous to return, should be required. If there has been infection in that period, or there has been exposure during an "exeat," quarantine for the period stated below should be insisted upon.

3. The earliest possible recognition of an infectious disease should be attempted, followed by isolation of the patient.

4. If children have been exposed to infection, they should be excluded for the incubation period of the disease and a few days over.

5. In times of prevalence, frequent examination should be made of all children for unrecognized cases, using the bacteriological method where such is available (*e.g.* in diphtheria).

6 Exclusion of convalescents for a period beyond that of cure is necessary after certain diseases, as indicated in the table below.

7. "Discharge" cases, "return" cases, and "carrier" cases should never be lost sight of in their relationship to outbreaks.

8. Disinfection should be performed where there has been a possibility of a patient infecting either rooms, clothing, or school appliances.

Period of Exclusion. The following table indicates the duration of usual exclusion from school of patients, and also the generally accepted period of incubation and duration of quarantine, the latter as set out by the Medical Officers of Schools Association. The period of quarantine should begin after

Disease.	*Period of Exclusion.*	*Incubation Period.*	*Duration of Quarantine.*
MEASLES	For not less than 14 days after the appearance of the rash. Satisfactory convalescence should also be established.	10–14 days	16 days
RUBELLA (German Measles)	For not less than 10 days after the appearance of the rash in uncomplicated cases.	7–18 days	20 days
SCARLET FEVER	For a fortnight after disinfection of the patient. Uncomplicated cases are rarely discharged from isolation under 4 weeks from attack. Complicated cases may require prolonged exclusion.	2– 8 days	10 days
DIPHTHERIA	For a fortnight after disinfection of the patient. Uncomplicated cases are discharged from isolation in about three weeks. The bacteriological test should be used.	2–10 days	The bacteriological test should be used; a negative result is desirable on three successive occasions at intervals of two days, and no antiseptic should have been used for at least three hours prior to taking the tests
CHICKEN-POX	Until all scabs have fallen off.	11–19 days	20 days
SMALLPOX	Until all scabs have fallen off and the patient has been disinfected.	10–14 days	16 days
MUMPS	A week should elapse after the glandular swelling has subsided. In general, the duration of the disease is about 2 weeks.	10–23 days	24 days
WHOOPING-COUGH	A fortnight should be allowed to elapse after the whoop has disappeared. This usually takes about 3 or 4 weeks. In case of persistence of the whoop, not less than 6 weeks should elapse before return to school.	7–19 days	21 days

the disinfection of the contact, and during the period further contact with infection should be avoided.

Exclusion of contacts on account of enteric or typhoid fever and erysipelas are rarely required, and the period of exclusion of patients suffering from these diseases, and also the exclusion of patient and contacts in the case of cerebro-spinal meningitis (spotted fever) and polio-myelitis (infantile paralysis), should be the subject of special inquiry in each instance. W. J. H.

INFERENCE.—This is the process of reasoning which leads from facts which have been observed to the knowledge of other facts which have not been observed, and combines the whole in one comprehensive system of knowledge. The method of inference is shown in the syllogism.

INFLUENZA.—(See INFECTION AND SCHOOL CHILDREN.)

INFORMAL METHOD.—Instruction is sometimes given in connection with a subject of formal teaching apart from formal lessons on that subject. Such teaching may be methodical in so far as it is part of a plan to connect the forms and rules of the subject with their use. Such a method is called "informal," and is being increasingly employed in connection with grammar, which was long taught quite formally, but is now taught informally to a large extent in connection with composition and literature.

INFORMATION.—To the educationist, the imparting of knowledge is a means of education, as well as an end. He can educate only through information, and in the hands of a teacher the information imparted must always lead to educational development. The purposes he has in view are to draw out, exercise, and develop the mental powers of his pupils, and to enable them to acquire knowledge in the easiest and most effective way. On the other hand, the informationist has no purpose but to impart as much information as possible without interesting himself in the development of the mind of the learner or hearer. Education both prepares the learner's mind for the reception of information, and trains it to utilize prepared and suitable information. Given suitable preparation of the mental powers, and systematic training of the power to apply knowledge, there is practically no limit to the amount of information that may be provided to the learner. Every fresh supply of knowledge adds to the store of material required for the free development of the mind, helps in the interpretation and application of both old and new forms of knowledge, and constitutes both a pleasurable and a profitable possession.

INHIBITION.—This may be either physical or psychical. By physical or nervous inhibition is meant the inhibition of movements by control of the central nervous system. This is found in all co-ordinated muscular movements. Thus in learning any complicated series of actions, such as riding a bicycle, the movements are not perfectly co-ordinated until there is a definite amount of movement of certain muscles, and a definite inhibition of others.

Psychical inhibition is the prevention of the occurrence of one mental process by another. There are two main conditions of psychical inhibition. The first is competition between unrelated ideas, in which some controlling idea inhibits all others from the mind. Thus a soldier in battle may suffer from severe and painful wounds without realizing their existence. The second conflict occurs when two connected but incompatible ideas fight for position in consciousness. Such inhibition is the result of a judgment taking place in which the mental process already at the focus of consciousness must continue along one of two lines, and, whichever one is decided upon, inhibits the other. A feeling of strain always accompanies such mental conflict, and the inhibition of one of the two ideas may be due to competition for the motor nerve tract. M. J. R.

INITIATIVE.—Class-teaching makes for economy—of time, effort, and money. But in some measure also for inefficiency: individuality is apt to be neglected and personal independence and initiative disregarded. Unless controlled and modified of set purpose by the teacher, the forces of our school system will tend to produce an average of mediocrity—in which each pupil is one of a crowd, unduly responsive to suggestion and unduly imitative. Initiative is choice and selection, and a shaping of means to an end; it implies the disposition to challenge authority and to think with originality. The leader has it rather than the follower. It is a movement of will, and finds its best expression in the field of character. In teaching practice, the heuristic method is here of value, as contrasted with the "holding-forth" of the lecturer in oral exposition, with a natural and consequent absence of forceful compulsion upon the single pupil to *think* and *do* for himself. He should be let alone more. A. E. L.

INJURED, FIRST AID TO THE.—(See FIRST AID.)

INNS OF COURT, THE.—There are, despite the researches of recent years, many problems in the history of the Inns of Court which are yet unsolved; and, especially of their origin, even those who have made a study of their records can only speak with hesitation. When these records begin, it is clear that they speak of bodies which are already of some age, which have traditions and fixed organization, which have acquired property and privileges, and which are powerful to resist attack. Still, it is possible, by comparison and inference, to form at least a plausible conjecture as to the origin of these societies; and a very important and interesting origin it is.

For it is the cardinal fact in English legal history, and one of the cardinal facts in English history generally, that England alone, of all the countries of Western Europe, emerged from the night of the Dark Ages with a system of law which was, in the main, of pure native growth. While France, Germany, Spain, Italy, and Austria (to use modern names) were, for the most part, governed, or, at least, judged, by more or less correct versions of Justinian's Code and Pandects, or, possibly, by older versions of Roman Law, England, by the close of the thirteenth century, had developed a "common" or uniform law of her own, gradually formed by a kind of consolidation of the numerous local customs which, in the days of primitive barbarism, had governed each little village or hundred.

It may seem odd to say that this momentous fact was mainly due to the circumstance that, at the critical moment when barbarism was passing into civilization, England fell under the masterful rule of a line of foreign kings, who, powerful and ruthless as they were, had the sense to see that it was wiser to govern by justice rather than by terror and arbitrary force. In the matter of law, their policy was very clear. Their subjects should have their own law (*lex terrae*); but that law should be administered, not in the sleepy little tribunals which had grown up with village and hundred, but by the able and powerful body of officials who were gathering round the King's Palace at Westminster. By the end of the thirteenth century, the King's judges, either in the King's Courts at Westminster, or in their periodical circuits or progresses throughout the country, had secured a virtual monopoly of the important and lucrative business of administering justice to the lieges.

But the establishment of these tribunals inevitably necessitated the establishment of a body of skilled assistants to conduct the proceedings before them. There can be no greater mistake than to suppose that primitive legal procedure is characterized by simplicity and straightforwardness. Legal procedure is a substitute for physical combat; and, just as in a fight each party endeavours, by feint and parry, to get the better of his opponent, so in the lawsuit which is substituted for it. Probably even in the old local customary courts there were *forth-speakers* and other assistants of the parties. Still more would such assistants be needed in the new royal tribunals, where the judges did not even understand the native tongue of the litigant.

Strange to say, the demand did not, apparently, at first produce the supply; for we have, in the year 1292, the famous writ which requires Chief Justice Metingham and his comrades to take order for the election of a number of suitable attorneys and apprentices to serve the King's subjects in his Court, to the exclusion of all others. And, as the King suggests seven score as a suitable number, it is clear that the legal business expected to come before the King's judges in their various tribunals was at least considerable.

It might naturally have been supposed that the opportunity afforded by the King's writ would have been eagerly seized by the crowd of "clerks" who, even in the thirteenth century, were thronging the halls and lecture rooms of Oxford and Cambridge, with a keen eye to worldly advancement by their studies. But the law which was taught in those famous seminaries was either the Law of the Church, the so-called "Canon Law," or that "Civil" or Roman Law which the great revival of European learning in the twelfth and thirteenth centuries had made the law (one might almost say the faith) of every student with a claim to philosophic outlook or scholarship. To such persons, the jargon of the King's Courts was beneath contempt. Not for 500 years yet were the ancient universities to recognize English law as a subject worthy of study by educated men.

Nevertheless, the future really lay with the despised professor of the barbarous law of the King's Courts; and it was not long before there appeared, scattered locally over the irregular triangle which is still the centre of the English legal world, certain groups of lawyers of various denominations and callings—apprentices, clerks, attorneys—whose common bond lay in the fact that they were all alike interested in the business which was so rapidly swelling in the King's Courts, and not in the ecclesiastical business of the Church courts, or in the diplomatic business of the civilians. When their recorded history first faintly dawns, these groups are found to be living together, after the ancient gild fashion, a common life in buildings known as Inns of Chancery; though whether the mysterious word "Inn" stood first for the group or the building is one of the dark problems of the subject. And, inasmuch as the Court of Chancery was still in the future, we may assume, pretty safely, that the adoption of the word "Chancery" in the common title points to the close connection of all these groups with the King's Chancery or Great Seal office, whence issued, and still issue, the writs which were the first steps in almost all the processes in the King's Courts.

Early History of the Inns. The next great stage in the progress of the new profession is of vital importance; for it brings us face to face with a state of things which has existed, unaltered in essentials, from the fourteenth century to the present day. Once more the story is dark; and much must be left to intelligent conjecture. But it was during the fourteenth and fifteenth centuries that four of these lawyer gilds, probably the largest and most prosperous of the ten reputed to have existed, migrated to new homes, still in the sacred triangle, and, by virtue of their size and influence, acquired that exclusive right to grant admission to the English Bar, which is the chief secret of the strength to-day of the four Inns of Court.

Two of these gilds (tradition says those of Clifford's Inn and St. George's Inn) found an ideal home in the Hospital or Hospice of the Knights Templars, partly within and partly without the City boundary. In the year 1313 the Order of the Templars was dissolved, and its possessions given to the rival Order of St. John. But the Knights of St. John had already a house in Clerkenwell; so they were willing to lease their newly-acquired possessions to the lawyer gilds, one of which took possession of the eastern third or *Inner Temple*, and the other the adjoining third or *Middle Temple*, sharing amicably the Templars' Church; while the western third, or *Outer Temple*, became the town house of the Bishops of Exeter. Another of the gilds acquired, in the fifteenth century (though not without dispute), the ancient house and coney-garth of the Bishops of Chichester, on the west side of Chancery Lane, and, for some mysterious reason, gave it the name of *Lincoln's Inn*, or, to speak more accurately, "The Inn of Lincoln's Inn"; though the manor of the Earl of Lincoln, from which the name is, presumably, derived, lay to the north-east of the Bishop of Chichester's domain, and never included it. Finally, a little later in the fifteenth century, a swarm from some other Inn or Inns of Chancery settled in, and ultimately bought, the site of the present *Gray's Inn*, the ancient Manor of Portpool, then a suburb with mills and fields.

The Sixteenth Century. The century which followed was the great period of the Four Inns of Court. Not only did they then, as hinted above, in some way acquire the sole right of admission to the higher branch of the legal profession, and succeed in reducing to the rank of inferior appendages the ancient Inns of Chancery from which they sprang, but they became centres not

merely of professional learning, but of courtly influence and polite accomplishments. The testimony of Fortescue, the famous Chief Justice of Henry VI, shows that, even in the fifteenth century, they were filled by young men of good birth, who studied not only law, but music, dancing, and *belles lettres*. A wholesome system of discipline restrained the turbulent tendencies of the times; and even the spiritual needs of the students of the Inns of Court were provided for by a system of exercises in the Scriptures and a due attendance on Divine worship.

During the sixteenth century, the sons of the greatest families, even though destined to the profession of arms, thought their education incomplete unless they had spent a year at least as students of an Inn of Court; while the "Grand Christmases," and the "masques and revels," of the Inns were deemed worthy the presence of crowned heads.

Two of the most famous of these occasions have passed into recorded history. On the first, the great Francis Bacon and his fellow-Benchers of Gray's Inn gave an entertainment which was honoured by the presence of Queen Elizabeth; and Bacon, like the true philosopher that he was, has reasoned out the practice of "Masques and Triumphs" in one of his masterly essays, which shows him to have no small knowledge of stagecraft. The other of the two great historical entertainments was offered by the joint efforts of two of the Inns on the occasion of the marriage of James I' daughter, Elizabeth, with the Elector Palatine, in the year 1613. A full account of the ceremony is preserved in the records of Lincoln's Inn, by one of the participants; but the ceremony itself took place at Whitehall, not at the Inn. An account of the manner of keeping "Grand Christmas" at the Inner Temple in 1561 will be found in Gerard Leigh's *Accidence of Armorie*, extracts from which are reprinted as an Appendix to *Master Worsley's Book*, an eighteenth-century account of the Middle Temple, in the recently published edition of 1910.

With the potentates of the neighbouring City the Benchers of the Temples dwelt on equal terms; and woe to the City official who treated with any want of respect the privileges of the Inns, or violated the sanctity of their territory. But perhaps their greatest triumph was that, in this great sixteenth century, when so much was in the melting pot, the Inns of Court once more fulfilled the original purpose of their being, and, as there is good reason to believe, again repelled the powerful forces which were striving to substitute Roman for English Law, and saved to England her unique national life.

Not the least remarkable feature of these powerful institutions is the fact that, despite the public functions which they have so long performed, they have no recognized position in the eye of that law which they exist to maintain. While their members, as individuals, are, of course, like all persons, subject to the law of the land, the societies themselves are, in theory, merely private associations, having no title, save that of immemorial tradition, to their valuable privileges, no charter, no Act of Parliament, to prove their claims. They have always steadily refused to admit that they are corporations (*i.e.* legal "persons" who can be "visited" or examined, sued in Court, fined, or dissolved). Awkward questions of property they settle by means of the familiar English device of "trustees." They have no written constitutions; and they recruit their "Benchers," or governing bodies, by the cautious process of co-optation. Certain bold judges, like Lord Mansfield, have claimed to exercise authority over them; but as all the judges are necessarily chosen from among their members, and as most of the judges are actually Benchers, the probability of conflict between the Courts and the Inns is remote. With Parliament the Inns have, prudently, never tried a fall, preferring to defend themselves by the eloquence and influence of their many members to be found in both Houses. Truly, institutions which are characteristically English.

A Period of Depression. The Inns of Court reached their apogee in the sixteenth century. In the struggles of the Civil War they played a great part; but not unitedly, with the result that internal discord broke up the strong common life. During the triumph of the Parliamentarian party, to which the lawyers of the Temple furnished many leading figures, the Royalists were expelled or persecuted. After the Restoration, these naturally took their revenge. Discipline became relaxed, or was exercised to discover "malcontents," "delinquents," "malignants," and other political and religious victims. The courtly revels of Tudor times degenerated into coarse and gluttonous feeding; and Readers paid handsome fines to avoid an office which entailed enormous expenditure in entertaining. A great fire destroyed many of the Temple chambers in 1679; and, when they were rebuilt, the new chambers (though, to our thinking, primitive enough) contained so many more of the amenities of life than their predecessors, that the common life of the Halls, in which before that time the members had fed, studied, played, worked, and done almost everything but sleep, decayed; until they became little more than dining places. Later on, with the spread of the suburbs, "residence" became, for all but a diminishing band of celibates, merely a question of seeing clients and consulting books during the business hours of the day. By the end of the eighteenth century, the life of the Inns of Court had sunk to its lowest ebb; while that of the more ancient Inns of Chancery had become practically extinct. Two of the latter institutions had mysteriously disappeared; the remainder were treated as the private property of their "Ancients" or governing members, who, when their sites and buildings were acquired for public purposes in the nineteenth century, in several cases simply divided the large sums paid as compensation among themselves. Happily, this scandalous process was put an end to by judicial decision in the year 1900; and the resources of two of them—New Inn and Clifford's Inn—have since been acquired for the furtherance of legal education.

Modern History. The general revival of public spirit which marked the Reform period extended to the Inns of Court; and the Royal Commission of 1854 found that these venerable bodies had recently evolved a new and hopeful co-operative scheme for the fulfilment of their educational functions. The later history of that scheme will be found sketched under its appropriate title (see BARRISTERS, EDUCATION OF); but it is worthy of note here that, notwithstanding the activity of the Council of Legal Education, which is, virtually, the sole educational authority, and the recently-created General Council of the Bar, which is concerned with the professional

interests and etiquette of the Bar, the Benchers of the Inns, by virtue of the prestige and wealth of these ancient bodies—above all, by their valuable monopoly of "call to the Bar"—still retain the ultimate control of the discipline of the profession, in the widest sense. The Consolidated Regulations, which virtually embody this discipline, are not the Regulations of the Council of Legal Education, nor of the General Council of the Bar, but of the Four Inns of Court, any one of which might, in theory, set up different Regulations for the control of its own members. For, unlike the kindred Colleges of Oxford and Cambridge, the Inns of Court have never been, despite Coke's famous panegyric, members of a single university: they are, in theory at least, absolutely independent and self-governing gilds, each a law unto itself, owning no allegiance to any common centre or head.

E. J.

INNSBRUCK, THE UNIVERSITY OF.—This was established by the Emperor Leopold I in 1677. It was reduced to the rank of a lyceum by Joseph II (son of Maria Theresa) in 1782, but restored to university rank in 1792. The Empress Maria Theresa founded the university library in 1745. There are four faculties: Theology (the most important), law, medicine, and philosophy. The number of students is usually about 1,200. Women are admitted as hearers.

INSANITY IN CHILDREN.—"Mentally deficient children" (*i.e.* those suffering from mental incapacity dating from birth or an early age) being dealt with elsewhere (see MENTALLY DEFICIENT CHILDREN), it is proposed in this article to consider the (happily rare) cases of juveniles who display, after a period of normal evolution of their faculties, signs of mental peculiarity or breakdown, which are important not only from the doctor's, but also from the educative point of view. In the article above referred to, neuropathic heredity was cited as a potent cause of early mental defect, especially in those described as of the neurotic type; and this cause may also operate at a later period, subsequent to the development of some degree of intelligence and consequent capacity for education. In not a few cases of nervous instability, indeed, a certain intellectual precocity manifests itself, only to lead, like a too brilliant dawn, to subsequently beclouded conditions. With such, the educator must be on his guard to avoid any undue pressure along the path of progress, lest they break down by the way, remembering that, as Gloster puts it,

"Short summers lightly leave a forward Spring."
(*King Richard III*, Act III.)

Neurotic Children. In childhood, the manifestations of insanity are of a less pronounced character than those developed in adult life. As has been well remarked by Maudsley in his classic work on *The Physiology and Pathology of the Mind*, "the insanity met with in children must of necessity be of the simplest kind: where no mental faculty has been organized, no disorder of mind can well be manifest." He proceeds to show that the earliest signs of what may be called insane conduct—as when infants burst into uncontrollable fits of laughter, tear, bite, or destroy indiscriminately, or scream without apparent reason—are probably of sensorial origin, the sensori-motor functions of the nervous system being those chiefly developed, while as yet the higher controlling centres are in abeyance. Later, the child acquires the power of definite sensory perception; and thus hallucinations, sometimes of a terrifying character, may occur. Neurotic children are prone, between 3 and 8 years of age, to what are designated "night-terrors," the unfortunate subject of which wakes screaming from an apparently peaceful slumber, and is found, with dazed expression, sitting up in bed or even crouching in a corner of the room, often with hands outstretched, as if to guard himself from some fearsome vision. This he may describe as a "black man," a "fierce dog," or (as a physician states he himself experienced in childhood) "a huge cock, with red wings, discoursing frightfulness." For a time, the child may not recognize his own mother, who tries to console him, perhaps regarding her also as some horrid monster! The poor child's mental distress is, for a time, acute and exhausting; but, after a time, the hallucination fades away, often to leave no recollection of its character. To the patient, temporarily at least, the hallucination takes on the character of realism—becomes, in fact, a *delusion*—the distinctive mark of insanity. Happily, under judicious treatment, the tendency to such attacks may subside; but where the insane predisposition is profound, permanent mental disorder may result. In any case, the liability to night-terrors, or to the less frequent variant known as "day-terrors," require to be regarded as serious danger-signals, and the instruction of such a child calls for tactful discretion. The restful routine of an open-air school is perhaps the best available mode of education for children of neurotic temperament.

Epileptic Psychoses. Children of this type are prone to epilepsy, with its explosive motor manifestations, and fits are often heralded by unreasoning restlessness and excitability, and followed by mental lassitude and depression. The majority of such cases are unfitted for the ordinary school curriculum, but may receive benefit from physical exercises and training in manual occupations, especially those carried on in the open air. Some degree of mental deterioration is apt to occur when fits are persistent; and the milder form of epilepsy, known as *petit mal*, and characterized by transient loss of consciousness without convulsions, causes impairment of the faculties. Where an epileptic tendency exists, convulsions are sometimes substituted in children (even under 5 years of age) by startling paroxysms of insane fury, presenting the signs of *acute mania*.

Chorea, Mania, Melancholia. Chorea (known as St. Vitus's dance), which occurs in children over five of neuropathic and rheumatic tendencies, has not inaptly been designated "insanity of the muscles." Often arising from nervous shock or emotional disturbance (it may be from the worry of unwise educational pressure), due control of the muscular movements is lost, and grotesque contortions result. Mental disturbances and moral perversions are apt to occur in this disease; and even maniacal symptoms may arise, in the case of older girls especially, such being said to be suffering from "hysteria."

Delirium frequently occurs in the febrile diseases of children, and in toxic affections due to bad food or infections, giving rise to conduct suggestive of insanity, but happily transient in duration.

In addition to mental troubles characterized by symptoms of undue excitability, which we may consider as allied to *maniacal* conditions in the adult, cases of dejection are sometimes seen in

children, especially those on whom the stress of pubescence is beginning to operate, in which a tendency towards *melancholia* is developed. Exhausting complaints, such as influenza and typhoid fever, are occasionally followed, in children as well as adults, by intense mental depression. There is a loss of the vivacity of healthy childhood, a miserable (often pathetic) expression, sullen silence or querulousness of speech, and distaste for or refusal of food. When psychopathic predisposition exists, delusions of suspicion, groundless aversions to intimates, and even attempts at suicide, may follow. The frequency of juvenile suicide is greater than is generally supposed, a French writer stating that no less than 5·6 per cent. of all cases of suicide recorded in France in 1895 were of children under 10 years of age, a proportion exceeded in some other continental countries, notably in Germany.

Moral Perversions. Limits of space allow only a brief reference to the *moral perversions* of childhood. These, again, most commonly occur in those of neurotic stock, and take various forms alike perplexing to the guardians of the child. Lying, thieving, obscene conversation and practices crop up in such cases at quite an early age, independently of bad example, in spite of good training and surroundings, and can only be regarded as a strain of moral insanity. Some allowance must be made for exuberance of imagination in the young, which sometimes leads them to confuse the fiction of fancy with actual fact, and so renders them apparently untruthful, though not wilfully so. But the victims of moral insanity go beyond this; in the words of the Psalmist: "They go astray as soon as they be born, speaking lies"; indeed, some of them seem to have taken as their life's motto: "Evil, be thou my good!" In olden times, they would have been accounted "possessed." Sometimes winsome in appearance and of fair intelligence, they seem to be devoid of sense of right and wrong, of discrimination between *meum* and *tuum*, of decency or sense of shame. If punished, they may profess penitence, only to commit a similar offence when the pain has subsided. Such are many of the juvenile "criminal recidivists" (as they are called). They are incurable, and Society should be protected from them during their whole life. Fortunately, their number is comparatively small. Education, other than hard physical work, only increases their potentialities for mischief.

Distinct from this, we must, at times, watch boys and girls of school-age—especially at the period of pubescent strain—who exhibit a transient loss of moral control. Previously of good character and conduct, they become heedless, dirty, untidy, cruel, untruthful, and dishonest; without sense of shame when detected, and fearing only corporal punishment. They take no interest in their school work, and are addicted to solitary ways and vices. Often the physical health is indifferent; and by looking to this, and placing them in new and wholesome surroundings, with plenty of open-air occupation—under tactful, firm, but kindly supervision—reformation may be effected.

During the period of adolescence, certain forms of breakdown and degeneration occur, leading to dementia and death. Of these, the most noteworthy forms are juvenile general paralysis of the *insane* in those affected with inherited syphilis, and the degenerative symptoms grouped under the term *dementia praecox*. G. E. S.

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INSOMNIA.—The conditions which give rise to sleeplessness may be roughly classified under two heads: Injury to, or organic disease of, the brain; or blood poisoning, as in fevers and acute alcoholism; functional, in which there is no lesion of the brain, the sleeplessness being due, for the most part, to some error in the circulation. Sufferers belonging to the former category are, as a rule, gravely ill and require skilled medical attention. But functional insomnia is a common ailment in men and women who are otherwise apparently in good health; it is for such that this article is written.

Now, at the outset, it must be understood that the brain is very freely supplied with blood vessels through which the blood is vigorously pumped by the heart. But the strength of the circulation may vary according to the position of the body and according to the brain's activity. This latter condition is *the* important factor in the causation of functional insomnia. Sleep is produced by an alteration, temporary though it be, in activity of the cerebral circulation. When a man is asleep, his brain is in a state of partial anaemia. When he is awake, his brain becomes more full of blood, and has an increased blood tension and pressure. This has been proved by experiment.

Wakefulness is due to increase, sleep to decrease, of blood circulating through the brain.

Insomnia is almost entirely confined to brain-workers; it is rarely met with in hospital practice, or among the so-called "labouring" classes. Mental strain produces, at best, imperfect sleep, accompanied by distressing dreams or nightmares. A dreaming brain is an unrested brain; and the sufferer rises in the morning feeling more tired than when he went to bed.

The amount of sleep required by an active brain worker will vary. Growing boys at school should have ten hours' sleep, at least. Men and women (though fewer women suffer from insomnia than men) who are brain-workers should secure eight. As a rule, sound sleepers are good workers. If the quality of sleep be good, the quantity need not be so much; that is to say, in profound sleep, restoration of the body is effected in less time than in uneasy sleep. Amongst the predisposing causes to functional insomnia are grief, worry, and the struggle to earn a living. Overwork of itself does not so frequently lead to insomnia as the mental strain, possibly due to financial worries or other distressing causes, which compels the overwork. Flatulent dyspepsia, hyper-acidity (heart-burn), over-indulgence in coffee or in wrongly-made tea, are also causes: though, in my experience, tea and coffee are beneficent beverages when consumed in due quantities; and, further, a well-made cup of hot coffee, with milk, is often a valuable soporific, especially if the circulation be poor. Alcoholics (I mean those who consume alcohol in excess) also suffer from insomnia owing to the cerebral flushing which alcohol causes. Elderly people, again, sleep badly, and are often heard preaching the advantages of very early rising. Certain changes in their cerebral circulatory vessels are the cause of their insomnia.

Treatment. At the outset, I would urge the sufferer not to apply to opium, morphia, or other

toxic remedies. Even in the hands of an able physician, there is some danger. Any one with a slight knowledge of drugs can administer a hypnotic: few can rescue a sufferer from its baneful effects. Certainly the sleepless man must never drug himself.

The first necessity is to find out the essential cause; and, unless there be some condition to call for "sleeping" drugs, we should depend entirely on such measures as conduce to a lessened activity in the circulation through the brain. When one organ of the body becomes increasingly active, the activity of other organs is, *pari passu*, diminished. Blood must be attracted to some part of the body other than the brain.

The following hints may be of use—

1. Let the bed be comfortable, with a firm mattress rather than one stuffed with soft and hot feathers.

2. If you are accustomed to sleep with your head towards the North, do not neglect such a precaution, even though it be an idiosyncrasy.

3. The head of the bed should be slightly raised to allow the sleeper's head and shoulders to be on a higher level than the trunk and legs.

4. Keep regular hours, and go to bed at night when there is the slightest inclination to sleep.

5. A hop pillow has some virtues, from the sedative and soporific effects of its contents.

6. Before going to bed, take a cold bath (60° F.), followed by a brisk rubbing of the skin. The body may be wrapped in a cold wet sheet, if a bath is not at hand.

7. Take some brisk exercise, such as is afforded by the use of dumb-bells or light clubs.

8. Take some warm food—a cup of beef-tea, soup, milk, or Benger's Food: it will in many cases induce sleep. A tumblerful of warm water, to which some sugar and grated nutmeg has been added, is often effectual (Duckworth).

9. Have some food at hand, warm, if possible, to take should you awake after, say, two hours' sleep.

10. An onion which has been gently stewed for an hour in milk may be eaten with the milk and a slice of toast. Few people appear to be cognizant of the virtues of this excellent vegetable.

11. Brush the scalp vigorously for a quarter of an hour, or longer; then follow this with a brisk shampooing of the trunk and limbs. Even a warm flannel on which some turpentine or mustard has been lightly sprinkled, when applied to the pit of the stomach, often has good results.

Patients with hyper-acidity often find effectual relief by taking a small dose, as much as will lie on a sixpenny-piece, of bicarbonate of soda, with a pinch of powdered ginger, dissolved in a little warm milk and water. Probably such sufferers are eating too much starch and sugar foods. Although I have advised warm food as a procurer of sleep, it must not be supposed that an overloaded stomach is an advantage. No meal should be a large one, and should consist of such amount and quality as the stomach can accommodate and digest. Alcohol, which, taken to excess, may increase insomnia, because of the brain congestion which it causes, may sometimes be necessary, in the form of a "night-cap," for senile patients, on account of their more rigid and unyielding arteries. But even in these cases, it must be taken cautiously, in small doses only; and it is better accompanied by some warm milk or gruel.

In conclusion, it must always be remembered that a man with an overworked brain must not continue the life he is leading. If he requires a holiday, as is most likely, let him go where the air is soothing, as well as stimulating. Muscular exercises in the open air, short of violent exertions, should be sedulously cultivated. The sufferer should ride a horse or a cycle, or play golf, or work in a garden, or take such other exercise as his means and opportunity will allow.

It is often a good plan to secure an action of the bowels before going to bed. Circulation through the abdominal viscera is thus increased, and the brain congestion is consequently relieved. The bowel will soon accustom itself to this altered *régime*.

SEYMOUR TAYLOR.

INSPECTION.—(See EXAMINATION AND INSPECTION.)

INSPECTION OF SCHOOLS (SECONDARY).—(See LOCAL EXAMINATIONS [UNIVERSITY], THE HISTORY, WORK, AND PROGRESS OF.)

INSPECTORS OF SCHOOLS.—Grants-in-aid to local education authorities are made by the Treasury on certificates of efficiency duly attested by H.M. Inspectors. The evolution of the inspectorate from the days of its infancy prior to 1870 has undoubtedly tended towards a consummation of perfection. No longer are its recruits drawn from the ranks of "unbeneficed clergy and briefless barristers"; and though the factor of nepotism has not wholly been eliminated, a more effective system of appointments has now been established and maintained. A special feature of the beginning of the present century in the appointment of inspectors was the preference given to men and women "experts" in education.

The work of H.M. Inspectors, as a result of the more recent Education Acts, is brought into close relation with that of the local education authorities. For general inspection purposes, England (Wales, with Monmouthshire, has its own inspectorate; Irish and Scottish education, is administered from the respective capitals) is divided into nine divisions, each comprising a number of counties and boroughs, supervised by an H.M.I. and his staff. Each of the different "branches" of education has its own chief inspector. One is the Chief Woman Inspector; the others are respectively responsible for (1) secondary schools and pupil teachers' centres; (2) technical and continuation schools; (3) public elementary schools; (4) schools of art and art classes. The subordinate staff consisted for many years of junior and sub-inspectors, but these classes are gradually giving place to that of assistant inspectors. There are upwards of 350 inspecting officers of the Board of Education, including about sixty women inspectors. Some of the inspectors of the Technological "branch" cover a wide range of work as inspectors and advisers in such subjects as navigation, engineering, textiles, fishing, and boot and shoe manufacture. The women inspectors are employed for all grades and types of education: Training colleges; infants', girls', and mixed elementary schools; schools for domestic subjects; secondary and technical schools; trade courses for girls; and girls' clubs and physical exercises. Music, drawing, and handicraft have their own staffs of inspectors. There is a separate medical section, with a staff of qualified doctors of both sexes.

Local Inspectors. The bulk of the local education authorities depend on their own inspectors for the more direct control of their schools. Some of the

smaller bodies seem content to accept the formally-expressed reports of the Board's inspectors. The county and more important urban authorities, however, are guided by their own expert officers, who apparently are employed to watch both the educational and the economical interests of their employers.

The London County Council Education Committee employ a chief inspector, four divisional (secondary education) and twelve district inspectors, with twelve assistants (including three women); four of these help the evening schools' inspector; the others assist in dealing with requisitions and the selection of reading books, besides visiting and reporting periodically upon the day-schools. Conferences of inspectors are held from time to time.

For the West Riding of Yorkshire there are four inspectors: one each for the secondary and technical branches and two for elementary education: (1) Accommodation, attendance, etc.; (2) school organization and management, staffing, curriculum, supplies, etc. Besides doing office work, they visit the fchools; and each has an assistant inspector, who surnishes reports.

The Devon County Education Committee rely upon the services of two inspectors, who deal with supplies, staffing, etc., and report upon the schools in the area.

INSTINCT.—The term "instinctive" may be applied either (*a*) to certain observable modes of behaviour, such as the swimming of a duckling directly it is placed in water, or the flight of a swallow when first it is committed to the wing; or (*b*) to certain inferred dispositions of which more complex behaviour is the expression, such as the instinctive disposition of some birds to migrate and, on their return to the breeding area, to secure a territory, to mate, build a nest, procreate and rear their young. In either case, the emphasis is on the hereditary character of the observed behaviour or of the inferred disposition. They are unlearnt in the sense that they are not gradually acquired in the course of individual life. In the phraseology of a well-known educational formula, they depend upon some form of racial preparation; they demand some presentation of appropriate conditions; and they lead up to application in the conduct of life. Whether the dispositions are to be regarded as primarily organic and dependent, let us say, on the hereditary structure of the nervous system, or are to be regarded as dependent on structures of the mind which uses the body as its instrument, is a difficult problem which need not here be discussed. From the educational point of view, the stress is on instinctive dispositions in the broader sense (*b*), which are to be regarded as mental, and which must be reckoned with by those whose chief concern is the training of the mind.

Habit and Instinct. It is clear that if such inherited dispositions were unalterable, there, from the educational point of view, would be an end to the matter. We should have to accept them as they are, just as we accept the colour of the child's eyes. But instinctive dispositions are not unalterable. They increase in strength when they are allowed free play; they wane if opportunities for their expression are denied them. An instinctive disposition, endorsed by the frequent repetition of the kind of behaviour which is its outward manifestation, is supplemented by habit (*q.v.*); but, if it be prevented from finding expression, it may pass into a latent state, though circumstances unusually favourable to its manifestation may reveal its continued presence. Under the simpler conditions of animal life, the group of dispositions which we speak of as the nature of the animal seldom fail to be endorsed by habit. But under the more complex conditions of human life, instinctive dispositions appropriate to the mere animal nature above which the child must rise, need checking or guiding to finer issues. But here it is often more efficacious to utilize the principle of supersession than to attempt direct suppression. It is by affording opportunities for the repetitive establishment of what we deem good habits that the overcoming of bad habits is most effectively secured.

Apart from the direct influence of habit-formation in supplementing certain instinctive dispositions, with the diminution in strength of opposing tendencies—apart from this, as mental development proceeds, the hereditary bias to certain kinds of behaviour comes more and more under the sway of motives in connection with something like a settled purpose in life. The instinctive dispositions, as such, are impulsive; they arise unbidden in presence of the situations which evoke them. Whether, notwithstanding the strength of the impulse of the moment, they can be held in check, depends on the strength of the intellectual and moral character, and on the inborn power of self-control developed under that guidance which it is the chief end of education to afford.

The innate capacity of acquiring systematic knowledge and, in the light which it sheds, of controlling action for the compassing of foreseen ends, is no less hereditary than are the instinctive dispositions. Neither child nor man can do aught beyond the limits of his inherited power. It seems necessary, therefore, to distinguish carefully between (1) instinctive dispositions to behave in certain ways prior to explicit intelligent guidance, and (2) innate capacity for such intelligent guidance and control of action. The latter, no less than the former, may show tendencies in specific and hereditary directions: both may be more or less markedly touched with emotion; but innate capacity more distinctively affords the hereditary foundation of character.

Instinct and Emotion. So close is the connection between instinctive and emotional dispositions (*q.v.*) —the former to behave in certain ways, the latter to be effectively stirred in some distinctive manner —that we may regard the more primitive emotions as in intimate alliance with instinctive dispositions of full intensive force, experienced with some measure of warmth and glow, felt distinctively each with its special quality, and overflowing the normal limits of expression in behaviour.

Mr. McDougall, to whose *Social Psychology* reference may here be made, gives a list of what he regards as the primary emotions of man, each of which has its instinctive manifestation in some recognizable kind of behaviour. Tempting though it would be, however, to try, did space permit, to assign to the period of school life a definite number of instincts duly labelled and placed in order, it is questionable whether, in the present state of knowledge, it is not wiser, and perhaps more practically helpful, to rest content with a broad distinction of two groups of dispositions with opposite tendencies. In the one group, there are those which tend towards yielding, shrinking, clinging for support, dependence, submission, falling readily into line,

and helplessness in presence of difficulties. In the other group are those whose tendency is in the direction of what may be summarized as independent self-assertion. Between these opposing dispositions, unquestionably instinctive in a broad sense of the term, there is constant interplay. Which of the two, in any given situation, is dominant depends in large measure on the circumstances. In the child as he enters school, and in the boy who is about to leave it, the balance is different. But, at any given stage, the tactful teacher can judge whether a boy has an instinctive disposition which renders him over-timid, dependent, merely imitative, and too readily daunted by difficulties on occasions when self-reliance, independence, and reasonable self-assertion would be in place; or, on the other hand, when, through inherited nature, the opposite state of matters obtains. It is for him, then, so to act as, so far as may be possible, to redress the balance. (See also ANIMAL EDUCATION; PLAY IN EDUCATION.) C. LL. M.

Reference—

EREVER J.—*Instinct in Man.*
MACDOUGALL, W. *Social Psychology.*

INSTITUTE OF HYGIENE.—(See HYGIENE, THE INSTITUTE OF.)

INSTITUTE OF JOURNALISTS.—(See JOURNALISTS, THE INSTITUTE OF.)

INSTITUTE OF MARINE ENGINEERS.—(See MARINE ENGINEERS, THE INSTITUTE OF.)

INSTITUTES (AMERICAN).—These are established for the benefit of teachers, to provide assistance similar to that given in training colleges and normal schools. They afford teachers opportunities for obtaining suggestions on matters of school organization, teaching, and professional training. The earliest institute of this kind was held in 1839 at Hartford, where some eminent teachers collected a number of young men for a period of six weeks, and gave lectures and practical demonstrations explaining and illustrating the best methods of teaching the elementary subjects. Later, public authorities in various States took up the work, and at the present day the institutes have in many parts developed into summer schools, at which teachers meet for a few days or for several weeks to receive instruction and training, and discuss practical subjects connected with education. The institutes are maintained by the State or by fees paid by the teachers, and are attended chiefly by teachers from the rural districts.

INSTITUTION OF CIVIL ENGINEERS, THE.—This was founded in 1818, and incorporated by royal charter in 1828 for the " general advancement of mechanical science." It consists of Members, Associate Members, Associates entitled to the privileges of corporate membership, and Honorary Members. There are also attached to the Institution, Associates not entitled to the privileges of corporate membership, and students.

Candidates for admission as students must be between 18 and 25 years of age, and must be recommended by a Corporate member under whom he is, or has been, in course of preparation and training for the profession of a civil engineer. He must pass the Preliminary Examination held by the Institution, or give proof that he has passed a similar examination (*e.g.* a university Matriculation or its equivalent).

Students between 21 and 26 years of age are eligible for the Associate Membership Examination if they have completed at least one year's studentship. The subjects are all technical, and include mechanics, electricity, magnetism, metallurgy, mineralogy, drawings, specifications, and quantities.

Certain graduates of universities may be exempted from the Associate Membership Examination if their degrees are in engineering or similar subjects.

Copies of papers set in the examinations can be obtained from Clowes & Sons, 31 Haymarket, S.W.1. Members of the Institution use after their names the letters M.Inst.C.E.

The office of the Institution is in Great George Street, Westminster, London, S.W.1.

INSTITUTION OF ELECTRICAL ENGINEERS, THE.—This has its offices at Victoria Embankment, London, W.C.; and was established in 1871 as successor to the Society of Telegraph Engineers and Electricians. Its main object is to promote the general advancement of electrical and telegraphic science and its applications, and to facilitate the exchange of information and ideas on these subjects among the members of the Institution. To promote its objects, the Institution holds meetings for reading and discussion; promotes exhibitions of instruments, apparatus, and electrical appliances; and publishes reports of the proceedings of the Institution. Grants are also made to promote research in electrical or telegraphic science.

The membership includes corporate members and non-corporate members, the latter class consisting of Associates, Graduates, and Students.

To be qualified as Member or Associate Member, the candidate must have been educated as an electrical engineer and possess practical experience in a responsible position. A Member must be 30 years of age, and an Associate Member 25 years. Students of three years' standing may become Associate Members.

Associates are persons who, not being electrical engineers by profession, are chosen by the council on account of their services to electrical engineering or their connection with the applications of electricity. Persons of 23 years of age employed in an engineering capacity in the applications of electricity may be elected as Graduates. Students of electrical engineering in universities, colleges, and schools, and pupils of corporate members, may become students of the Institution, and remain such until the end of the year in which occurs their twenty-sixth birthday.

A candidate for admission as student must give evidence, supported by the signature of a corporate member, of his general education, electrical engineering and general engineering education and practical training.

The abbreviated titles authorized to be used by the various classes of members are: Hon.M.I.E.E.; M.I.E.E.; A.M.I.E.E.; Associate I.E.E., Graduate I.E.E.; and Student I.E.E.

INSTITUTION OF MECHANICAL ENGINEERS, THE.—This was founded in 1847 with George Stephenson as its first president. Other presidents in the early years of the Institution were Robert Stephenson, Sir Joseph Whitworth, and Lord Armstrong.

The principal objects of the Institution are to promote the science and practice of mechanical

engineering and all branches of mechanical construction, and to give an impulse to inventions likely to be useful to mechanical engineers and to the world at large.

The Institution consists of Members, Associate Members, Graduates, Associates, and Honorary Life Members. The council is chosen by the members, and consists of a president, six vice-presidents, and twenty-one members. Members are chosen by election, and must be 30 years of age, of good education, and employed or experienced as mechanical engineers. A Member may designate himself M.I.Mech.E. Associate members must be 25 years of age and have passed the Associate Membership Examination; or, being 30 years of age, must satisfy the council as to their education and practical experience. Graduates must be 18 years of age, and must have passed the Graduateship Examination. Associates must be over 30 years of age, and are chosen by the council from persons not mechanical engineers.

Each of these classes pay an annual subscription, and all except Graduates pay an entrance fee.

The Graduateship Examination is held twice a year, and includes four papers of three hours each, viz., general knowledge, elementary mathematics, elementary mechanics, elementary physics or chemistry. University Matriculation and certain similar examinations are accepted as an equivalent.

The Associateship Examination includes (*a*) general knowledge; (*b*) scientific knowledge, two papers; (*c*) technical knowledge, two papers selected from seven subjects.

The headquarters of the Institution are at Storey's Gate, St. James's Park, London, S.W.1.

INSTITUTION OF MINING ENGINEERS.—(See MINING ENGINEERS, THE INSTITUTION OF.)

INSTITUTION OF MINING AND METALLURGY.—(See MINING AND METALLURGY, THE INSTITUTION OF.)

INSTITUTIONS, RESEARCH IN THE HISTORY OF EDUCATIONAL.—It is impossible to arrive at a scientific solution of the problem of what education ought to be if we do not know what it has been and how it came to be what it is. Yet no history of education in England has been written, and only in the last thirty years have the elements of such a history been begun to be collected. A few stock generalities, most of them as untrue as they are defamatory of the past, have done duty for facts. The schools were credited to the monks until the supposed scientific system of Edward VI. As to subjects and methods, only a few writers famed for their writings—Erasmus, Ascham, Milton, Locke—were considered worthy of notice; and, their experience being limited, at best, to that of private tutors, their influence on practical educators was nil.

Early Researches. The Schools Inquiry Commission, in 1866–1867, collected a vast amount of information as to post-Reformation statutes and the recent condition of secondary endowed schools, on which the reconstitution of the government of the schools was based. But pre-Reformation history was almost wholly ignored, and the intermediate period passed over. Moreover, the history was chiefly taken from Lord Brougham's Commission, which sat from 1818 to 1837, and approached the schools as charities, being mainly interested in the legal aspects of their endowment deeds. No attempt was made to give their educational, as compared with their institutional, development.

The Work of Individuals. Since 1885 a great deal of research into the history of education has taken place. Institutional history gathered from the registers of bishops, from records of cathedral and collegiate churches, of hospitals and gilds, of ancient cities and boroughs, from State papers and rolls, has been given by Mr. A. F. Leach in regard to the schools of eighteen counties in the *Victoria County History of England*. London schools were treated in Besant's *Survey of London*, "The City"; and other schools in monographs, such as *The History of Winchester College* (1899); Canterbury, "Our Oldest School," in *The Times* and *Guardian*. A conspectus of the results, including foundations, endowments, fees, subjects of instruction, curricula, and methods, is given in *English Schools at the Reformation* (1894), *Educational Charters and Documents* (1911), and *The Schools of Medieval England* (1915). Professor Foster Watson has dealt more especially with school writers and school books of the past, and the curricula in *Tudor School Boy Life* (1908), *The English Grammar Schools to* 1660 (1908), and *The Beginnings of the Teaching of Modern Subjects in England* (1909).

An Historical Education Committee. An organization is needed for conducting further researches and co-ordinating and publishing the results. A central committee should be established, as has been suggested, by the British Academy, with funds to pay for researches and for the publication of results. The last might begin with an educational chartulary of the scope and magnitude of Denifle's chartulary of the University of Paris, one of the results of which was the complete recasting of the history of the University of Oxford by Dr. Rashdall. This chartulary should comprise, up to a date to be fixed by the bulk of matter obtained, everything bearing on the educational history of England. For the early period, a working knowledge of Latin, a sufficient acquaintance with law to know the purport of a legal document; and not, for instance, to undertake a conveyance on appointment of new trustees for a foundation deed, or a lease for a sale; and the power, easily acquired, of reading old writing are required. The Record Office documents, patent rolls, charter rolls, inquisitions, early Chancery proceedings, augmentation office books, even assize rolls, and De Banco Rolls, which have been searched over and over again for light on dead monasteries, long perished church goods, or obsolete manorial customs, have never been calendared by anyone interested in our, for the most part, still living educational institutions. The schools are carelessly ignored and passed over. This would be corrected by pressure of an Historical Education Committee. For the growth and development of methods and theories of education, of curricula, of school books, and the internal economy of schools, the manuscripts and early printed books of the British Museum, and other great libraries demand, and would well repay, investigation. Saints' lives and the biographies of great men are often fruitful in facts bearing on the history and progress of schools and colleges. If only ordinary workers in these fields, even when intent on other matter, could be induced to note and communicate educational items which they come across, as they might do to an organized committee when they will not take the trouble for individual workers, our knowledge would grow rapidly.

Hints for Research. For the towns and counties whose educational history has not yet been undertaken, the aid of local workers, local antiquaries and historians, especially schoolmasters and the clergy, must be organized. School records, borough records, churchwardens' accounts, county magistrates' records, require to be thoroughly ransacked. One local source almost untapped is that of private collections of manuscripts, especially family letters, not only for ancient but for modern times, especially the second half of the eighteenth and the first quarter of the nineteenth century, when so many schools, which had survived the storms of the Norman Conquest, the Wars of the Roses, and the Restoration, perished mostly of inanition. If there are not lurking in private libraries many collections of private correspondence as old and full as the Paston Letters, there must be many like the Verney Letters, many an ancient body of school statutes, many a boy's school accounts, ancient school-books and school exercises, letters from masters to parents, which may throw real light on the life of our schools. It is from fragments remaining in localities that we are put on the track of documents preserved in the public records. The bulk of the latter is too vast to be effectively attacked without a clue from local sources: but they mutually throw light on each other.

The oral teaching of Latin, the intensive method of learning a language, the pupil-teacher system, the monitorial system, the study of Greek, large classes, small classes, examination, all the latest panaceas in education were cried up and decried, again and again in the past. Their history may perhaps at least throw light on the panaceas put forward in the future. A. F. L.

INSTRUCTION AND EDUCATION.—A sharp distinction is usually drawn between education and instruction; sharper, perhaps, than is necessary or quite true. In root meaning, instruction connotes building, and therefore implies material and equipment; education connotes development, and implies an organism. School-life should be a field for the growth and elaboration of all that is best in the moral, mental, and physical being of the young, and has for its highest aim the formation of character: this is education. But a supply of ideas is necessary—something to know and something to do must be imparted: this is instruction. An illustration may serve: *instruction* in the technical processes of mechanical engineering should have as *educative* results a higher reach of skill and power, and a richer mental content. A. E. L.

INSURANCE, HOW TO TEACH.—It is important to keep the scientific principles and the practical aspects equally balanced. The aim should be to produce a trained intellect, well versed in business and affairs, and confident in practice because root principles are thoroughly understood. Nothing is more to be avoided than the over-development of the purely theoretical or abstract side, to the neglect of a knowledge of current practice. Such a course may produce a brilliant essayist in the more recondite aspects of the science of probabilities, but it is certain to evolve a poor man of business.

The teacher, then, should duly expound the mathematical and statistical foundations of each branch of insurance; but, step by step, the way in which business matters are dealt with should be explained as a running commentary on the theoretical teaching.

Life Insurance. The teacher should first go through the prospectus of an enterprising office, to give some idea of the activities of the life insurance business. Then the tables of premiums will form themes for lectures on mortality rates and the various tables of mortality that have been compiled. Compound interest can be illustrated by the table of sinking fund or capital redemption premiums found in the prospectus. Simple examples of the calculation of premium rates will follow, and the nature and reasons for loadings. Then the different plans of insurance may be discussed and analysed in chart form. Next the proposal for insurance should be taken, and the policy and the conditions to which it is subject, such as payment of premiums within the days of grace, restrictions on occupation or residence, etc. Discussion of a particular company's annual revenue account and balance sheet follows; the annual volume of *Returns to the Board of Trade by Life Offices* contains a wealth of material for this purpose. Valuations will be touched on when explaining the origin of the life assurance fund and the necessity for ascertaining periodically whether it is sufficient; bonuses follow naturally, and the whole subject may be related to actual practice by discussing the valuation returns found in the Board of Trade Returns above mentioned. The Assurance Companies Act, 1909, should be studied, and the parts relating to valuation connected with the discussion on valuations. Insurable interest brings in the Gambling Act, 1774; the case law that defines an insurable interest; and the funeral benefit clauses of the Assurance Companies Act, 1909. Returning to the prospectus, extra premiums, rating up under-average lives, and diminishing abatements in the sum assured may be discussed, with examples and reasons for certain courses. Assignments and mortgages of policies, stamping, etc., require the aid of forms of assignment and mortgage, taken clause by clause. Finally, the student should read the insurance Press systematically, and important articles should be discussed by teacher and student.

Fire Insurance. Classification of risk is the beginning of fire insurance rating; for this, a knowledge of building construction and terms is required, and the student should be able to read and draw plans. Hazards incident to flues, hoist openings, boilers, stoves, gas engines, and the like, and those arising from carrying on various trades, must be understood; and the manner in which such hazards are dealt with in rating the risk and drawing up the policy. A knowledge of the various common forms of endorsement inserted in policies is essential, and correspondence regarding risks should also be studied. The settlement of claims is important, and sometimes intricate; and the effect of the average clause under different circumstances must be carefully worked out. The various means employed for the prevention, notification, and extinguishing of fires should be dealt with, as bearing on the rating of a risk; and the characteristics, advantages, and disadvantages of each should be discussed. As an advanced course, the student may take chemistry, with special reference to fire risk, and electrical engineering. The latter subject is especially important in view of the enormous use made of the electric current in business and domestic buildings, and the great risks of fire which

are inherent in faulty, cheap, or neglected installations. The Board of Trade and Home Office Regulations should be studied, and the rules of good wiring laid down in the text-books and the publications of the Institute of Electrical Engineers. Insurance against loss of profits, or consequential loss, has assumed prominence of late years, and the means adopted to guard the interests of the office in this complicated type of indemnity should be discussed.

Accident Insurance. The meaning of the word "accident" as elucidated in legal decisions should be noted, and the means which companies have taken to make the meaning as precise as possible. The policy terms, classification of the person assured, travel and occupation restrictions, exclusions of certain causes of death, and the moral hazards involved in accident insurance, require to be discussed; and, now that sickness benefits are introduced in many cases, the nature of the various diseases insured against, and their duration and effects, must be dealt with.

Employers' Liability Insurance. The Workmen's Compensation Act, 1906, requires to be studied with particular care, and also the legal decisions in actions for compensation. The effect of the common law and of the statutes preceding the Act of 1906 have also to be considered. The mode of rating the employer according to wages paid and nature of work, and the methods of settling claims, should be discussed; the Act of 1917, adding a temporary 25 per cent. to the compensation, should be noted.

Marine Insurance. The Marine Insurance (Gambling Policies) Act, 1909, which prohibits any insurance where the insured has no interest, requires noting. The different forms of policy, "voyage," and "time" should be elucidated, and the effect of general and particular average. The York-Antwerp Rules, which regulate claim settlements, require to be discussed, and the many legal decisions which have gradually defined the time-honoured form of marine policy. (See also COMMERCE, THE THEORY AND PRACTICE OF.) S. G. L.

INTELLECT.—Like other powers of the mind, intellect has been differently defined by philosophers according to their general view of the nature of man and the universe. The reverberation of these differences has been felt even by the psychologist, in his endeavour to distinguish intellect from the powers of feeling and volition, from instinct or intuition. It seems helpful, and indeed inevitable, in pursuit of a definition, to follow the clue suggested by Plato, and seek the first broad notion of the nature of intellect, "writ large" in the achievement of the race, rather than dim in the recesses of individual consciousness. Intellect is the power that reveals itself in the ordered structure of common knowledge: both in the everyday world of perception as articulated by the forms of speech and thought, and, above all, in the system of the sciences, where not only the product, but the ideal aims and shaping principles of intellectual activity appear discernible.

Viewing intellect in this way, one sees why it has always been regarded as in a special sense common, even identical, in individuals. Men may feel and will in harmony, yet their emotions and volitions, based upon their individual needs, constantly emphasize the distinctive position of each within the whole; men's intellectual activity is thought of as biased indeed by their individual desires and emotions, limited by the limitations of their experience, but of its own nature opening out toward the same prospect of objective truth; and capable, according to its ideal, when challenged at any point, of retracing a path of argument which all may follow, back to principles deep-rooted in social experience. Again, this view of intellect helps us to formulate the distinction between it and instinct. Through each power the individual participates in the heritage of the race: but in the case of instinct, the heritage is transmitted through the inborn structure of brain and mind, and operates as a blind prompting from within; while in the case of intellect, the heritage, embodied in language, in the structure of material tools and social institutions, must be consciously appropriated by the individual and seems to come to him from without. It is in this conscious appropriation that the business of intellectual education must evidently largely consist, and it is the exclusive emphasis upon such appropriation that constitutes one of the besetting dangers of the latent educational theory that guides practice. There has been constantly present the tendency to forget that the child is a creature of instinct, of emotion and action, as well as a potential intellect; and the spring of intellectual activity itself has sometimes been broken under the burden of accumulated knowledge to which individual experience fails to give reality. For while it is necessary to emphasize the dependence of the individual in his intellectual effort upon the community, it is important to note also the necessity for a degree of dependence of each upon himself. The individual can only appropriate effectively the knowledge of the community so far as he is continually testing the common results and methods by application to his own experience, under the stimulus of his own purposes; and it is clearly only in a community of individuals who so hold and test it that the body of common knowledge can develop.

We must not leave the distinction between intellect and the other powers of the mind, emotional and volitional, without noticing that the latter also have their inner nature writ large in social achievement. In art, in morality and religion, we find collective products wherein the dominant fashioning force is not intellect with its discursive methods, but rather some impersonal emotion, or practical reason, proceeding by way of intuition. Some philosophers have maintained that, through these achievements, and the powers that underlie them, man may make contact with aspects of reality which the human intellect is unfitted to explore. The educator to whom these problems appeal may be led to emphasize the necessity for developing the possibilities of the individual through contact with the great results of artistic effort and religious aspiration; but history will perhaps suggest to him that, even within these domains, the claim of the critical intellect to enter cannot long be resisted without nemesis of spiritual death.

A. M. B.

INTELLIGENCE QUOTIENTS.—(See PSYCHOMETRY AND PSYCHOPHYSICS.)

INTELLIGENCE, TESTS OF.—(See BINET, ALFRED.)

INTENSITY.—This is a term applied to the quantity of a sense stimulus. Thus a tone may vary in intensity according to the amplitude of the

vibrations affecting the ear, although it may remain constant in pitch. Various methods have been used to measure intensity. These are known as the psychophysical methods. As a result of investigations on the intensity of the just noticeable stimuli to the different sense organs, and the power of discrimination of the difference between intensities, Weber's Law states that the least added difference of stimulus that can be noticed is a constant proportional part of the original stimulus.

M. J. R.

INTEREST.—Interest has been described as "a feeling of the worth, to the self, of an end to be attained." The term is sometimes loosely used as if interest were a quality attaching to certain objects, as when we say: "This book is interesting." The interest is, however, not a characteristic of the object, since to some persons the same book may be uninteresting; it rather describes some relation existing between the individual mind and the object.

The statement speaks of an "end to be attained." Now "ends" may be of every conceivable kind and of every degree of nearness or remoteness. For example, we may extend the meaning to cover an infant's desire to examine a large, bright-coloured flower, or an adult's attitude of mind towards an unpleasant odour. More remote ends are aimed at when a child silently studies a page purely in order to gain his teacher's approval, or when Mrs. Jellaby arranges her whole life towards some supposed future good of the community. The child is directly or immediately interested in the teacher's approval, and indirectly or mediately in the page; the adult immediately in the good of the community and mediately in the means she adopts. The child's undeveloped powers of conception usually prevent the formation of very remote ends or purposes.

The definition speaks also of a "feeling of the worth." This must not be confused with the feeling of pleasure or pain which always accompanies a state of interest. Some writers have identified interest with the pleasurable or painful feelings called forth by the object of attention. But a man may be much interested in tattooing himself, although the process is painful; the painful feeling is, however, not the interest: he is not interested in, but in spite of, the pain.

It is clear that the fundamental quality of interest is conative—the impulse towards the fulfilment of desire, the reaching forward to some purpose. Thus desire, purpose, activity, and effort are fundamentally connected with interest. The conation is, however, not blind; there is also an intellectual element in interest, a cognitive factor. The object or end is cognized, and various ways and means are considered as serviceable towards attainment. The guide to the conation is, therefore, to be found in attention. "This concentration, step by step, from the beginning of the process to the accomplishment, is the work of attention," says Professor Welton.

The School Point of View. The school is chiefly concerned with the opening up of new interests, or, in other words, with inducing the formation of new and useful purposes. Punishments and rewards cannot be used as substitutes for purpose, for they enforce attention to themselves; although they may sometimes serve a useful purpose in compelling attention to a subject long enough for the matter itself to arouse interest. Frequently, however, attention and interest vanish as soon as the fear of punishment or the hope of reward is removed. Even work done from a sense of duty may entirely fail to induce direct interest. The arousing of purpose on the children's part is essential, and is dependent upon the presence of a felt need. Thus, a teacher of infants may suggest the game of shopping; the game involves little problems, the solution of which the children recognize as essential to their play purpose; they feel a need for the knowledge, they become interested in the calculations. To secure the strongest conation in the work of young children, the practical purpose of it must be clear; and the purpose must be the child's and not the teacher's only. Thus, it is necessary to ascertain and make use of existing childish desires and aims in such a manner that the way towards their realization leads to the development of fresh interests. Many children cannot easily find interest in subjects which appear theoretical (*e.g.* grammar, French, algebra). But as soon as the teacher gives opportunities for applying grammatical rules, for constructing conversational sentences, for solving real problems, interest is aroused and held.

It is clearly important to preserve the continuity of the conative process. It may be possible to arouse and maintain attention to a series of operations only on condition that those operations are felt to be natural and necessary steps in the process of attaining the end. A living, self-formed purpose will induce intensest effort—the effort required in tackling uncongenial and often difficult work recognized as necessary if the aim is to be achieved. Moreover, the interest in the main purpose may spread to the means, and may be maintained even if interest in the purpose dies. The child who tackles a few geometrical problems for the purpose of making a perfect kite, may find the indirectly evoked interest in geometry keen long after he has lost interest in kites.

The problem of interest is, therefore, the vital and permanent educational problem. If it is rightly handled, and not transformed into the problem of how to amuse or give pleasure, the schools may produce a generation of men and women armed with purpose and prepared to expend intense and persistent effort towards achievement. (See also HERBART.)

W. G. S.

INTERMEDIATE SCHOOL.—A school under this name is to be found in some towns, especially in the United States, forming a link between the elementary and the high school. Its course includes the upper part of the elementary school course and the lower part of that of the high school.

INTERNATIONAL EXCHANGE OF TEACHERS AND PROFESSORS, THE.—Education is a house of many mansions. The previous paths of theory and practice, from Vives to Montessori, suggest that the power of influencing the world at large and inspiring a small band of disciples is found in various countries in various ages. All nations have their educational systems, or what pass as such, some individual manifestation of the national *ethos*—all have some notable points, all are worthy in greater or in less degree of careful study.

Obviously one can subdivide the general question of international exchange into exchange in the respective spheres of elementary, secondary, and

university education; and consider what is, and what can be, done in each of these departments. Again, the benefits accruing from such an exchange can be considered both as they affect the teacher and the person taught.

It is quite likely that, in many cases, it is the teacher who will gain most. It is the teacher who needs most to preserve breadth of view and freshness of outlook; it is the teacher who is liable first and chiefly to experience the cramping effects of routine, to degenerate into the teaching automaton which, unfortunately, the administrative enactments of most countries seem to foster. If a change even from one school to another has a vivifying effect—and experience suggests that it does—a complete change of surroundings and all that this involves might work miracles in the restoration of jaded energies. On the other hand, though it is always interesting to a class to see a stranger, to hear travellers' tales, to realize for themselves the truth, other climes, other manners, no transient visitor can hope to make a lasting impression upon his pupils. The first six months, one might imagine, would be spent in adjusting oneself to surroundings, the last six months would be tinged with the thought of the traveller's return.

Possibilities of the Movement. The exchange of elementary teachers would probably illustrate this contention best. It might be well worth a teacher's while to spend a year in Italy in a Montessori school. It is questionable whether in that time he could achieve much in the development of his pupils. With older and more reflective children, no doubt more could be done; but at the secondary school age we have to contend with a critical spirit more strongly developed, and alas! all foreigners are ridiculous if we wish to view them in that light. It seems, then, that it is in the university that we must look for the most striking results from the exchange of teachers. Experience indeed has shown that, whether the student goes to some famous professor, or whether the professor transplants himself to some foreign soil and establishes himself there permanently, the influence of personal contact in daily intercourse has been marked. Here, as elsewhere, Germany has demonstrated the power of skilful method; and the Herr Professor takes front rank in that Teutonization of both hemispheres which has been the aim of German "kultur."

It can hardly be said, however, that the world, so far, has really tested by experiment the results of such exchange. International educational conferences are not numerous; reciprocity in the region of tariffs has not been followed by reciprocity in the realm of education. The practical difficulties are considerable. There is, first, the difference of language. Equally serious, though perhaps less obvious, is the difference of standards. Who can appraise with certainty the relative status of an American provincial college—an unknown quantity—an English public school, and a high school in a Balkan State? Yet though we can hope to profit nothing by blind imitation, though we should expect no revolutionary results, though exchange upon a large scale seems barred by practical difficulties and objections, one would hope that the future may give more scope than the past to a movement which seeks to overleap the barriers of speech and unlock the gates which so far have shut off nation from nation, to purge the vision and to enlighten the understanding. J. H. E. C.

INTERNATIONAL EXHIBITIONS AND THEIR EFFECT ON TECHNICAL EDUCATION.—(See TECHNICAL SCHOOLS IN GREAT BRITAIN AND IRELAND.)

INTERNATIONAL GUILD, THE.—Formerly known as the Franco-English Guild, this was founded in 1891, by Miss Williams, graduate of the University of Paris, professor at the State training colleges of Sevres and Fontenay. It was first open to young women students wishing to extend their knowledge of the English language and literature. Students of other nationalities (English, American) were soon added to this number, and thanks to the kind support of Mr. Ferdinand Buisson, at that time Director of Primary Education, a series of classes were organized comprising lectures in English for French students preparing for the State competitive examinations, and lectures in French history and literature for foreign students. In 1897 the Guild, having developed considerably, moved to 6 Rue de la Sorbonne. It had obtained the patronage of the Sorbonne, while the French diploma instituted for foreign students before the existence of the Certificat d'études Françaises was approved by the Board of Education and recognized by several of the American universities, notably that of Chicago. The Guild received annually a certain number of scholarship holders chosen by the Board of Education, destined to teach French in their own country; it also provided posts in English families and schools for a large number of French students. Foreign students flocked from all parts of the world and the Franco-English Guild then took the name of the International Guild, which it has kept ever since.

The death of the founder occurred in February, 1919, but the Guild continues on the same lines under the direction of qualified professors who have worked with Miss Williams for many years. There are two chief sections, one for French students preparing for the State examinations for teachers, the Agrégation, Licence, Certificat Secondaire, Certificat Primaire; and the other for students of every nationality who desire to increase their knowledge in French. The Guild offers a complete course of instruction in French language, literature and history. Classes are carefully graded to suit all stages of advancement, and at the end of their course students may take the special Guild diploma as well as the Sorbonne examinations held for foreigners. One of the notable features of the Guild is the opportunity it offers for free intercourse between university graduates of different nationalities. A Hostel is attached to the Guild under both French and English direction, capable of accommodating twenty resident women students. French Principal, Mlle. Clanet, Agrégée de l'Université, Paris; English Principal, Miss Burt, B.A., London; Vice-Principal, Miss Rachel Williams. M. K. B.

INTERPRETATION IN MUSIC.—(See MUSICAL EDUCATION, THE AIMS AND LIMITS OF.)

INTERNATIONALISM, FOUNDATION FOR THE PROMOTION OF.—An international association founded at The Hague, Holland, in 1910, for the purpose of uniting scientists and students throughout the world, and intended to be an agency in promoting international peace. Dr. P. H. Eijkman, author of works on Internationalism in various branches of science, took a leading part in the

organization of the foundation, which has established bureaus for international congresses in medicine, pharmacy, and statistics; and will extend its operations to literature, hygiene, and other branches of scientific knowledge.

INTERNATIONAL HEALTH EXHIBITION, 1884.—(See ART, EDUCATION AND INDUSTRY.)

INTROSPECTION.—This is the method employed in Psychology for the analysis and description of mental states. Some have looked upon it as the only psychological method, but this tends to reduce the science to very narrow limits. At the same time, introspection must remain as the basis of the study of consciousness.

This method affords valuable help in the study of the intellectual processes, but is little use in the analysis of the emotions. It is impossible to introspect, at the time, an emotional state such as anger. This can only be studied by retrospection, as the mere attempt at mental analysis dissipates the emotion. The power of introspection varies in individuals and races. The contemplative races of the East carry it to an abnormal limit, while the active Northern races find it difficult to introspect.

The habit of introspection, however, can be cultivated; and this, helped by suggestion, is made use of in the new method of treating mental cases by psycho-analysis.

In the process of introspection, it is necessary to analyse fully each mental state, to put down immediately and honestly each idea which is brought into consciousness by association with other ideas, and to notice the emotional tone produced by these.

It is questionable whether introspection should be encouraged in children, as, carried to an extreme, it may lead to morbidness.

In the adult, training in introspective methods may be of distinct use for the discovery of curable tendencies and the development of the will.

M. J. R.

INTUITION.—This may be defined as unconscious judgment. It is the power of reaching a conclusion without consciously marshalling the facts and going through a definite process of reasoning. Many people are able to rely upon their intuitive judgments, probably because they have cultivated the habit of rapid thought, and their ideas are marshalled and analysed just below the surface of consciousness. Intuition is based upon sympathy (that is, directly communicated feeling) and upon imagination (as this assists quick association of ideas). It is commonly believed that women are more intuitive than men. There may be a definite sex difference; but the explanation can more probably be found in the different types of education given to boys and girls. In the boy's education, far greater stress is laid on the cultivation of the reason; formal training in reasoning may tend to inhibit intuitive thought, and make the individual afraid to allow his intuitions full play.

The philosophic doctrine of "intuition" holds that it is the power of apprehending truth apart from experience. Bergson regards intuition in a somewhat different sense, looking on it as a mode of knowing which is not intellectual. All instinctive knowledge is thus intuitive. Some philosophic writers suggest that there are definite moral intuitions (*i.e.* immediate apprehension, apart from experience, of moral principles and of the relation of right to wrong). This point is a controversial one between the intuitive and the empirical schools of philosophy.

M. J. R.

INVENTION.—Invention may be described as applied imagination. It is based upon the power of seeing the relation between past independent experiences and of building up these, or parts of these, into a new whole.

The development of the imagination may take place along two definite lines. At the one extreme, we have the dramatist and the novelist; at the other, the scientific inventor. The latter differs from the former in that the original ideas produced by his imagination must fit in with certain physical laws. At the same time, the genius of the inventor follows similar lines to that of the creative writer in using ideas stored up as the result of a well-trained and rich imagination, and by seeing the relation existing between such ideas, and producing new ones.

The building up of imagination in children depends almost entirely upon the factor of imitation, which is a marked characteristic of early childhood. It is of great importance from an educational point of view to note whether a child's imagination tends towards the dramatic or the inventive type. The child who shows marked delight in the fairy tale will probably belong to the first type, while the boy fascinated with the mechanical toy tends towards the second.

The cultivation of the inventive faculty in the child is one of the most important functions of education, and has been to some extent neglected. The introduction of greater facilities for handwork in the schools may give wider scope for the training of constructive imagination. Experience is obviously needed in the teacher undertaking this work, as not only must he be familiar with the imaginative tendency of the child, but his point of view—often differing profoundly from that of the adult—must be understood, and his stock of ideas known to some extent.

M. J. R.

INVESTIGATION AS AN EDUCATIONAL METHOD.—Much thought and discussion have been devoted, during the past few years, as to how far modern methods of psychology and anthropology can be applied to education. The systems of education in vogue in most civilized countries have been gradually evolved through centuries. Education is an art; we are still at the beginnings of the science of education, though the thinkers of every country are awake to the need for such a science. The present educational systems, based largely on the old formal methods of the schoolmen, fail more or less to fulfil modern needs.

Much has been done along the lines of scientific investigation in certain directions, but the question is of enormous extent. We can but enumerate a few of the subjects which need further investigation: The order of development of the child's faculties; the type of subject which appeals at special ages; the best methods of training the imagination, the reason, etc.; fatigue; learning by heart. At the present time, important researches are going on with the aim of discovering whether there is a central factor of general ability.

Another line of investigation is that of "vocation," which, if carried out with thoroughness, will have far-reaching effects. At present, we have but

vague ideas as to the qualities most essential for different occupations, and yet to place a child in the right vocation is to establish his happiness for life.

The need for the investigational method in education is obvious, but it can only be carried out satisfactorily by establishing an international organization for the purpose. This might consist of central bureaux in every country, in close touch with one another, where experts could analyse the *data* obtained from investigations carried on by people specially trained for the work. At present, there is a lack of these: the psychologist knows little of the children, while the teacher has neither the time nor the psychological training for research. Investigations would have to be drawn from the ranks of experienced teachers, given a special training in psychological method, and enabled to hold half-time teaching posts in which facilities would be given for research. They would thus be in touch with the school on the one hand, and with the expert on the other, and so be thoroughly fitted both to carry out the mental tests and to study the *data* required. M. J. R.

INVOLUNTARY ACTION.—This is action occurring without control of the will. It consists of several types—

1. Purely reflex action (*e.g.* blinking the eye at the approach of a foreign body). This is caused by the sensory stimulus directly producing reaction in the motor nerve situated in the spinal cord.

2. Instinctive action: an action of a certain complexity, which is performed perfectly the first time, but is accompanied by a certain emotional tone (*e.g.* nest-building). Man has few perfect instinctive actions.

3. Ideo-motor actions—imitative actions which are performed unconsciously by persons while attending strongly to a motor idea (*e.g.* children's movements when watching a play). M. J. R.

IRELAND, PRIMARY EDUCATION IN.—Passing over the earlier, because futile, attempts to establish primary schools in Ireland, the present elementary system may be said to have originated in the work of the Kildare Place Society (1812), which included persons of all creeds and politics, who for many years worked harmoniously in furtherance of its objects—to found non-sectarian schools (the Scriptures were read without note or comment), to train teachers in a suitable model school, to publish cheap text-books for schools and school libraries, and to organize a system of school inspection. Its only funds were the members' subscriptions until 1815, after which it received annual Parliamentary grants varying from £6,000 to £30,000. Owing to the opposition of the Roman Catholics, these were withdrawn in 1831, when the Society had on its lists 1,634 schools attended by nearly 140,000 pupils.

This attempt at undenominational religious teaching, having failed to win general approval, was abandoned; and the present National Board was established, in 1831, "to afford combined literary and moral, and separate religious instruction to children of all persuasions, as far as possible, in the same school, upon the fundamental principle that no attempt shall be made to interfere with the peculiar religious tenets of any description of Christian pupils." This principle is safeguarded by requiring the registration of each child's religion in accordance with the wishes of the parent; and by a conscience clause which prohibits the instruction of the child in any other catechism than its own, except by the parents' request made spontaneously and in writing. This regulation has kept the so-called religious difficulty out of Irish national schools. But the desire of the managers, chiefly local clergymen (there were, in 1913, 2,500 clerical managers controlling 7,400 schools to 540 lay managers of 677 schools), to have religious instruction of their own denomination has contributed to the undue multiplication of schools, many with a mere sprinkling of children. The average attendance of pupils is less than thirty in nearly one-fifth of the schools.

The National Board adopted most of the methods of the Kildare Place Society. Its grants were merely *aids* to local efforts. Its funds for 1834-1835 (nearly £45,000) were applied as follows: Erection of schools, £20,000; inspectors, £6,000; payments to teachers, £13,000; training of teachers, £2,000; books, £2,000; official establishment, £2,000. The schools numbered 1,106, with 146,000 pupils; the population was 8,000,000. The following figures show the progress made since then. The periods selected are: 1870-1871—before the Results period; 1900—at its close; 1913—present day. Amounts are given to the nearest thousand—

	1870.	1900.	1917.
	£	£	£
School Buildings	[19,000]	[11,000]	[16,000]
Inspection	29,000	47,000	51,000
Teachers' Salaries, etc.	290,000	1,133,000	2,117,000
Training	8,000	47,000	64,000
Books, etc.	30,000	33,000	1,000
Agricultural Instruction	6,000	1,000	
Official Establishment and Misc.	18,000	29,000	37,000
Pensions	nil	41,000	109,000
Manual and Practical Instruction	,,	nil	17,000
Teachers' Residences	,,	5,000	7,000
Total	381,000	1,336,000	2,403,000
Number of Schools	6,808	8,670	8,060
Pupils on Rolls	750,000	750,000	684,000
Daily Attendance	360,000	514,000	488,000
Population	5,400,000	4,500,000	4,300,000

The attendance was so irregular before 1870, that only 253,000 pupils attended at least 100 days; in 1876 this had risen to 437,000, and in 1896 reached 607,000. In 1874 only one-ninth of pupils were in the senior classes; in 1899, over 34 per cent. (now 30 per cent.). The number in the highest class rose from 389 to 38,095 (nearly one hundred-fold). Until 1892, attendance was optional; since then, local authorities *may* enforce attendance, but the Act has proved rather ineffective.

PERCENTAGE OF ATTENDANCE TO NO. ON ROLLS.

	Under the Act.	*Not under the Act.*
Urban Districts	75·6	75·6
Rural ,,	70·7	67·5

The lower percentage is due to poverty and backwardness of districts.

The number of primary schools not connected with the National Board is small. Fifty years ago, the Church Education Society (Protestant) had nearly 1,000 schools on its list; there are now fewer

than seventy, and all small. The Christian Brothers and other Orders have about the same number, but as they are in urban districts, they are large and important. If they are as successfully conducted as their Intermediate schools, they must rank as very efficient.

The Board of National Education consists of twenty (originally, seven) Commissioners, half being Roman Catholic and half Protestant. Their chief duty is to administer the Parliamentary grant, and to frame (subject to Treasury sanction) regulations for the purpose. One Commissioner (called the Resident Commissioner) is paid, and attends daily to the business of the Board, which holds its meetings fortnightly. His powers are large and not very clearly defined. All cases that are not mere routine are submitted to him or the Board by the permanent officials.

Local Control. The direct local government of each school is in the hands of the Manager, who has the appointment and removal of teachers, subject to the approval of the Commissioners, and who conducts the necessary correspondence with the Board. He undertakes to visit frequently, and to check the school returns. While he is expected to have the school premises properly maintained and heated, he is not responsible for raising funds or for the payment of the teachers. The *local* expenditure is returned as £128,000, but this is more nominal than real. The local addition to the teachers' salaries amounts to only £17,000, of which about £3,400 is paid as school pence. It is this practical absence of local effort to support the schools which has thrown all power and authority into the hands of the Board, as well as leading in many cases to undue multiplication of schools.

Schools now number 8,060—a reduction of over 600 in fifteen years, caused by the amalgamation of separate schools for boys and girls, and of contiguous schools of different Protestant denominations. The attendance shows a decline of 26,000, corresponding with the decline of population.

The schools are divided into (*a*) model schools (70) under the direct government of the Board; (*b*) ordinary schools (7,670) taught by lay teachers; (*c*) convent or monastery schools (417). There are also workhouse schools not financed by the Board, and about 240 evening schools or classes. While other teachers are paid a personal salary (see below), the conductors of most convent schools receive a capitation rate, which, however, in the larger convent schools (most of them are large) produces a higher income than would be payable if personal salary at the usual rate were allowed.

As regards premises, the schools are classified as—

1. VESTED (*a*) in the Commissioners: built and kept in repair by public funds; (*b*) in Trustees: built mainly by public funds, but kept in repair by the locality.

2. NON-VESTED (which include all others): built and kept in repair by locality. There is no power to raise a school rate in Ireland.

About three-fifths of the schools have only one room.

Teachers. Teachers are admitted to the service between the ages of 18 and 35. An uncertificated assistant may be appointed when the attendance reaches 35; a certificated assistant at 50; and an additional assistant for every further increase of 45 units of attendance. Capitation schools must maintain a corresponding staff. As the Board pays all the salary, it is the interest of managers and locality to make the staff as large as possible. The number receiving personal salary (1917) was

PRINCIPALS—*Male*	4,400	= 13,410, of whom about 76 %, were trained
Female	3,250	
ASSISTANTS—*Male*	1,250	
Female	4,510	
JUN. ASST.-MISTRESSES (uncertificated)	2,360	
	15,820—1 teacher to every 25 pupils.	

a higher teaching power than found elsewhere.

In addition, there were 103 work-mistresses, and 2,088 pupil teachers and monitors.

The salaries of men vary, with few exceptions, from £90 to £220; of women, from £80 to £197. The average income of male Principals is £142, female, £114; of assistants: men, £97; women, £83. Fifty years ago, masters received from £18 to £52; mistresses, £16 to £42. In addition, teachers have a very good pension scheme endowed with a capital sum of £1,300,000 from the late Irish Church surplus; the income is supplemented by an annual Parliamentary grant of about £60,000, and £49,000 premiums paid by the teachers. Other occupations (except the keeping of public-houses) are allowed outside school hours, and there is no bar to the employment of married women.

There was only one training college (undenominational) until 1883. Since then there have been added 2 for Roman Catholic men, 3 for Roman Catholic women, and 1 for men and women of the "Church of Ireland." These are licensed for 545 men and 650 women. Good work is done during the training course, which usually lasts two years. Since 1880 the number of college-trained teachers has risen from 3,300 to 9,300.

Curricula. The ordinary school subjects are: English (including as sub-heads, *reading* and *spelling*, *writing*, *composition*, and *grammar*), *geography*, history, *arithmetic*, *singing*, *drawing*, *needlework* (for girls), physical drill, manual instruction, object lessons and elementary science, cookery (for girls), laundry-work (for girls), *kindergarten* (for infants), hygiene, and temperance. Those in italics were also taught in the Results period; but some, as well as others not mentioned here, were not obligatory. Agriculture was required in rural schools, and is now again encouraged by the Commissioners. The same proficiency was expected from all schools, but now less is required in the small schools. The instruction given in some of the above subjects is merely nominal. Managers are at liberty to submit for approval programmes suited to their localities, but this liberty has not been taken advantage of. Fees are now paid only for the teaching of cookery and laundry, mathematics, and Irish. A bilingual (Irish and English) course is sanctioned in 207 schools—a useful change where Irish is the real home language of the pupils, but objectionable in other cases.

The following classification of the schools, as given in the Commissioners' last report shows that satisfactory work is done often under serious difficulties—

	Excellent	Very Good.	Good.	Fair.	Middling.	Bad.	Total.
No. of Schools	249	1,527	3,276	1,855	224	10	7,141

Though payment is no longer made on individual "passes" at an examination, the teachers' rate of salary, their increments and their promotion, depend

on the Inspector's opinion of their efficiency formed during his visit. As this was far from uniform, grave complaints of injustice were made by the teachers and admitted by a Government committee of inquiry (1913). Some modification of rules was made to meet these complaints, but a complete solution has not been reached.

Inspectors and Organizers. The work of the schools is supervised and aided by the Board's inspectors and organizers. The inspection staff consists of 2 chief inspectors, much of whose work lies in the central office; 3 divisional inspectors; 22 senior inspectors, who, each with two junior inspectors, are in charge of circuits. There are also a few supplemental inspectors. The schools are *inspected*, and only occasionally *examined*.

A feature of the Irish system is the employment, since 1900, of "organizers," whose duty is to give assistance to teachers in special subjects requiring technical knowledge. They include the following: Elementary science, 3; vocal music, 2; drawing, 1; domestic economy, 15; kindergarten, 6; and Irish, 6.

Inspectors were formerly appointed by Civil Service competition; but, more recently, the Board nominates them, selecting men (or women) of university distinction, as well as some from among the staff of teachers.

Great progress has been made in the last fifty years, much of it due to the Results system. The new regulations, if sympathetically administered, may promote a still higher standard of education.

A. P.

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IRELAND, TEACHERS IN.—Education has not, in Ireland, been more fortunate in securing public approval than it has in England. "Timeo Danaos et dona ferentes" might have been spoken by an Irishman, such have been the fears of the gifts proffered by England. It is true that the wooden horse which Troy accepted proved to be a danger to the recipient. It is equally true that teachers who are thrust upon an unwilling community find that unsleeping suspicion renders them as useless as it would have rendered the wooden horse.

Without discussing the causes or the justification of the suspicion with which educational plans have been received in Ireland, we can only note that education has made less progress there than in other parts of the United Kingdom. Though every effort has been made by the Government, both to demand that teachers should be well qualified, and to ensure that they should receive sufficient salary, yet the local authorities have not given adequate support. In some districts, attendance is very bad, because there is no local school attendance committee. The result is that, though in Ireland there are grades of teachers corresponding to those in England, salaries are less, and the qualifications of any grade in Ireland are, on the average, not quite equal to those of the equivalent grade in England; for example, only a first-class certificate issued by the Irish Commissioners of National Education is accepted by the English Board of Education as equivalent to the Board's certificate, and then if the holder has been trained in a training college.

In many parts of Ireland, however, recent progress has been very rapid, and in a few years we may safely expect an extension of the enthusiasm and professional ability already shown by a large proportion of the fully-qualified teachers in Ireland.

A. C. C.

IRELAND, TEACHERS' ASSOCIATIONS IN.—The teachers' associations in Ireland divide naturally into (*A*) secondary or intermediate, and (*B*) primary. Unfortunately, for various reasons, these subdivide again into (*a*) Roman Catholic and (*b*) Protestant; and these again into (1) head teachers and (2) assistants, as their interests are in many cases not identical.

Secondary Schools (generally called "Intermediate" schools, as they are in connection with the Board of Intermediate Education), which are under Roman Catholic management, are, with very few exceptions, in the hands of the religious orders. This applies to girls' as well as to boys' schools. The conductors or head teachers are, in all these cases, members of the several "Orders," who, whether forming actual associations or not, work together for their mutual interests. Their wishes and representations to the Intermediate Board generally receive sympathetic and favourable consideration, though, as regards the distribution of the "Birrell Grant," a fund for the improvement of assistants' positions, they failed to influence the Board and the Government.

The assistants in these schools are, in part, members of the "orders," but also, in part, lay persons. As a rule, the salaries of the latter are low; and as they have no prospect of future improvement by becoming head teachers, and as their tenure is insecure, their position leaves much to be desired. To meet the grievances of these and lay assistants in other secondary schools, the "Birrell grant" was voted by Parliament. The regulations for the distribution of this money have in view a grant from public funds conditional on the scale of salary paid reaching a certain height, and on a certain security of tenure. These regulations were strongly supported by the assistants' associations.

The Protestant Head Masters' Association looks after the interests of the Protestant schools in connection with the Intermediate Board. It, as well as the Roman Catholic Orders, makes suggestions to the Board as to the courses of study, the methods of inspection and examination, the distribution of grants, etc. The position of assistants in the Protestant schools is more favourable than in the Roman Catholic schools; but the interests of the head masters and assistants are not always the same, so the assistants have an association of their own.

The head masters at their meetings discuss also general educational questions; and, in connection with the association, though not forming an integral part of it, they maintain a benevolent fund for their members. The Association admits head mistresses as "Associates." There is also a School Mistresses' Association; its membership, however, is not confined to teachers, but—like the Women-Graduates' Association—is open to ladies taking an interest in education. The assistant mistresses also have an association for safeguarding their interests.

The National Teachers' Organization is a large and important body. Its membership includes nearly 9,000 principal and assistant teachers. Started about 1851, it met with official disapproval and was temporarily dissolved; but the very meagre addition from public funds to the salaries of the teachers, leaving their incomes miserably inadequate, caused an early revival of the association. Its success in enlisting public sympathy, and thereby leading to improved position as regards tenure and emoluments, has been considerable. A teacher cannot now be removed (except for misconduct) without three months' notice from the manager; and in the case of Roman Catholic clerical managers (who form the great majority), this notice must have the sanction of the bishop. The Protestant managers are not subject to such a restriction, but the National Board has sometimes interposed where a manager's action was deemed unreasonable.

The action of the organization has latterly been directed against what it considers "official" hardships—such as payments being made only quarterly, arbitrary and unfair reports of inspectors, and want of appeal against such. Some regrettable incidents have occurred; but, on the whole, the organization has not exceeded its legitimate functions, and the publicity it maintains promotes public interest in school work.

Originally, educational matters were discussed at the meetings of the several associations (of which there are over 200 in the organization), but this useful work has almost ceased, and the deliberations are, on the whole, confined to material interests. The organization maintains a benevolent fund, and does a fair amount in relieving distress caused by death or sickness among its members.

The assistants do not form a separate association, but they elect special representatives on the Central Committee, and by their number and influence largely affect the action of that body.

There is also a Technical Teachers' Association for the promotion of technical schools and instruction. The Teachers' Guild (*q.v.*) has several branches in Ireland. A. P.

IRELAND, THE NATIONAL UNIVERSITY OF. —The Irish Universities Act, 1908 (8 Edw. VII. c. 38), under which the National University of Ireland was established, was a definitive and tolerable solution of controversies and grievances which had found utterance in Ireland ever since the Catholic Emancipation Act of 1829. The first attempt to settle the question of higher education for the great majority of the Irish people was made by Sir Robert Peel in the Queen's Colleges Act, 1845. The Colleges so erected and endowed in Cork, Galway, and Belfast did not meet with acceptance from those mainly concerned, though Queen's College, Belfast, did adequate work in its own environment. They were federated in 1850 into the Queen's University in Ireland, based avowedly on the policy of "mixed education," as it came to be called. Cardinal Newman's name is associated closely with the early history of the Catholic University of Ireland, a voluntary organization begun in 1851; he was Rector till 1858, and wrote in this connection the notable volume known as *The Idea of a University*. The attempt failed to achieve material success by reason of the absence of endowment and recognition by the civil authority. Gladstone's first Ministry was practically wrecked in 1873 by his attempt to solve the question through the absorption of all institutions, giving higher education in Ireland, into one University. The Queen's University was dissolved in 1882, an Act of 1879 (Beaconsfield Ministry) having established the Royal University of Ireland, an examining body with power to award degrees and prizes, and provided a small indirect endowment, through "teaching examiners," for the Catholic University College (Arts and Science) and the Catholic University Medical School, the surviving portions of Newman's enterprise in Dublin.

This avowedly transitory provision lasted twenty-seven years and, with its many deficiencies, did good work, especially in two directions. It afforded some outlet for the work of Irish Catholic students in university education, and enabled them to prove their case for a more adequate provision by the State. It also enabled women students to obtain all degrees and professional qualifications, including the highest university prizes, on equal terms with men—except, perhaps, the "Fellowships" or "teaching examinerships," from which it was alleged that they were excluded by the wording of charters and statutes. Between 1880 and 1907, nearly all Ministries were favourable to the Catholic claim for a real university system, acceptable to those concerned, and an adequate endowment. The claim was enforced by the preponderating success of Catholic secondary schools (boys' and girls') under the State examination system existing since 1878.

Mr. Birrell's Measure of 1908 solved practically all the problems. It left the Elizabethan University of Trinity College, Dublin (*q.v.*), with all its endowments and privileges, untouched. It gave the North-East of Ireland the Queen's University of Belfast (*q.v.*), by law strictly undenominational, but *de facto* set on its way with a dominantly Presbyterian governing body and electoral groups, a teaching staff almost exclusively Episcopalian or Presbyterian, and a following of students largely of these denominations. The other creation under the Act of 1908 is the National University of Ireland, including (with separate charters and statutes) the new foundation of University College, Dublin, and the reconstituted Colleges of Cork and Galway, now re-named, in each case, University College. A body of ten Commissioners was named in the Act, and empowered to draft statutes to create faculties and professorships, and to make the first appointments to them. Of the ten Commissioners, six were Catholics. This work was substantially completed by November, 1909, whereupon the Royal University was dissolved.

It was but consonant with the educational doctrines and pronouncements of the Ministry which promoted the Act of 1908 that its vital provision should be a stringent "test" clause. Section 3 (1) accordingly enacts that "No test whatever of religious belief shall be imposed on any person as a condition of his becoming, or continuing to be, a professor, lecturer, fellow, scholar, exhibitioner, graduate, or student of, or of his holding any office or emolument, or exercising any privilege in, either of the two new universities, or any constituent college; nor in connection with either of these universities or any such constituent college shall any preference be given to, or advantage be withheld from, any person, on the ground of religious belief." A declaration is further required from every professor, in which occurs the clause:

"I will not in lecturing, teaching, examining, or in the performance of the other duties attached to my Chair, make any statement, or use any language, that would be disrespectful to the religious opinions of any of my Class." Special provision is made for the creation of a Faculty of Theology, with the limitation that there shall be no expenditure on its account from public money; on the same basis, facilities may be (and are) provided for catechetical instruction, attendance at which must be entirely voluntary.

The most crucial issue in the passage of the Bill of 1908 was the power to be given the University to admit to university privileges colleges of university type other than the constituent colleges named above. This was granted, under very rigorous conditions. It has been exercised in favour of the well-known ecclesiastical college of Maynooth (*q.v.*), as to its school of arts, philosophy, and Celtic studies: and it is not likely that further use will be made of this power.

The National University and Its Colleges. The National University is thus a corporation with its own charter, statutes, and endowment. This is true also of each of the three University Colleges it includes. All these colleges, and the University Senate, are interlocked in a federal system of government. The governing body of each college includes (1) Crown representatives; (2) Senate representatives; (3) professors elected by the Academic Council; (4) representatives of graduate members of the College; (5) representatives of corporations and county councils; (6) 4 co-opted members. In Dublin the total is 34; it includes 8 representatives of the General Council of County Councils, and one each for Dublin city and county. The local representatives in Galway are from Connaught and Clare; in Cork, from Munster (except Clare). The Senate of the University includes (1) the Chancellor, the Presidents of the three Colleges, the Registrar; (2) 14 representatives of the Colleges—of these, one-half must be professors; (3) 8 representatives of Convocation; (4) 4 Crown representatives—"of whom one at least shall be a woman"; (5) 4 co-opted members. The first governing bodies were all nominated by the Crown; the new elected bodies came into office in the colleges for a triennial term in 1913; and in the University itself for a quinquennial period in 1914. The chief characteristic of all four elections in these years was that a very large number of professors became members of the governing bodies and the Senate.

The endowments provided by the State are: For the University, £10,000 a year; for University Colleges—(1) Dublin, £32,000 a year; (2) Cork, £20,000 a year; (3) Galway, £12,000 a year. This last sum has been raised to £15,500 a year by additional Treasury aid and by local contributions, with a view to enlarging the teaching staff. The corporations and county councils have power to strike a limited rate in aid of the three Irish universities; this power has been used in favour of the National University by nearly all these bodies in Leinster, Munster, Connaught, and by several Ulster counties. It has chiefly taken the form of scholarships tenable by students of limited means. By many counties and cities, the exercise of this power to aid was made conditional on the Irish language and literature being made an essential subject at matriculation. This action powerfully helped the agitation promoted in this sense by the Gaelic League in the years 1908–1910. By 21 votes to 12, the Senate, in July, 1910, made Irish an essential subject at entrance: the provision took effect for the first time in 1913, and is working well.

All appointments to teaching posts in the University, tenable in the constituent colleges, are made, under the statutes, by the Senate; but that body is limited to a choice from a prescribed list of names submitted by the College Governing Body. The teaching faculties of the University are: (1) Arts, with (2) Philosophy and (3) Celtic Studies; (4) Science; (5) Medicine; (6) Law; (7) Engineering and Architecture; (8) Commerce. Women are eligible for all posts whatever; and the position held by them in this University is stronger than in any other University in the world. Besides Lectureships and Assistantships, there are 9 women professors (in Languages, History, and Education). The work of the Faculties is under the direction of a General Board of Studies, which advises the Senate. The most fully developed teaching staff is at University College, Dublin, which has 48 professors and 7 permanent lecturers, with numerous assistants and demonstrators. The Crown is Visitor of the University. In case of the removal of a professor being decreed, there is an appeal to a Board of four Visitors so appointed by the Crown; and the decree is quashed if they are not unanimous in confirming it.

Besides the annual endowments from public funds, special sums for building were voted to the University (£40,000); to University College, Dublin, £100,000 (new buildings being required); to Cork, £20,000; and to Galway, £6,000. Matriculated students at the lectures may be set down as over 1,200 at University College, Dublin; over 600 at University College, Cork; and about 300 in Galway. There are also 250 students of Arts, Philosophy, and Celtic Studies at Maynooth; the total of students in actual attendance, which is imperative for a degree, is, therefore, about 2,400. Of the 1,200 students in attendance at lectures in Dublin, about 250 are women, and perhaps 150 are clerical students. Lecture fees are about £10 a year in Arts, increasing to £16 or more in other faculties. The examinations are conducted by the (external) Examiner of the University in each branch, acting with the (internal) Professor in and for each college. Special provision is made for Maynooth.

The influx of students (men and women) into the new faculties has been very great—especially in Celtic Studies, Law, Engineering, and in the Department of Education for the training of secondary and primary teachers. A beginning has been made, in co-operation with the existing Royal College of Science, in the provision of courses for degrees in Agriculture, which is of such vital importance to the country. There is need of further provision for Halls of Residence, though much has already been done by private enterprise in Dublin and Cork. For graduates of high distinction, the University has made generous provision of Travelling Studentships, tenable at foreign universities: six of £200 a year each, tenable for two years, are offered annually. The constitution of the University and its colleges enables them to reflect, without any infringement of their legal character as undenominational institutions, the population in which they are set, with its racial and religious tendencies. This is further secured by the adequate representation of the professional staff and the graduates of the University, in a system which, though necessarily complex, has proved itself to be at once

academic in type, and acceptable to the mass of the people whose demands it was provided to meet.

T. C.

IRELAND, THE ROYAL FREE SCHOOLS OF.—The closing of the Irish schools during the fifteenth century left the country with little definite provision for general education. Elizabeth set herself the task of providing the Anglo-Irish, the planters and Protestants, with a university of their own at Dublin. James I and his successors continued the work by founding a number of Royal schools with the idea of providing the new university with students. Schools were founded at Portora, Enniskillen, in 1618, at Armagh and Dungannon in 1627, and others later. Most remained in existence for at least two centuries. During the first half of the eighteenth century there were nine Royal Free Schools; two of these—in Clogher and Londonderry—were not in operation. Their constitution formed part of a subject of inquiry of a committee of the House of Commons on Foundation Schools in 1835, who examined witnesses on the position of these schools, and their fitness to form part of a general system of intermediate education.

Dr. Kyle, the secretary of the commissioners, stated that all masters were members of the Established Church and that there was nothing to preclude a Roman Catholic or Presbyterian from becoming a member of the teaching staff. In spite of this, however, the practice of the Diocesan Schools was generally followed and masters were appointed from the Church of Ireland, the majority being clergymen. The schools are open to members of all denominations without any religious test.

Throughout the eighteenth century dissatisfaction was continually expressed concerning the number of free places in the Royal schools, and many educationists agitated for the minimum number to be settled. In 1835, there were forty-seven free pupils each deriving a benefit of £10. Fees for pupils who could afford to pay ranged from 4 to 10 guineas for day scholars, and from £20 to £60 for boarders. A fair number of exhibitions in Trinity College were offered in connection with the schools.

The endowment of the Royal Free Schools was throughout their career the largest of any educational scheme in Ireland. The land belonging to them extended over 21,334 acres. Yet during the latter part of the eighteenth century they were considered to be failures. The lack of progress was mainly due to mismanagement of the estates. In 1813, these schools, with other endowed schools, were placed under a newly elected board known as the Commissioners of Education in Ireland. According to arrangements the schools were not brought into contact with the board and no direct interest was felt or any control exercised by it.

During the latter part of the nineteenth century a great advance was made in intermediate education in Ireland. This was directly due to increased educational endowments, to the influence of the Commission of 1885–1894, and to the work and encouragement of the Intermediate Education Board.

IRISH EDUCATION, STATE POLICY IN (1536–1831).—During the Norman period of Irish History (1170–1540), the policy of the government at Dublin was frankly limited to a consideration of the people of their own race. Ineffectual efforts were made to prevent them from using the Irish language; the education of the wealthier among them was provided by the many well-endowed Anglo-Norman monasteries and convents: "in them yonge men and childer, bothe gentilmen childer and other, both of man kynd and women kynd, be broght up in vertue, lernyng, and in the English tonge and behavior" (Privy Council despatch, 1539). There was no university, though a fifteenth century Act shows the need: "ordeigne est et establie . . . par auctorite du dit parliament que soit une universite a la vile de Drogheda, en le quele universite poient estre faitz bachelers maistres et doctours en touts sciencez et facultees" (5 Edw. IV). The traditional forms of Celtic education were maintained everywhere save in the narrow limits of "the English Pale." Norman law was based on a classification of the whole of the inhabitants of Ireland as (1) liege subjects, (2) "engleis rebelles," (3) "irrois enemyes"; and each class was dealt with as it was described.

The years 1537–1542 saw a complete change of policy, due to Henry VIII alone, in all departments of State action: it was most clearly enunciated in the domain of education. The Act of 1537, directing the State Church to maintain in every parish "a schole for to learne English," was an act of unification. The preamble affirms that "there is nothing which doth more conteyne and keep many of this said land in a certain savage and wilde kind and maner of living, than the diversitie which is betwixt them in tongue, language, order, and habite, which by the eye deceiveth the multitude, and persuadeth unto them, that they should be as it were of sundry sortes, or rather of sundry countries, where they be indeed wholly together one bodie, whereof his Highnesse is the only head under God" (28 Hen. VIII, c. 15). This statute remained in force far into the nineteenth century, and was the standard text at all times as to State policy in education, requiring conformity in both language and religion. It was carried into the field of secondary education by the Act of 1570, requiring the State Church to maintain diocesan free grammar schools, and by the establishment (1608–1634) of Royal Free Schools in the confiscated counties of Ulster. It controlled university policy also: "We find that the Runagates of that nation, which under pretence of study in the universities beyond the sea, do retorne freight with superstition and treason, are the very instruments to stir up our subjects to undutifulness and rebellion" (Royal letter of 31st March, 1579). The University of Trinity College, "near Dublin," was established in 1592 because the Queen's subjects going beyond the' seas to "fforaine universities . . . have been infected with popery and other ill qualities" (Patent Roll, 34 Eliz.).

The Cromwellian Period and After. Throughout the seventeenth and eighteenth centuries the policy of unification was maintained, with intermittent connivance at the existence of illegal secondary and "common schools." The right asserted by the Catholic Confederation of Kilkenny, in the negotiations with Charles I and his Lord Lieutenant Ormonde (1641–1646), to have their own "common schools, free schooles, universities, and Inns of Court" was finally conceded almost completely by the peace of March, 1646; but it was bitterly resisted by the delegates sent to the king at Oxford

by both the Ulster Presbyterians and the officials of Dublin Castle. Under the Commonwealth there were efforts to reorganize educational endowments, and a proposal by the Protector (27th March, 1657) that the children of "the poorer sorte of Irish . . . might att the age of tenn yeares and upwards bee taken from their parents and bound apprentices to religious and honest people in England or Ireland," so as to secure national and religious unification through compulsory apprenticeship.

It was this type of thought that came into power after the war of 1688–1691: the result was the penal code in education (1695–1733) which was gradually repealed (1782–1829). It prohibited any instruction of Catholics by Catholics, even in private houses; a child sent to the Continent for education lost all civil rights and all property (7 Wm. III, c. 4). The policy of 1657 was revived (1721–1733) by Primate Hugh Boulter. His "Charter Schools," primary boarding schools of an industrial type, received, during the period 1743–1831, direct grants of money from the State, amounting to fully £1,200,000 in all. These schools were by 1812 recognized as unsuccessful in their main object. They were all visited by John Howard (1782–1788) who wrote that "the state of most of the schools which I visited is so deplorable as to disgrace Protestantism" (*Works*, I, p. 208; Ch. II, 101–119).

The Northern Presbyterians complained at intervals (1641 to 1729) that their schools were interfered with by the State Church. But, in practice, they enjoyed much educational liberty, as did the Society of Friends, which had academies at Ballitore in Kildare, Lisburn, Mountmellick, and elsewhere. Both these bodies, and the Catholic majority, gained by the change in State policy formulated by the Royal Commission on Education, 1812: "We conceive it to be of essential importance in any new Establishments for the Education of the lower classes in Ireland, and we venture to express our unanimous opinion that no Plan, however wisely and unexceptionably contrived in other respects, can be carried into effectual execution in this Country, unless it be explicitly avowed, and clearly understood, that no attempt shall be made to influence or disturb the peculiar religious tenets of any Sect or description of Christians" (*Report*, p. 328). This did not mean that the subsidies to the "Charter Schools" were at once withdrawn, but partial attempts were made to set up less objectionable systems, and the policy so defined was the keynote struck by the letter establishing the "National Board of Education" in 1831. Long after that date, secondary education in Ireland, outside the schools erected under the policy of Elizabeth and James I, was unaided by the State. Trinity College, Dublin, was opened to Catholics by the Act of 1793, passed reluctantly by the Colonial Parliament, under rigorous pressure from William Pitt; but such admission gave them no right to a share in the government, teaching, or endowments of that university. The earlier attention paid by the State to primary education was a tribute to the truth of the declaration of the Commissioners of 1812, that "the lower class of the people of Ireland are extremely anxious to obtain instruction for their children, even at an expense which, though small, very many of them can ill afford." This was emphasized, from his own experience, by Mr. Secretary Peel, in February, 1816, when he declared it to be "the imperious duty of every one, even in those times of economy, not to obstruct the progress or limits of Education." T. C.

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IRISH LANGUAGE, THE TEACHING OF THE. —I think it is safe to assume that in few countries has greater interest been evinced in the teaching of language than in Ireland during the last few years. In few countries have more systems been "discovered" and tried. Nor is this to be wondered at, for a great national awakening took place under the aegis of the Gaelic League, which was founded in 1893 with the avowed purpose of cultivating and restoring to Ireland, as far as possible, the Irish language.

The problem was how to restore this pure, highly-inflected and undoubtedly very difficult, though very beautiful Aryan language, to the people who had either lost it of their own accord, or had had it beaten out of them. It is undoubtedly one of the most difficult problems that can confront a conquered race: how to raise its language when another nation has control of its schools. It means that work must be voluntary or that, if paid for, it must be paid for by voluntary contributions; and that, consequently, the last pennyworth of value must be got out of these contributions by using the very best of existing methods or inventing new ones.

And that is what Irish enthusiasts have been doing for the last dozen years. They have been trying in different ways to improve upon the teaching which went before them and, above all, to teach Irish as a "living language," not as a "subject." Now, the essence of a language is to speak it, or, as the Irish saying puts it, *beatha teangan i labhairt*, while the treating of it as a mere subject of examination on paper is quite useless from a language point of view, or, what is still more vital, from a national point of view. Hence, in Gaelic League circles, as opposed to the old National Board of Education, the object was, from the first, to teach Irish as a spoken, not as a written, language; and a great deal of thought and hard work has been expended upon this, and has had the most favourable results upon the teaching of all languages in Ireland.

I remember two professors in a secondary or diocesan college telling me that they had introduced the speaking method, even into the teaching of Latin, with enormous success.

Having improved upon the old irrational systems of language-teaching by trying to teach Irish as a *spoken* language, and all the Gaelic League teachers being practically at one on this question (which, wonderful to relate, was now raised for the first time in Ireland !), it remained to discover the best system on which to make students master it as a speech.

Módh Díreach. This has given rise to many controversies, and to many systems, or modifications of systems, each of which has its defenders and apologists; but, generally speaking, all are pretty well agreed that some form or other of what is known as the "Direct Method" or *Módh Díreach* is the most advisable. The teacher, so far as practicable, uses nothing but the Irish language in explaining and teaching. This is the same principle as that used in the Berlitz school. With some large object-maps, on which all kinds of

objects and actions are depicted, aided by the actions of the instructor himself, it is easy enough to teach many of the common nouns in the language without the use of English at all. With verbs, the case is something more difficult; but a good teacher can, by a plan of sequence and a well-thought-out series of actions suited to the word, teach a great deal about the ordinary verbs without finding it necessary to resort to English.

In the *Módh Díreach* the pupil repeats the spoken phrase after the teacher, and a good deal of attention must be given to the pronunciation and accentuation of the words and phrases, since the Irish language has thirty or forty sounds that are not in English, as well as most of those which are. The first lessons are usually given upon the names of objects, and a knowledge of some such phrase as *cad é sin* (what is that?) is postulated or imparted. In time, the teacher comes to the inflections of the nouns which have been pointed out as nominative cases, which, in modern Irish, is generally the same as the accusative. In due course, lessons will follow upon the genitive, and then further lessons upon the dative and vocative. The verb will be treated in the same way. Generally speaking, all the lessons begin with objects and go on to actions. There will be a series of lessons on the verbs. At first, the series may commence with lessons upon the present tense, in which all the verbs are used in the present tense only; and these may be followed by lessons in which the verbs are used in the past tense only. Other lessons will teach the future, the conditional, the infinitive, etc. At an early stage in the proceedings, identification and classification sentences as "That's the man," "That is he," "There is Owen," will be much used. Each lesson will be a little harder than its predecessor, and differ from it in vocabulary and structure. The vocabulary is being increased all the time, every lesson adds to it. As many incidental phrases as possible are to be learned in advancing, as "How are you?" "Sit down," "Take a rest," "Close the window," etc. The outlying characteristic of this way of teaching is that all new words and constructions are introduced *in sentences*, not as single words. Later on, the various types of sentences can be mixed and blended in any way desired.

The Phrase Method. It will be seen that this method is really based upon grammar, and, as such, is, in a way, awkward and unnatural, and is undoubtedly rather slow. This has in some few quarters caused a revolt against it; and the latest method adopted by several teachers eschews the steps in grammar on which the older schemes were founded, and also takes full advantage of the pupil's knowledge of English, which he shares with his teacher. This newer method teaches entirely in phrases: the longer and even the more intricate the phrase, the better. Great attention is paid to learning natural dialogues by heart. The irregular verbs are taught by learning off a single short dialogue or story, into which they are all brought in naturally, as they would be in real life. All learning from books is discredited, and this new school recommends the pupil not to open a book for at least six months, but to learn by heart the ordinary phases of everyday life exactly as they have survived on the lips of the older speakers, and are handed down by a native speaker. The learner will use only the sentences he has heard, and these he can employ with confidence. The pupil is allowed to assist his memory by jotting the sentences down after any phonetic fashion of his own which suits him best. After six months, it is claimed that a student can converse with ease, and can then take up books, when his progress will be incredibly rapid, far outstripping the progress made under the ordinary *Módh Díreach* method. What the pupil learns in this way will be the real thing—the pure Irish of the past as handed down by word of mouth in the natural manner.

This new system is as yet on trial. It has not been largely adopted; and, until it has had a fairer and longer probation, it would be rash to hail it as something likely to supplant the *Módh Díreach*.

Texts and Summer Gaelic Colleges. Under the ordinary system, after a certain amount of progress has been made, easy texts are brought into requisition. These are explained entirely through Irish, and simple questions are asked on the texts until the teacher is satisfied that the pupil understands.

It is unnecessary to say how largely this whole system depends for success upon the histrionic art of the teacher. It makes a tremendous demand upon him, and is very exacting. And of teachers it is nearly as true as of poets, that they are, as a rule, born, not made.

A visit to one of the Summer Gaelic Colleges in an Irish-speaking district should supplement the school instruction. There the pupil will be lodged in the house of Irish-speaking people, and will hear Irish spoken all round him. This supplements the *Módh Díreach* method by the "phrase method," for the student will be constantly picking up phrases from the people under whose roof he lodges. Many excellent speakers of Irish, who were born and brought up without having heard a word of the language, have been made in this way.

It is unfortunately necessary to add that in many "national" schools (for, owing to vigorous agitation in the past, Irish teaching is now recognized and, to some extent, paid for in these Government institutions), and even in some of the secondary colleges, Irish still continues to be taught upon the old, bad, discredited system of teaching from books; but this, it is to be hoped, can hardly continue.

D. Hyde.

IRRITABILITY.—The ultimate source of all forms of irritability can be traced to some affection of the nervous system, either temporary or permanent. Irritability in adults may be due to overwork, fatigue, boredom, or certain forms of hysteria and heart disease.

Irritability in normal children is in almost every case traceable to a direct and temporary physical stimulus.

In backward or mentally deficient children, the cause is more deep-seated. In many cases, it can be traced to a form of suppressed hysteria, in which the nerve centres become over excited. As a result of this, the nerve energy, instead of being directed along the motor tracts required, overflows into the surrounding nerve cells. Many people are congenitally inclined to such a form of over excitation, and, as a result of this, there is a tendency for the brain cells to become fatigued.

Children who show this type of irritability are often not only over excitable, but incapable of prolonged effort. Such children tend to give way to excessive fidgeting, because they are unable to relax.

It is of paramount importance that all educationists should realize that irritability in children

has a physical basis, and is probably remedied by careful and prolonged training in the power to relax, both physically and mentally. Such training should take the form of short graded exercises, and should be conducted by individuals who have a knowledge of the symptoms of nervous strain. M. J. R.

ISLE OF MAN, EDUCATION IN.—(See MANX EDUCATION.)

ISOMERISM IN TEACHING ORGANIC CHEMISTRY, IMPORTANCE OF.—(See CHEMISTRY, THE TEACHING OF ORGANIC.)

ITALIAN BY ENGLISH PEOPLE, THE STUDY OF.—The works of Chaucer (*d.* 1400) illustrate a distinct period of the influence of Dante, Petrarch, and Boccaccio on English writers in the fourteenth century. Not only in literature, but also in commercial matters, Chaucer was associated with Italy. In 1372 he was named with two Italians to select a town on the English coast where the Genoese might establish a depôt. The next period of Italian influence is connected with the journeys of English humanists such as Flemming and Tiptoft to Italy, to receive there the classical impetus of the Renaissance (*q.v.*). In the time of the Tudors, Italians, in return, visited and remained in England; such men, for instance, as Silvestro Gigli, Adrian de Castello, Andrea Ammonio, became courtiers of the English kings, and were the recipients of high preferment. The high development of courtesy as well as scholarship made Italian a desirable language for Courts, and an Italian diplomat wrote of Henry VIII's Court that the king "ha molti Italiani al suo servitio" (*Einstein*, p. 97). Henry VIII had his children instructed in Italian, a good sign of its increasing importance. The Italian tutor for Queen Elizabeth was Battista Castiglione, who dedicated to the queen a book published in London (*c.* 1580). The influence in England was great of Baldassare Castiglione's *Il Cortegiano* (see CASTIGLIONE), published at Venice in 1528; translated into English by Sir Thomas Hoby in 1561; and into Latin by the Englishman, Bartholomew Clerke (published in London 1571). Castiglione advocated the study of modern languages by the courtier, and included Italian as one of the most important. Italy was the Mecca of humanist travellers and scholars. There was an English "nation" in the University of Padua. Italian artists flourished in England; and the Italian merchants from Venice, Genoa, Florence, and Lucca formed an important league in London, at least on one occasion. The Italian bankers in London are recalled by the name of Lombard Street. The Italian influence in English poetry, which had declined after the fourteenth century, was revived in a new direction in the sixteenth century by Wyatt and Surrey.

English People in Italy. In 1579 the English Catholic College at Rome was established under the Jesuits; and, between 1579 and 1603, over 350 English students were trained in the College, to return to Protestant England as priests, chiefly under Parsons and Campion. Roger Ascham, in the *Scholemaster* (1570), refers to the young English gentlemen who visited Italy in the way of travel, were fascinated by the country, and became "Italianated"; and even an Italian, says Ascham, had declared "Inglese Italianato e un diabolo incarnato." The type of these Italianated Englishmen, particularly obnoxious to the Puritan, was Sir Toby Matthew, who was converted to Catholicism at Florence in 1606, and ordained priest at Rome in 1614. Matthew translated Francis Bacon's *Essays* into Italian, 1618.

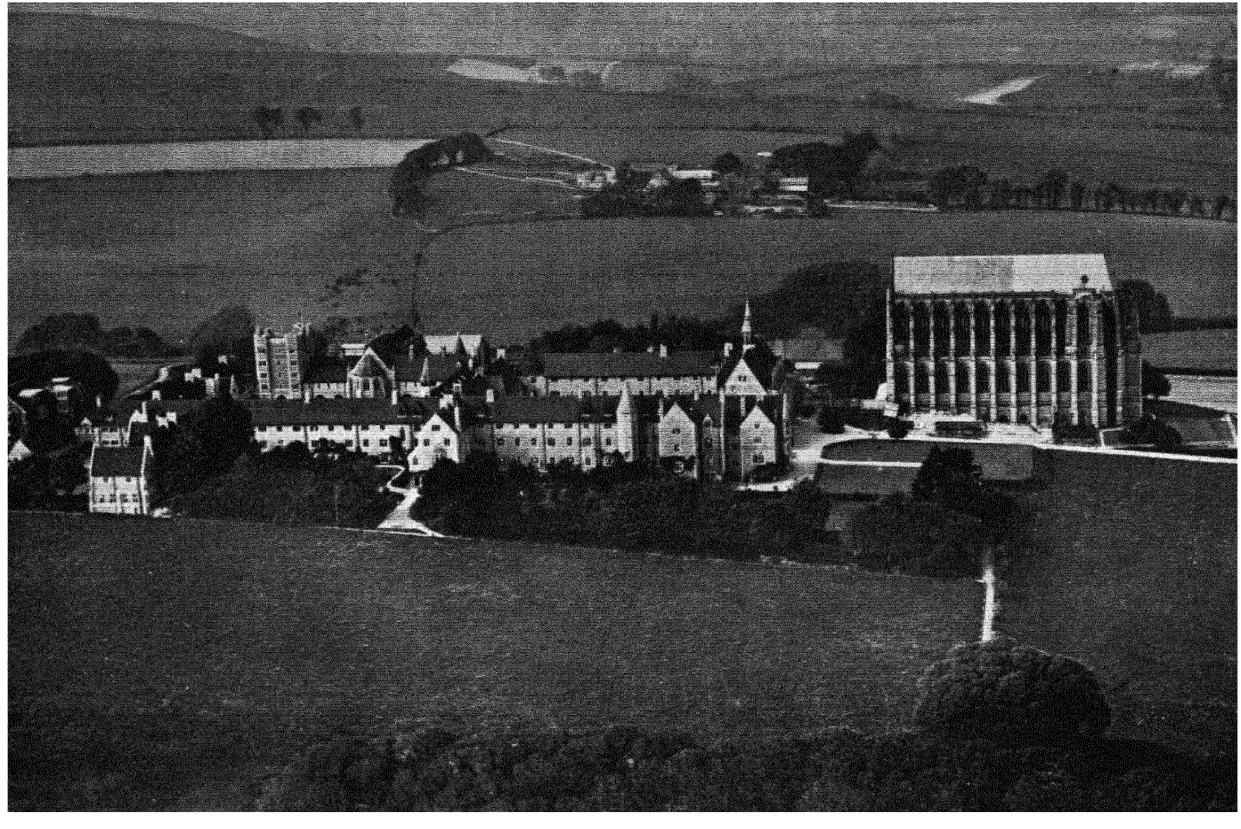
Italians in England. Whilst the study of Italian in Italy by Englishmen naturally was pursued rather by the more aristocratic side of the nation, and particularly by English Catholics, English Protestant gentlemen became Italianated without becoming Papists (*e.g.* the famous diplomat, Sir Henry Wotton; the historiographer, James Howell; and the poet, John Milton). On the other hand, in the time of Queen Elizabeth, the great philosopher, the Italian Giordano Bruno, who outprotestanted Protestantism, visited England. It was, indeed, the Italian Protestants who came to England as religious refugees, who established the teaching of Italian as a subject of study. The institution of the Inquisition in Italy, in 1542, caused the exile of Bernardino Ochino of Siena and Peter Martyr Vermigli to England in 1547; and the former preached in the refugees' church, designated for their use by Henry VIII. Lady Anne Coke, daughter of Sir Anthony Coke, translated Ochino's sermons from Italian into English. The refugees' church was known as the Italian Church. Its minister in 1550 was Michel Angelo Florio, and he appears also as a teacher of Italian to Englishmen. Ascham complains that some Englishmen resorted to his church, not to hear true doctrine, but to listen to good Italian.

Italian Teachers and Text-books. It was the pastor Florio's son, John Florio (1553 (?)–1625), who was the great pioneer of the teaching of Italian in England. He was educated, probably at first, abroad, and acquired a sound knowledge of Italian, French, and English. He probably began teaching whilst an undergraduate at Oxford; and, on coming to London (*c.* 1585), he taught Italian in the houses of the Earls of Leicester, Southampton, and Pembroke; and taught the Italian language also to Queen Anne (wife of James I). His Italian text-books were called *First Fruits* (1578) and *Second Fruits* (1591). But his crowning work as an Italian teacher was *A World of Words*, 1598; an Italian dictionary, which, in its revised form by Giovanni Torriano in 1659, was to English scholars for Italian what Cotgrove was for French.

Claude Holyband (or Dissainliens) taught Italian as well as French, and was in England at least as early as 1566 (*i.e.* after the elder Florio—and before the young one—had begun to teach Italian). In 1583 he published the *Campo de Fior*, to which Mulcaster (*q.v.*) furnished a prefatory Latin primer for students in Latin, French, English, "but chiefly of the Italian tongue." This work borrowed ten dialogues from the *Exercitatio Linguae Latinae* of J. L. Vives (*q.v.*). In England, Torriano, as an Italian teacher, was to the seventeenth century what John Florio was to the sixteenth. In 1640 he published his *Italian Tutor*, which he revised in 1657. The dialogues contain interesting matter on London, English women, English universities, etc. In 1670, Torriano observed that there is so much Italian speaking on the Royal Exchange, in London, "as if it were in Italy."

John Milton (1608–1674) was an advocate of the learning of Italian, though he thought it might be acquired by study "at any odd hour."

In the latter half of the eighteenth century, Agostino Isola taught Italian at Cambridge to



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Lancing College

PLATE LIII

William Pitt, and the poets Gray and Wordsworth. At Oxford, H. F. Cary, the translator of Dante, studied under U. Oliviero. Probably the dissenting academies and girls' schools were the chief centres of Italian teaching. Defoe, for instance, learnt Italian at Newington Green Academy, and it was taught by Joseph Priestley at Warrington.

As to girls, Mrs. Bathsua Makin taught the Princess Elizabeth, daughter of Charles I (*c.* 1641), and probably taught it in her schools at Putney and at Tottenham High Cross. In 1675, Italian was a subject taught in Mrs. Woolley's school in London.

The Italian grammars of the eighteenth century, directly or indirectly, appeal to *clientèles* in girls' schools. In 1750 was issued, in London, an Italian Grammar, founded on the Port Royal Italian Grammar. At the present time, Italian is taught in the Universities of London, Oxford, Cambridge, and Manchester; but of school teaching there is scarcely any for boys, and for girls it is principally taught in some of the best of the private rather than public schools. F. W.

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ITALIAN PEDAGOGIC WRITERS.—After the fall of the Roman Empire of the West the revival of classical studies restored pedagogy to its honourable position in Italy. Vittorio Rambaldoni (1378–1446), commonly known as "Vittorino da Feltre," though he wrote no treatise, must still be considered a reformer of Italian pedagogy, having adopted new educational principles, such as scientific and artistic instruction, physical exercises, sport, the harmonious development of the various activities, co-education, and emulation among the different classes of society in the "Casa Gioiosa" ("The Happy Household"), a residential college organized in 1423 by the Duke of Mantua, G. F. Gonzaga, for the education of his own children.

The following is a list of those who studied pedagogy during the Renaissance, developing and completing the ideas of Quintilian and Xenophon: Pier Paolo Vergerio (Capodistria, 1350–1419); Maffeo Vegio (Lodi, 1406–1458); Leon Battista Alberti (Florence, 1404–1472); Enea Silvio Piccolomini (1405–1464), who became Pope under the name of Pius II; Guarino Veronese (1374–1460); Alessandro Piccolomini (Siena, 1508–1578); Cardinal Giacomo Sadoleto (1477–1547); Bartolomeo Meduna (who published *The Scholar* in 1588); and Ludovico Dolce (1508–1569), who was one of the first to occupy himself with the education of women, often anticipating Rousseau.

Antonio Deferraris (1444–1517), called Galateo after his native town Galatone, wrote *De educatione*, in which he criticized the educational methods of Spain. The treatise was so successful that the name Galateo is still used in Italy as a synonym for good manners.

Baldassare Castiglione (Mantua, 1478–1529) in 1528 published the *Courtier* (which went through many editions and translations) to show how every gentleman ought to behave. The requisite qualities are—nobility, natural courtesy, military valour, goodness, literary and artistic culture, aptitude for sport, and a knowledge of modern languages.

As a result of the Catholic counter-reformation movement, the religious orders became organs of educational propaganda. The most important of these were: the *Somaschi*, founded by Girolamo Miani (1481–1537); the *Barnabiti* (1531); the *Oratoriani* founded in France by Bérulle (1614); the *Scolopii* instituted in Rome (1597) by the Spaniard José Calasenz, who were first very successful but were afterwards persecuted by the Inquisition and suppressed in 1646; the *Oblati* and the *Orsoline*, instituted by Carlo Borromeo (1578); the *Fratelli della dottrina cristiana o Ignorantelli* (Brethren of the Christian doctrine or Simple Brethren), founded in Rome by the Frenchman G. B. Lasalle; and above all the *Gesuiti* (Jesuits), who for nearly two centuries almost held the monopoly of secondary education both of the aristocracy and of the middle classes.

Among the authors of radical educational and social reforms in Southern Italy in the seventeenth and eighteenth centuries were—

1. Tommaso Campanella (Stilo, 1568–1639), a Dominican monk of Calabria. The boldness of his ideas led to his trial, and for twenty-seven years he languished in prison. Of especial importance to pedagogy is his *Città del Sole* (*City of the Sun*), printed in Latin at Frankfort-on-the-Maine, which resembles the *Republic* of Plato in its general systematic construction, and develops a pedagogic naturalism anticipating in various points Comenius, Locke, Rousseau, and Spencer.

2. G. V. Gravina (1664–1718), a literary and legal authority, author of *De instauratione studiorum*, *De conversione disciplinarum*, *Regolamento degli studii di nobile e valorosa donna* (Regulations for the studies of noble and gifted woman).

3. Paolo Mattia Doria (1662–1746), *Educazione del principe* (The Education of the Prince).

4. Antonio Genovesi (Naples, 1712–1769), the economist who also wrote *Meditazioni filosofiche sulla religione e sulla morale* (Philosophical Meditations on Religion and Morals, 1758), *Diceosina, dottrina del giusto e dell'onesto* (Diceosina, the Doctrine of Justice and Honesty, 1766). He proved that the rise and fall of States is principally due to moral causes (that is, to public education).

The most genial innovator, both in politics and in pedagogics, of the eighteenth century was the Neapolitan prince, Gaetano Filangieri (1752–1788), who, in the fourth book of the *La Scienza della Legislazione* (Science of Legislation), fought for the organization of a vast system of State education which was to be progressive in character, and under the control of a single authority. Education should be given to all citizens but not in similar or uniform fashion. The two classes into which the people are divided (manual and intellectual workers) must each have a different local educational authority with special offices and aims which Filangieri explains in detail. Education is the exclusive right and duty of the State. The instruction given must be secular. The doctrines of Filangieri had considerable influence in France with the legislators of the Revolution and in Southern Italy. Matteo Galdi (1766–1821), Vincenzo Cuoco (1770–1823), Cesare Della Valle, Duke of Ventignano, developed some of the proposals, adapting them to the practical needs of that time. In North Italy concrete proposals for scholastic reforms were formulated

by Gian Rinaldo Carli (1720–1795); Giuseppe Gorani (1740–1810) in the *Saggio sulla pubblica educazione* (Essay on Public Education), published anonymously in London; and Gaspare Gozzi (Venice, 1713–1786), in the *Riforma degli studii* (Reform of Studies), a comprehensive, well-constructed scheme for the general re-organization of public education, elaborated at the instance of the Senate of the Venetian Republic after the closing of the schools directed by the Society of Jesus, suppressed in 1777.

In the second half of the eighteenth and the first half of the nineteenth century, Italian pedagogics followed in general the lines of Catholic spiritualism and contributed effectively to the preparation for the unity, liberty and independence of Italy. Important educational questions were also treated by lawyers, such as Gian Domenico Romagnosi (1761–1835); by poets, like Giuseppe Parini (1729–1799), and Vittorio Alfieri (1749–1803); by the critic Pietro Baretti; by the brothers Verri, economists; by the literary men, Alessandro Manzoni (1785–1873), Massimo D'Azeglio (1794–1866), Giuseppe Giusti (1809–1850), Gino Capponi (1792–1876), Niccolò Tommaseo (1803–1873), Raffaello Lambruschini (1788–1878); and by the philosopher and statesman Vincenzo Gioberti (1801–1852). The most eminent pedagogue in this historic period was Antonio Rosmini (1797–1855), who, both in his life and in his writings, succeeded in merging philosophy, religion and patriotism in a single affection. He dealt with pedagogics not only in his philosophical works to which he chiefly owes his fame, but also in the *Educazione cristiana* (*Christian Education*), and in the *Principio supremo della Metodica* (*Supreme Principle of the Science of Method*, 1857). Education must have unity of aim, of doctrines and of powers, and it must embrace the whole of life. In the various periods of human life five orders of intelligence may be distinguished, corresponding to the various degrees of abstraction and the various phases of volition. Didactics must conform to this gradual development. The Christian religion is the supreme unifying principle of all healthy education. A similar direction was followed by G. A. Rayneri (1810–1867) and Giuseppe Allievo (1830–1913).

Ferrante Aporti (1791–1858), the first Professor of Pedagogy at the University of Turin, in 1831 organized the first infant schools in Italy after the model of the *Infant Schools* of New Lanark, six years before Froebel instituted the kindergarten. He wrote a *Manuale di educazione e di ammaestramento per le scuole infantili* (*Manual of Education and Instruction for Infant Schools*), and a *Guida dei fondatori e direttori delle scuole infantili di carità* (*Guide for the founders and heads of Charitable Institutions for Infants*, 1833–6). Owing to unfaithful disciples, the didactical curriculum of the infant schools was exaggerated. Giuseppe Sacchi and Decastro improved them, instituting *Rural* and *Garden* schools, taking advantage also of some of Froebel's principles. More recent innovations are those of the sisters Agazzi and the *Case dei bambini* (Infant Schools or Houses) of Maria Montessori (born 1870).

In the second half of the nineteenth century, in connection with the general trend of physical, biological and social science, the positivist current prevailed also in Italian pedagogics. The principal representatives were: Edoardo Fusco (Trani, 1824, Naples, 1872); Pietro Siciliani (Galatina, 1835, Florence, 1885), author of *Scienza nell' educazione secondo i principii della sociologia moderna* (*Science in Education according to the principles of Modern Sociology*,); Andrea Angiulli (Castellana, 1837, Naples, 1890), author of *La filosofia e la scuola* (*Philosophy and the School*), *La Pedagogia, lo Stato e la famiglia* (*Pedagogics, the State and the Family*), *La Pedagogia e la filosofia positiva* (*Pedagogics and Positive Philosophy*); Aristide Gabelli (Belluno, 1830, Padua, 1891), compiler of the valuable *Istruzioni* (*Instructions*), didactic rules still in force, which preface the Government curricula for elementary schools, author of *L'uomo e le scienze morali* (*Man and the moral sciences*), and *L'istruzione in Italia* (Education in Italy); Nicola Fornelli (Bitonto, 1843, Naples, 1915), author of *L'insegnamento pubblico ai tempi nostri* (*Public teaching of to-day*); *L'educazione moderna* (*Modern Education*), in which he shows that teaching is the right and function of the State and must be secular but not anti-religious; *La Pedagogia e l'insegnamento classico* (*Pedagogics and Classical Teaching*), affirming that classical studies constitute the basis of national education; *L'adattamento nell'educazione* (*Adaptation in Education*); *Studii Herbartiani* (*Studies from Herbart*); F. S. De Dominicis (Buonalbergo, 1845, still living), author of the *Scienza comparata dell'educazione* (*Comparative Science of Education*); G. A. Colozza (Frosolone, 1857, still living), author of *Il gioco nella psicologia e pedagogia* (*The Place of the Play in Psychology and Pedagogy*); *L'inibizione* (*Inhibition*); *L'immaginazione nella scienza* (*Imagination in Science*); *La Meditazione* (*Meditation*); *La matematica nell' opera educativa* (*Mathematics in Educational work*); *Studii su Rousseau* (*Studies on Rousseau*) and *Educazione del sentimento dell' onore* (*Education of the sentiment of honour*), in which he develops some principles of Locke and modern English pedagogy. The leader of the school of modern pedagogic positivism is Roberto Ardigò (Casteldidone, 1828, Mantua, 1920). In addition to many philosophical works he wrote *La Scienza dell'educazione* (*The Science of Education*), 1893. Among those who follow the lines laid down by him are: Giovanni Marchesini (1868, still living), author of the *La Dottrina positiva dell'idealità* (*Positive Doctrine of Ideality*); *Corso sistematico di pedagogia* (*Systematic Course of Pedagogics*); *Educazione morale* (*Moral Education*); Giuseppe Tarozzi (1866, still living), Ludovico Limentani and others.

Cesare Colucci, Sante Desanctis, G. C. Ferrari, G. Montesano and G. Ferreri are experts in normal and amended pedagogic psychology. The spiritualistic direction tempered by the results of modern psychology is followed by Giovanni Vidari (1871, still living) and Giovanni Calò (1882, still living), both authors of a Treatise on Pedagogics, and many essays. Luigi Credaro (1860, still living), Professor of the University of Rome, Senator Governor of the Trentino, during the four years in which he was Minister of Education, obtained Parliamentary sanction for many fundamental laws promoting the growth of the elementary schools (taking the administration from the communes and entrusting it to a special provincial autonomous body), raising the salaries, and improving the school accommodation. He has published a volume on *Pedagogia Herbartiana* (*The Pedagogics of Herbart*), and an *Enciclopedia pedagogica* (*Pedagogical Encyclopaedia*), with Martinazzoli. He is the editor of the *Rivista pedagogica* (*Pedagogic Review*).

The two most typically characterized and original directions of Italian pedagogics to-day are Neo-Hegelian idealism and absolute transcendental realism. The first direction is followed by Benedetto Croce and Giovanni Gentile, author of the *Sommario di Pedagogia* (*Summary of Pedagogics*), where he identifies Pedagogy with Idealistic Philosophy, makes every reality consist in the actual moment of consciousness and maintains that self-education alone is possible.

Absolute transcendental realism has been developed by Guido Della Valle (Naples, 1884, still living), in the volumes *Le leggi del lavoro mentale* (*The Laws of Mental Work*, 1911), and *Teoria generale e formale del valore come fondamento di una pedagogia filosofica* (*A general and formal Theory of Value as the basis of a philosophical Pedagogy*, 1916). According to Della Valle the idea "Education" is simply a particular, empirical case of the acquisition of Values which is realized at any age in either sex or in any social activity. The school is a small fragment of life and cannot be considered by itself. Theoretical and practical human life always seeks to obtain Values of knowledge by means of the senses (existential Values or Realities), or by means of the mind (logical Values or Truths); values of feeling (= aesthetic values = Beauty); Values of will or volitional Values with reference to the subject (= moral values = Goodness); Values of will with reference to the object (= economic values = Wealth). The Values are absolute, universal, transcending the individual ego, reciprocally incommensurable. They constitute normative ends and are obtainable only by means of mental work variably qualified. Traditional pedagogy is a particular empirical application of the "Theory of Efficiency," divided into (*a*) "The Experimental Science of Mental Work," to which belongs the experimental pedagogy which indicates educational mediums; (*b*) "The Speculative Theory of Values," from which is derived the philosophic pedagogy that investigates which values should be chosen as Ends. G. D. V.

ITALIAN, THE TEACHING OF.—If the person who undertakes to teach the Italian language is not a native of Italy, it is indispensable that he should have learned the language from an Italian. Though the correct pronunciation is easily acquired, it is impossible for any one to possess it who has not heard it spoken by a native; yet it is a matter of two or three lessons only. When the student has learned how to pronounce Italian words correctly, he should provide himself with a good English-Italian and Italian-English dictionary. Though it may seem strange, the best of all is Baretti's, published in London 150 years ago, and reprinted many times since. Roberts's Dictionary, published at Florence, is cheaper, and consists of a single volume; it is the next best. Pocket-dictionaries are useless—it is impossible to include all the words and their different meanings in a small volume.

Italian grammar and syntax any one may learn by himself, without the aid of a teacher. The average student may begin with any of my four Grammars, bearing in mind the purpose for which he intends to learn the language. Those who only want enough to enable them to travel comfortably in Italy and read its newspapers, might study the *Italian Grammar for English Students* (Luigi Ricci: The Walter Scott Publishing Co., Ltd.). Those whose only aim is to learn Italian for commercial purposes will find everything they want in the *Commercial Italian Grammar* (Sir Isaac Pitman & Sons, Ltd.). The student who desires a thorough knowledge of the grammatical and syntactical rules should study the *Italian Principia*, Part I (John Murray). In Part II, he will find 113 prose extracts from fifty-two of the best Italian authors, as well as 9 short poems, together with 65 pages of useful notes and syntactical rules, and a complete vocabulary.

To the energetic and earnest student I would recommend the following course: First, to study my long article on *The Italian Language and Literature* (Jack), and then the works of the late Professor Fornaciari of Florence: *Grammatica Italiana* and *Sintassi Italiana*, the most useful Italian publications on these subjects. Further knowledge of the language may be obtained from Cesare Cantù, *Storia della Letteratura Italiana;* and Napoleon Chaix, *Studi di Etimologia Italiana e Romanza.*

As by far the most important part of Italian literature consists of poetical works, the student should early become acquainted with Italian poetry —from the birth of the language in the thirteenth century down to the present time. For this purpose, he will find very useful a little book, *Le Cento Migliori Poesie della Lingua Italiana* (Gowans & Gray), which contains the best lyrics of every period from Dante to Carducci.

Method of Teaching. Teachers of Italian should remember that the language is taken up voluntarily by every student, being fortunately not included among the compulsory subjects in any public examination. This fact testifies at once that the new student feels a personal longing and liking for the study, and is quite prepared to do his best. To be successful, the teacher should become the friend of the student.

The first lesson should be wholly given to learning the correct pronunciation of the Italian alphabet, especially that of the five vowels. That there are no diphthongs should be well impressed on the student; together with the pronunciation of *ch* as "k," the latter not being found in the Italian alphabet. After this, whole Italian words should be read by the teacher and repeated several times by the student.

The second lesson should be a repetition and continuation of the first, as its subject-matter is of such paramount importance that it must be thoroughly mastered; any mistake in the pronunciation which is not corrected in the first two lessons is very difficult to get rid of afterwards. The teacher should not be deterred by any consideration from giving the whole of the first two lessons to pronunciation.

The third lesson may deal with the articles, the reading of Italian fables (*Italian Principia*, Part II), and dictation from a text accessible to the students, in order that they may themselves revise at home what they have written in the class. (This will save the time of the teacher; and, at the same time, further excite the interest of the student in his work.) The teacher should see in the following lesson that the dictation has been duly revised. The home-work should also include the translation into Italian of Exercises 1 and 2.

My experience has proved to me that a great aid to the mastering of a foreign language is found in learning by heart some of its poetry. The sooner

the teacher avails himself of this help, the better for the success of his teaching. He should dictate to the class a literal translation into English of one of *Le Cento Migliori Poesie*, recite it in the original Italian, and then make the students, either singly or together, read it in Italian, and ask them to commit it to memory so as to be able to repeat it at the next lesson. He will find that, while a few learn the whole, and some a part of it, others will plead the difficulty of learning it as an excuse. Far from being discouraged, he should persist in his purpose, which is, after all, that of teaching Italian; and give some poetry at every succeeding lesson, in the same manner.

The fourth lesson may deal with the Noun (Exercises 3 and 4). The reading of an Italian book should now begin, and the teacher should select an interesting one. For this purpose, I have found Goldoni's *Commedie* very useful, and any one of them will do. The student will thus become acquainted with colloquial Italian, and be interested in the plot of the play. The volume of selected plays by this author, published by Lemonnier, of Florence, is the best of the popular editions.

The sixty minutes of each lesson might profitably be divided thus: Ten minutes for the translation and recitation of the poetry; twenty minutes for the reading and correction of the written exercises, and the explanation of the grammatical rules to be learned for the following lesson; ten minutes for dictation; and the last twenty minutes for reading an Italian text (a play, as stated above).

The fifth lesson may deal with the contractions of the prepositions with the definite article (Exercises 5-7).

The sixth lesson, with Exercises 6-10, should include the partitive article and proper names, and also a brief repetition of all the work previously done.

And so the work may go on regularly till the twenty-fourth lesson, by which time the irregular verbs are reached. These, as well as the syntactical rules given in the *First Italian Reading Book* (pp. 147-167), should be learned in the remaining twelve lessons, thus completing the course of thirty-six.

When one of the plays has been read through, another book may be taken up for reading, D'Azeglio's *Ettore Fieramosca*, or Manzoni's *Promessi Sposi*. In order to keep up the interest of the student in reading Italian, besides the reading done in class, the teacher should set them two or three pages to be read at home; and ask at the next lesson for a *résumé* of such home-reading from one of the students, endeavouring to have it said in Italian.

After the eighteenth lesson, the ten minutes previously devoted to dictation should be spent in giving the students, on the blackboard, useful information—to be copied by them in their note-books—about idiomatic phrases, proverbs, and the different meanings of similar words; as well as colloquial sentences on interesting subjects of everyday occurrence.

Advanced Work. Having thus in the course of a session of thirty-six lessons completed the instruction of the elementary class in all the grammatical and syntactical rules of Italian, and made the students fairly proficient in reading, writing, and speaking, an advanced class should be formed for the second session, a new beginners' class being started at the same time.

For this class, the teacher will have fewer students, of course, as many of those who belonged to the late beginners' class will be satisfied with one ye study and think themselves proficient enou Yet, though smaller, the class will be composed the most energetic and the best. Let the teac not be disheartened by the fact that the numt are small. His perseverance will bring him ample reward in the years to follow.

The following plan of work for advanced stude I have found very successful, and it may be expec to give good results.

Macaulay's *Essay on Machiavelli* should be ta as a text-book, from which a written Italian tran tion should be prepared at home by the stud and revised in class after the teacher has dicta his own translation of the passage. The teac must bear in mind that many English words n be correctly translated by different Italian wo and that the construction of a sentence may varied without detracting from its clearn This essay deals with the history of Italy at time of the Renaissance, and describes it in clearest and most interesting way, far surpass even that of Italian historians. There is, in forty-third volume of the well-known collection the " World's Classics," published by the Oxf University Press, a translation of Machiave *The Prince*, his most important work. The len of the passage to be translated should not exc one printed page, and should occupy about twen five minutes in revision. Another twenty-f minutes should be given to reading in Itali translating from the works of some good mod Italian author. The volume of Leopardi's *Pr* or Cesare Cantù's *Novelle Brianzuole* are, perha best; the latter especially overflowing with idiom phrases and words of the purest Italian. The teac is, of course, at liberty to use other modern bo which he may think equally interesting; but must be warned against those contemporary wri who have obtained notoriety through the immora in which they delight to wallow, who are oblivi of all grammatical rules, and besmirch their writi with mis-spelt foreign words, through ignorance the Italian equivalents.

Here I shall mention a few other Italian wo from which some may be selected for reading in advanced class—

FOGAZZARO, ANTONIO. *Piccolo Mondo Antico.*
FUCINI, RENATO. *Napoli ad Occhio Nudo.*
GROSSI, TOMMASO. *Marco Visconti.*
GAGGIANO, GIULIO. *Mala Vita Napolitana.*
GUERRAZZI, F. DOMENICO. *La Battaglia di Be vento.*
MANZONI, ALESSANDRO. *I Promessi Sposi.*
PELLICO, SILVIO. *Le mie Prigioni.*
ROSINI, GIOVANNI. *La Monaca di Monza.*
VILLARI, PIETRO. *Girolamo Savonarola.*

The remaining ten minutes of the hour's les the teacher should give to conversation with students and to answering questions.

You will have remarked that I have not m tioned the study of any Italian poetical work, w the exception of those in the little volume of *Cento Migliori Poesie Italiane* to be committed memory by the beginners' class. As I stated, purpose of this is to secure correct pronunciat and a useful vocabulary. The student will not able to enjoy to its full extent the charm of Ital poetry till the third year of his study of the langua Then, and then only, will he be able to read classics, both in prose and verse, and appreci their unequalled merits.

The charm exercised by the Italian language and literature is proved by the fact that those students who have given them two years of persevering study never afterwards give up reading Italian works, such a fascination have they for every intelligent reader.

The student who has mastered thus far the Italian language will be qualified to study the greatest work in Italian literature, Dante's immortal poem, *La Divina Commedia*, in its original text. As preface, to this, he should read Dante's *Vita Nuova*.

The *Divina Commedia* should be read in Italian, English translations being avoided, since most of them are far more obscure than the Italian itself, or only bear witness to the truth of the Italian proverb: " Traduttori, traditori." Yet, as the great poem abounds in references to an immense number of historical, philosophical, and other subjects, notes are indispensable. The best notes are to be found with the translations of Longfellow and Cary, either of which may be consulted by the student. They have the merit of being published at popular prices.

Any one who has read and understood Dante's *Divina Commedia* can fairly profess to know Italian; and this far better than the majority of illiterate Italians, whose knowledge of their native tongue is limited to a few thousand words, wrongly pronounced and incorrectly spelt. Such a student is thoroughly fit to become a teacher of Italian.

The following are the principal Italian works recommended for reading after the two years' course of study described above—

ARIOSTO. *Orlando Furioso.*
BERNI. *Poesie.*
BOCCACCIO. *Decamerone.*
CELLINI. *Vita.*
COLLETTA. *Storia del Reame di Napoli.*
DANTE. *Vita Nuova ; Divina Commedia.*
FIRENZUOLA. *Novelle.*
GIUSTI. *Poesie.*
GUICCIARDINI. *Storia d' Italia.*
LEOPARDI. *Prose e Poesie.*
MACHIAVELLI. *Il Principe ; I Discorsi.*
MAZZINI. *Scritti Scelti.*
METASTASIO. *Drammi.*
PARINI. *Poesie.*
PETRARCA. *I Trionfi.*
TASSO. *L' Aminta ; La Gerusalemme Liberata.*
TASSONI. *La Secchia Rapita.*
VASARI. *Vite dei Pittori.*

L. R.

ITALIAN (COMMERCIAL), THE TEACHING OF. —Italian, of late, has not been widely studied as a commercial language, though it is probable that more attention will be devoted to it in the near future, because Italy's sphere of action is bound to extend—at any rate, business relations with Great Britain, brisk as they are, will necessarily increase. A historical outline will perhaps be interesting. In the time of Henry III, " the Companies of Italian Merchants came to England for the purpose of purchasing English wool," as Mr. Rhodes relates in his essay on *The Italian Bankers in England*. Under Edward I, commercial intercourse between Britain and the glorious Italian Republics was very active. The Bardi, Pulci, Frescobaldi, and Peruzzi families of bankers had large dealings with England; and it is recorded that King Edward III borrowed huge sums of money from the Peruzzis, which, owing to State complications, were never returned in full. As is well known, Europe owes to the inventive genius of the Italians its systems of book-keeping (single and double entry) and of banking. J. Russell-Lowell, the great American writer, in a note on his essay on Dante, says: " . . . the bill of exchange, endowing value with the gift of fern-seed and enabling it to walk invisible, turned the flank of the baronial system and made the roads safe for the great liberaliser: Commerce." Trade guilds were very prosperous in the Middle Ages in Central Italy; and the Florentine merchants, let it be remembered, not merely devoted their attention to commerce, but were great patrons of arts and letters. In the fourteenth century, trade in textiles was very active between the two countries; and the Florentine merchants purchased woollen stuffs in the county of Lancaster, which were then subjected to a special process, and afterwards re-exported to England and sold at a very high price. It is well to remember that the Venetian Sebastian Cabot, a navigator of celebrity and the discoverer of Newfoundland, was in the service of Henry VII. In the reigns of Henry VIII and Queen Elizabeth, active relations were maintained with the Genoese, who built for England entire fleets of galleys. In subsequent centuries, Italy, torn by internal dissensions, became an easy prey to the foreigner; and the French, Austrians, and Spaniards, in turn, contended for its possession. Since Italy, however, regained her independence, she has made immense strides, and her commerce and industries have developed marvellously. Suffice it to mention that, while the sum total of Italian commerce was, in 1861, barely £640,000, in less than half a century (1907) it had reached the astounding sum of £184,000,000, exclusive of precious metals.

Italian as a Commercial Language. If Italian in later times has not been used more as a commercial language, the fault must be partly attributed to Italian merchants themselves, for, whenever an English firm attempts to write to clients in Italian, they generally reply in English, French, or even Spanish, often very indifferently expressed. From the point of view of its suitability as a medium of commercial intercourse, it may be said that the Italian language is simple, clear, concise, and well adapted for business letters. It is not very difficult to learn either, when it is considered that English students are provided with excellent books in commercial grammar and correspondence, together with a dictionary. A practical knowledge of the language can be acquired without residing in the foreign country. Frederic Harrison expressed his opinion that Italian is the tongue most suitable as an international medium of communication. After Spanish or French, it is the language which the English find easiest, for it is not difficult to acquire fluency in it if care is taken to learn the rudiments carefully. It was said at one time that the English had no aptitude for languages—this is utterly untrue. Circumstances have changed, and foreign tongues have been studied with great eagerness in the last twenty years. Many young men, on account of their linguistic attainments, now occupy responsible positions, and it must not be forgotten that Italian is sometimes important for those who enter the Civil Service.

Methods of Teaching. Of course, it is indispensable that all young men and women who devote themselves to the study of Italian should be well acquainted with their native language. The best plan is to insist that the student shall

make himself familiar with the grammar, but at the same time teach him to speak from the very first lesson. Then, if the pupil has for his chief object the study of the language for commercial purposes, dictate to him the most important terms connected with his trade or profession. Afterwards he may be initiated into the secrets of the language and given a series of stereotyped idioms which are in constant use in commercial style. The next step is for the student to write easy letters for correspondence till he is able to acquit himself tolerably well.

In estimating the probable value of Italian as a commercial language in the future, let it be remembered that Italian is spoken by over 40,000,000 people, 35,000,000 of whom are in Italy proper. It is the medium of communication on both shores of the Mediterranean, in Christian and Mohammedan lands. Finally, there are large colonies of Italians in the South American Republics whose vernacular is the language of Dante and Tasso. A. V.

ITALY, THE EDUCATIONAL SYSTEM OF.— The present system of public education in Italy dates back, as regards its general lines, to the law promulgated during the second War of Independence (13th November, 1859), by Victor Emmanuel II of Savoy at the instance of the minister Gabrio Casati. Valid at first only for Piedmont, Liguria, and Sardinia, it was extended to the other regions successively annexed and partially modified by many special laws.

Infant Schools. The infant schools in Italy are of fairly early origin. In 1831, six years before Froebel, the Abate Ferrante Aporti (S. Martino dell'Argine, 1791–1858) founded the first infant schools on the model of those of New Lanark, giving special attention to object lessons and to religion and also teaching the elements of reading and writing. Sacchi and Decastro reorganized Aporti's schools, which had degenerated owing to an excess of instruction, and instituted the rural and garden schools. Later on Froebel's kindergarten system became widespread, the first propagandists being some pupils of Baroness Marenholtz-Bülow, namely, Mesdames Schwabe and Portugal at Naples, and Mme. Petermann at Rome. Valuable innovations were introduced into the education of infants by Maria Montessori with her " Case dei bambini " (" Babies' Houses "), first organized in Rome in the buildings of the " Istituto dei beni stabili " (Real Estate Office), afterwards becoming general throughout Italy and abroad; and by Rosa and Filomena Agazzi of the Mompiano-Brescia School whose method has also been effectively employed elsewhere.

The only pre-scholastic institutes directly dependent on the Minister of Education are the kindergarten establishments attached to the normal schools or training colleges (Scuole Normali). They are Froebelian in type but often considerably modified. The other infant schools are held to be rather charitable institutions than real schools, and are therefore under the control of the Minister of the Interior (Home Secretary), who often subsidizes them, though almost all are maintained either by the legacies of some philanthropist or by the gifts of private citizens or at the expense of the communes, or of charitable or religious bodies. The administration is entrusted to those who provide the economic means, under the control of the local and central authorities. The present system of collaboration between public bodies (Commune, Province, Central Government), and the spontaneous initiative of private benefactors is in accordance with the principles of the Liberal Democratic party hitherto predominating in Italy. The Socialists would like the administration of all the infant schools to pass to the communes, so that throughout Italy this educational stage should also be organized by one authority, being placed under the control of the Ministry of Education. The Catholics, on the other hand, would like to leave greater liberty to the present administrators of the schools, fearing that excessive intervention on the part of the public authorities would probably dry up the springs of charity, and wishing to preserve the predominantly religious character of the private infant schools, where the instruction is often entrusted to nuns. In the State kindergarten schools there is no religious instruction. On 1st January, 1915 (more recent official statistics are not forthcoming), out of the 8,341 Italian communes only 3,706 were provided with infant schools. In all there were 5,455 of the latter, of which 2,031 were legally recognized as " independent bodies " entitled to own and inherit property and to enter into contracts. Of the remainder, 1,542 were dependent on religious bodies and 1,832 were simple charitable institutions dependent on private benefactors. The largest number of infant schools are found in Lombardy, Piedmont, Liguria, Campania, Lazio, Veneto, Emilia, Tuscany; the smallest number in Sardinia, Calabria, Basilicata; 1,751 adopt Aporti's method; 2,583 are Froebel kindergarten on either original or modified lines; 180 are " Babies' Houses " on the Montessori principle; 941 are simply public nurseries (crèches); 1,722 are free for all the pupils, on the other hand all the pupils have to pay in 1,315, while 2,418 require payment only from the well-to-do. In 1,212 of the schools meals are given free, in 686 they are provided on payment by all the pupils, and in 2,026 only the well-to-do pupils pay for their food. The teaching staff includes 3,549 head mistresses; 8,771 teachers; 5,860 other employees. The pupils on the rolls number 500,000, of whom 496,793 are between the ages of 3 and 6 years (250,289 boys and 246,504 girls).

Government of Elementary Schools. According to the above-mentioned Act of 1859, the public elementary schools were to be administered directly by the Municipal Councils of the respective communes elected by the citizens by means of a secret, direct, equal and ever-widening suffrage. In these Councils the executive power is vested in the Mayor as chief of the commune and in the " Communal Board," composed of " Assessors " (elected by the communal councillors from among themselves), one of whom was specially appointed to superintend the communal elementary public schools and all other matters connected with popular education. The powers of the communes in scholastic affairs were originally very wide, but this did not produce good results owing to the economic and often even moral inadequacy of many communes, so that various laws were passed in succession (1877, 1885, 1903, 1904, 1906), by means of which the State limited more and more the powers of the communal administrations

in connection with the appointment, career, and dismissal of teachers, their salaries and pensions; confirmed the obligation as regards education of both the communes and the pupils, and arranged syllabuses and competitions.

The Bill of 4th June, 1911, introduced into Parliament by the minister Daneo and passed with various modifications, when he had been succeeded in the Government by Luigi Credaro, Professor of Pedagogics at the University of Rome, took away from the communes the management of the elementary schools, except in the case of the chief towns of provinces and districts and in other communes economically and morally more progressive, which guaranteed the greatest possible development of popular culture. All the other public elementary schools were (and still are), entrusted to a special body called the " Provincial School Council " (" Consiglio provinciale scolastico " = C.P.S.) composed of the following fifteen members—

1. The Provincial Director of Studies (a Government official, chief of the elementary and secondary scholastic administration of the whole Province).

2–3. Two members appointed by the Minister of Education from experts in scholastic matters.

4. The head master or a teacher of a normal school or other secondary school, nominated by the Minister.

5. The head school inspector attached to the Provincial Educational Office.

6. The head master of the elementary schools of the commune which is the capital of the Province.

7–8. Two elementary school masters who have been definitely appointed and have been teaching at least five years in the public elementary schools of the Province, to be elected by their own colleagues.

9. A representative of the administrative Provincial Council.

10. A representative of the chief commune of the Province.

11. A representative of the group of communes, which retain the management of the elementary schools (" autonomous").

12–15. Four representatives of the group of communes that have transferred to the C.P.S. the management of their own schools.

The provincial and communal councils may select their respective representatives from outside their own bodies.

Attached to the C.P.S., with a consultative vote for their special departments, are the chief civil engineer and the doctor of the Province. Senators and Deputies are forbidden to belong to the C.P.S. in order to avoid political influences. The C.P.S. is presided over by the Director of Studies and in his stead by the provincial head school inspector. The elected members remain in office four years; half retire every two years; they are eligible for re-election. These educational advisers perform their functions gratuitously, but those not resident in the chief commune of the Province receive an indemnity for travelling and hotel expenses. The C.P.S. manages the elementary schools throughout the Province, exercising the powers originally possessed by the various municipal councils. Its executive organ is the " School Deputation," consisting of seven members, chosen from the C.P.S. and acting also as a " Disciplinary Council " in matters concerning breaches of regulations by the teaching staff.

In every province there is also a government body known as the " Government Delegation " (" *Delegazione governativa* ") composed of the following five members—

1. The Prefect of the Province, representing the Home Secretary (who is the President).

2–3. Two representatives of the Board of Education.

4. A representative of the Treasury.

5. The chief accountant of the Prefecture.

The Government Delegation exercises financial control over all the expenditure decided on by the C.P.S. If the C.P.S. does not carry out its functions regularly it is dissolved by the Government, which entrusts the management of the schools of the Province to a Royal Commissioner.

The same Act of 1911 introduced into the Assembly of the Higher Council of Public Education a " Section for Primary Education," comprising the following eleven members—

1–3. Three members of the Higher Council from among whom the Minister chooses the President of the Section.

4. The Director General of elementary education.

5. An eminent authority on Pedagogy.

6–7. A principal and a professor from the normal schools.

8. A school inspector.

9–11. A head teacher and two elementary teachers.

Members under 1, 2, 3, 4, 5 and 8 are nominated by the Minister, the remainder, namely, those under 6, 7, 9, 10 and 11, by their own colleagues.

The Section passes opinions on Parliamentary bills, regulations, pedagogical arrangements, the curricula of elementary schools and kindergarten establishments, and settles disputes referring to teachers.

Religious Instruction. Religious instruction in the public elementary schools is at present regulated by the following Article 3 of the Regulations of 6th February, 1908—

" The communes will provide religious instruction for those pupils whose parents desire it, on the days and at the hours fixed by the C.P.S. who will engage for this purpose class teachers considered fit for this duty and ready to accept it, or other persons whose fitness is recognized by the said C.P.S. When, however, the majority of the councillors assigned to the commune do not desire to arrange for religious instruction, this may be given under the charge of the fathers of families who have asked for it by any person holding the elementary teacher's certificate and approved by the C.P.S. In this case school buildings will be placed at disposal for such instruction on the days and at the hours fixed by the C.P.S."

This middle-course solution, adopted as a compromise after long debates by the Liberal party then predominant, does not, for opposite reasons, satisfy either of the extreme parties. The Catholics, relying on Article I of the fundamental Statute of the Kingdom of Italy (1848), which proclaims the Roman Catholic Apostolic religion to be the only State religion and considers all other forms of worship as merely tolerated by special laws, demand that instruction in the Catholic religion shall be made obligatory in all the elementary public schools, except for children whose parents explicitly refuse it; and in addition, that such instruction shall be imparted not by a master appointed by the communes or approved by the

C.P.S., but rather by a priest nominated by the ecclesiastical authority. The Socialists, on the other hand, maintain that modern Italy must be quite disinterested as regards any sort of religious instruction, leaving the initiative in this matter to the various communities of believers, but keeping it outside the school and at the expense of the individual families. They therefore demand the abolition of even optional religious teaching.

The last Parliamentary Election (16th November, 1919), by considerably diminishing the former Liberal majority in the House of Deputies, has greatly increased the numbers of the two above-named groups of parliamentary extremists, so that modifications of the regulation dealing with religious instruction are to be anticipated, according to whether the Liberals form a coalition with the Catholics or with the Socialists.

Elementary Education. One of the gravest misfortunes inherited by the young Kingdom of Italy from former bad Governments is the serious illiteracy. (It must be remembered that Italy became a free, independent and united State in 1870, only after about fourteen centuries of fraction and foreign dominion.) According to the census of 1911, Piedmont has the minimum number of illiterates (11 per cent.), and Calabria the maximum (69·6 per cent.), the average being 37·6 per cent. In 1915, throughout the kingdom 24 per cent. of the married men and 34·9 per cent. of the married women were illiterate with a minimum of 2 for Piedmont and a maximum of 49·6 to 68·6 for Calabria. These figures, though unfortunately still high, are a considerable improvement on those of the period preceding national unity and serve to show the progress made owing to the large increase of the sums devoted to popular education.

In 1916 there were 100,105 lower elementary classes (1st, 2nd, 3rd), of which 19,784 were for boys, 19,361 for girls, and 60,960 mixed; and 20,091 higher classes (4th, 5th, 6th), of which 6,405 were for boys, 5,738 for girls, and 7,948 mixed. These 120,196 classes were attended by 3,692,024 pupils, by far the largest number of these (3,167,245) taking the lower course.

The instruction was given by 75,993 teachers, among whom women (58,750) preponderated. On 1st July, 1917, out of the 8,344 Italian communes, the schools of 7,997 communes were managed by the C.P.S. at an annual expenditure of 90,753,104 lire, of which 47,174,600 are consolidated stock at the charge of the communes, and 43,578,504 actual money at the charge of the State. The new Act (1919, Berenini being the responsible minister), which has almost trebled the teachers' salaries, and many special laws in favour of the instruction of illiterate adults and popular education have considerably increased this expenditure.

Especially in northern Italy there are numerous institutions auxiliary to the elementary schools, such as school and popular libraries, libraries for teachers, "school aid societies" called *Patronati Scolastici* (for distributing clothes, shoes, books, copy-books gratis among the poor pupils), mutual benefit societies among alpine and marine colonies, university extension courses, evening and holiday schools, sport clubs.

Secondary Education. The intermediate or secondary schools are open to those who hold the "licenza di maturità" (leaving certificate), obtainable after the 4th elementary class. The course of the classical secondary school lasts eight years, the first five being called "Ginnasio" (*lit.* Gymnasium) and the last three "Liceo" (*lit.* Lyceum). This is the traditional Italian type of school which still enjoys special privileges, among them being the exclusive right of entrance to various university faculties. The study of Italian, Latin and Greek language and literature and history constitute the fundamental nucleus, while mathematics, physics, chemistry, natural science, philosophy, geography and French occupy a secondary place. In 1914-15 there were 55,579 students on the rolls of the "Ginnasii," and 14,593 registered at the "Licei." The number of women is increasing both absolutely and proportionately, while that of the male students shows a diminution on the whole, especially in the northern provinces which, being more developed economically, prefer more practical studies.

The "Technical Schools," with a three-year course, train candidates for the lower civil service and commercial positions and prepare them for further studies. Classical languages are entirely omitted, the subjects taught being Italian, history, geography, arithmetic, accountancy, drawing, and French. Owing to their comparatively practical character, the numbers in attendance are constantly increasing. In 1914–15 the figure reached was 111,194.

The "Technical Institute" comprises a four-year course following that of the technical school. There are three sections: physics and mathematics (which prepares for the University faculties of mathematics and science and for the polytechnics); surveying (for those wishing to become patented surveyors); accountancy and commerce. In the principal cities there is also an industrial section specialized according to local needs. The students in 1914–15 numbered 26,636.

Training of Teachers. Elementary teachers are trained in the "Normal Schools" (for male, female, or mixed students), which are cultural and professional in character. To obtain admission it is necessary to hold the certificate of the "Complementary School" (reserved for women) or of the technical school or of the Lower "Ginnasio." The Normal School course lasts three years and includes pedagogy, Italian, history, geography, mathematics, science, drawing, calligraphy, singing, agriculture, gymnastics. In addition the women students have to take a compulsory course of instruction in needlework (cutting-out, sewing, embroidery), while the men have the option of learning some educational manual work. The syllabus in pedagogy includes: Pedagogical psychology (I course), didactics (II), history of pedagogy and school legislation (III).

In 1914 the Italian normal schools under State control numbered 126 (16 for men, 79 for women, and 31 for both sexes), there were 23 others of equal status, that is, instituted by communes, provinces, charitable endowments, and enjoying rights practically equal to the State schools, and 45 private institutions. There were 225 complementary schools, of which 92 were under State control, 22 under communes or other bodies, and 111 private. The students of the complementary schools (for women only), numbered 32,094, while the normal schools had on their rolls 26,389 women students and barely 3,985 men.

For the training of elementary teachers, special

two-year courses of professional character were arranged for by the minister Credaro at isolated "Ginnasii" in cities unprovided with normal schools in order to try the experiment of teachers endowed with some classical culture. Those who enrolled numbered 838, of whom only 158 were women.

Nautical Schools. Twenty-one "Nautical Institutes" are under the control of the Minister for the Navy. These train the officers of the mercantile marine and have 2,040 on their roll.

Schools of Agriculture, etc. The Minister for Agriculture, Industry and Commerce controls 35 practical schools of agriculture with 1,463 students specializing in various branches (viti-culture, enology, pomology, horticulture, gardening, zootechny, dairy work); itinerant professorships of agriculture costing 2,109,706 lire; mineral schools, industrial schools (103 with 23,842 pupils), schools of applied art (273 with 24,386 pupils), professional schools for women (44 with 9,103 pupils), and second grade (607 pupils) and third grade (968 pupils) commercial schools. The bill presented in 1912 by the present President of the Council of Ministers, F. S. Nitti, contributed effectively to the increase of professional education.

Higher Education. Higher education in Italy has always been well developed. The first university (*Studium*) was founded at Bologna in 1067. The *Studii* of Padua and Naples took their rise in the thirteenth century; those of Pavia, Pisa, Perugia, Siena, Turin, in the fourteenth century. Even now, in relation to its territory, its population, and its economic resources, Italy perhaps possesses a larger number of more or less complete universities than any other State in the world, having 19 under the State and 4 free (with equal privileges), comprising in the aggregate 35,844 students. The university that attracts the largest numbers is Naples with 5,276 on its rolls: then follow Rome (3,992), Turin, Bologna. Every complete university has four faculties: law, medicine, philosophy and letters, mathematics and science. Every university has a library open to all. A two-years' finishing course is attached to every faculty of philosophy for the certificated teachers from the normal schools in order to complete the training of the masters and mistresses, and enable them after five or eight years of elementary teaching, to become heads and inspectors of elementary schools. The subjects, taught by university professors, are: pedagogy, Italian literature, school legislation, school hygiene, history or geography.

Three institutes for Higher Women Teachers (at Florence, Rome, and Naples, the first two under State control, the third independent) prepare their students in a four years' course to become mistresses in technical, complementary and normal schools. There is no analogous institute for masters.

The following institutes prepare students for the higher technical professions: the Schools of Applied Engineering and the Polytechnics of Milan, Turin, Bologna, Naples, Rome, Padua, Palermo; the Veterinary Schools of Milan, Turin, Naples; the Higher Naval School of Genoa; Higher Commercial Schools (variously denominated) at Bari, Genoa, Rome, Turin, Venice, Milan; an Institute of Social Science at Florence; Higher Schools of Agriculture at Milan, Portici (Naples), Perugia, Pisa; a Higher Institute of Forestry at Florence, the Institute of Oriental Studies at Naples.

There are 13 State institutes of fine arts and the same number of independent institutes of similar character with 3,303 students.

There are 5 State and 43 independent Conservatories of Music with 5,056 students.

Army instruction is provided by the two military colleges (ranking as secondary schools) of Naples and Rome and the Officers' Schools at Modena, Parma, Turin, Pinerolo.

Italian Schools Abroad. These are numerous. The first took their rise towards 1860 at the initiative of local colonies of emigrants. In 1889 the Italian Government, with Crispi as presiding minister, founded State schools in Tunis, Egypt, Albania, Greece, and Turkey to encourage Italian commercial expansion in the Eastern Mediterranean. At the present time Italian State "Licei-Ginnasii" are at work in Alexandria (Egypt), Cairo, Tunis, Constantinople and Salonica; technical-commercial institutes in Alexandria, Cairo, Tunis, Constantinople, Salonica, and Scutari (Albania); a complementary school for women at Tunis; elementary schools at Athens, Corfu, Giannina, Patrasso, Salonica, Beirut, Constantinople, Alexandria, Cairo, Port Said, Durazzo, Scutari (Albania), Vallona, Goletta, Sfax, Susa, and Tunis.

In addition, the Italian Government subsidizes schools wherever large nuclei of Italian immigrants exist. The most numerous are those in Brazil (400 Italian schools, among which there is a Secondary Institute with 23,323 pupils); then follow the United States (20,340), and the Argentine (9,663 pupils). All these schools, maintained or subsidized by the State, tax the Budget to the extent of 3,000,000 lire a year, not including the sums required for the schools of the colonies under direct Italian dominion (Eritrea, Benadir, Lybia).

The work of the State is effectively completed by the Dante Alighieri National Society which has an endowment of about 2,000,000 Italian lire. By means of its committees, which are scattered everywhere, it maintains and subsidizes schools, evening classes, lectures, and libraries for the diffusion of the Italian language and Italian culture in order to preserve the moral ties between the emigrants and the mother country.

G. D. V.

ITALY, THE RENAISSANCE IN.—(See RENAISSANCE, THE.)

ITARD, JEAN (*d.* 1838).—He was educated by the Oratorians at Marseilles; and, while a clerk in a bank, avoided being drawn into the army by professing to be a medical student. He entered a military hospital and, by hard labour, managed to qualify himself as a surgeon, and in 1786 obtained a public appointment in that capacity at Paris. His successful researches into diseases of the ear gained him a European reputation. He invented several instruments necessary for his method of treatment. In 1799 he undertook the cure of a deaf-mute idiot boy of 12 years old, whom he found wandering and naked in a wood, and who became known as "Le Sauvage de l'Avreyon." His efforts were not successful, though they reflected much credit on him. The philanthropic sentiments animating his life are shown in his will, by which

he bequeathed 160,000 francs to the Institution for Deaf Mutes in Paris, and to the Academy of Medicine an annuity of 1,000 francs. His writings include *The Education of a Savage* (1807), describing the means he had himself employed in awaking sensibility in the boy he found; *On the Treatment of the Internal Ear, Diseases of the Ear* (1821), and many shorter works on bodily disease.

J

JACKSON, CYRIL (1746–1819).—He was Dean of Christ Church, Oxford, to which college he proceeded in 1764 from Westminster School. He taught the two eldest sons of George III, and became Dean of Christ Church in 1783. Here he showed his genius for government, and took a large part in framing the "Public Examinations by Statute," always impressing upon his undergraduates the duty of competing for exhibitions and prizes. He was a great botanist and student of architecture, and under his charge the buildings and walks of Christ Church were greatly improved. Among his undergraduates were Canning and Sir Robert Peel.

JACOTOT, JEAN JOSEPH (1770–1840).—Born at Dijon, became sub-director of the Polytechnic there in 1795, and shortly afterwards Professor of the Method of Sciences. Here his method of instruction attracted attention. Instead of a flood of information and explanation, superseding the pupils' investigation, Jacotot put forward a simple statement of the subject with its main divisions, and invited questions, objections, suggestions and investigation. He did little more than carry the pupil on by means of leading questions. He was afterwards Professor of Languages, Mathematics and Law, and continued his system with success. In 1818 he left France for Louvain. He laid down certain principles which have been much discussed. (1) "All human beings are equally capable of learning;" (2) "Everyone can teach (*i.e.* cause pupils to learn); and, moreover, can teach that which he does not know himself;" (3) "Tout est dans tout" (all is in all); the knowledge we acquire should be attached to knowledge we already possess, and the memory is assisted by association of ideas—more by artificial associations than by real ones. The pupil must learn something thoroughly and refer everything to that. Jacotot makes great demands on personal effort and on the memory, requiring six books of the *Télémaque* to be learned by heart. "If the boy gets knowledge without any trouble he will forget it again directly." "*Learn* something thoroughly, *repeat* it frequently, *reflect* on the matter acquired, and *verify* remarks made by others by comparing with facts you have learnt."

JAHN, FRIEDRICH LUDVIG (1778–1852), known to the Germans as Turnvater Jahn, was educated at various German universities, and in 1809 became a teacher in a gymnasium in Berlin. Here he taught games and athletic exercises to the boys out of school hours. In 1811 he established the first German Turnplatz, or exercise ground, which was the means of popularizing gymnastic exercises among the German people.

JAMAICA AND THE BRITISH WEST INDIES, EDUCATION IN.—Speaking generally, before the near approach of emancipation, no education was given to slaves; and there was strong prejudice against educating even the free negroes and coloured people. Except, therefore, in Bermuda, which had, and still has, a large proportion of white population and where slavery, for economic reasons, never took deep root, there was, until after emancipation, no general system of elementary education even by means of private schools. There were, however, endowed foundation schools in Barbados and Jamaica.

Because of the diversity of the history of these colonies, their educational systems differ, but all, except in Bermuda, have certain common leading characteristics.

In most cases, school buildings are the property of missionary churches which founded the schools, and the management is in the hands of the clergy. Denominational management has, however, been modified by subordination to Central Boards of Education, and in some cases by amalgamation of schools and the grouping of managers on local boards.

In almost all these colonies, elementary education is free, or fees are very imperfectly or laxly collected. In all, practically the whole cost of the teaching is provided from General Revenue and not from local rates, the other expenses of the school (maintenance of fabric, sanitation, equipment, etc.) being in some cases aided by Government, in some cases provided by the denominational management (either from subscriptions or from fees from the children).

The school age runs generally from 6 to 14 years. Attendance is compulsory in some of the colonies, in others it is compulsory only in certain towns or districts, in a few it is still voluntary. In the principal colonies, there is a certain proportion of Government schools, which have either taken the place of weak denominational schools, or have been established out of public funds where no denominational schools existed. In these cases the buildings are Government property, and all expenses are borne by public funds.

Government grants to the schools are based on a system of marking—so much for the efficiency of the school under inspection in the specified subjects of the Code, and so much for attendance. The efficiency of the schools is checked by Government inspectors, by annual inspections, and periodical visits. The selection of teachers and the general discipline of the schools rest with the managers, subject to appeal to, and revision by, the Board of Education. In the larger colonies, the Chairman of the Board of Education is the Director of Education or Senior Inspector. The teachers are advancing towards the position of recognized public servants; in several colonies, pensions are provided for them or superannuation from public funds.

Jamaica. Jamaica being the most populous of the West Indian Colonies, and having the most

developed educational system, the arrangements established there may be regarded as affording the type towards which educational arrangements in these colonies are tending. Jamaica is divided into large districts called "parishes," each of which has an elected Board for poor relief, sanitation, and roads. Each parish has also a School Board, formed partly by delegation from the Parochial Board, partly by nomination from the Governor. Subordinate to these parish school boards are district boards, denominational and Government managers combining the former of both classes of schools within their district. Compulsion has been established in some of the principal towns, and the forming of the Board of Education aims at extending it. In most of the other colonies, the management still remains uncombinedly denominational; and, in Jamaica, the Roman Catholic schools still remain outside this organization.

The schools are divided, according to their size and efficiency, into three classes.

Marks have heretofore been allotted on the following scale—

		Marks.
	Organization	6
	Discipline	6
Chief Elementary Subjects	Reading and Recitation	15
	Writing and English (including Orthography, Composition, Elements of Grammar)	15
	Arithmetic—mental and written	15
	Elementary Science (through object lessons, practical illustrations, and simple experiments), having special reference to Agriculture	8
	Scripture and Morals	5
	Drawing and Manual Occupations	6
	Geography (with incidental History)	4
	Singing and Drill	4
		84

The grants made to the school, according to its classification on marks under the above scale, might be augmented by additional grants for training pupil teachers, for sewing, for practical agriculture, and for manual training; also in respect of its certified teachers according to the class of their certificates, and in respect of any excess of average attendance above 60 per cent. A new scheme for the payment of elementary teachers has just (1920) been adopted by this Legislature, grading schools mainly on average attendance and the teaching on the status of their schools and the length of their teaching experience.

In Jamaica, in 1914-1915, the average number of scholars on the books is about 90,000 out of a total population of nearly 900,000. The average attendance is about two-thirds of the number on the books. This is substantially higher than what is usual in most other West Indian colonies. Speaking generally, the number of children on the books does not represent a satisfactory proportion of the number of children of school age; whilst the difference between the average attendance and the number on the books leaves a still wider gap to be closed before the educational system can be regarded as satisfactorily effective.

These observations do not apply to Bermuda, which, as has been said, is exceptiona in its circumstances.

Bermuda. In Bermuda, there are about fifty private elementary schools attended by both boys and girls, of which twenty-eight are aided by grants from the Colonial Legislature. Attendance and the payment of fees are compulsory. The Government grants go in aid of the expenses of those schools in which fees are remitted on account of parents' poverty. An Education Rate is leviable on parents whose children remain absent from school. A recent return showed that there were 2,377 children of school age in the colony, of whom 2,268 were attending school. Of the remainder, 96 were being taught at home, 13 were receiving no instruction—9 on account of sickness and 4 on account of no stated reason. Here, at any rate, the elementary education system appears to be completely effective.

Barbados. In Barbados, which has an old-established and well-organized educational system, the number on the rolls in 1913-1914 was 25,690 out of a population of about 180,000; and the average attendance was 15,290—a little under 60 per cent. But the number on the rolls in Barbados bears a greater proportion (14 per cent.) to the total population of the island than it does in Jamaica (11 per cent.), where the population is much more scattered and the difficulty of attending school for many children far greater.

Secondary Education and the Training of Teachers. In all the larger colonies, there is good provision for secondary education both for boys and girls. but the existing institutions have latterly proved unequal to the increasing demand. In Jamaica and Barbados, there are excellent schools of the English public school type, established on old local endowments; and, in the other colonies, similar institutions, on a scale proportionate to the demands of the community, are assisted by liberal Government grants. More advanced collegiate education is offered by Codrington College, Barbados.

Provision for the training of teachers is made in Jamaica by the Mico College, established on the basis of a legacy left originally for the freeing of slaves. This College provides not only for the training of teachers for Jamaica, but also for the Leeward Islands and British Guiana. In Barbados, training is given at Codrington College. In Trinidad, there are five training institutions for teachers—two managed by the Government, and three under denominational management, but assisted by the Government. S. O.

JAMES, THOMAS (1748–1804).—He was born at St. Ives, Huntingdon, and educated at Eton, where he became famous as a writer of Latin and Greek verses. He proceeded to King's College, Cambridge, where he obtained prizes for Latin essays, and after ordination became a tutor. In 1778 he was appointed headmaster of Rugby, then a school of fifty-two boys. The school was in a low state, but James reformed the discipline and methods of teaching, introducing Eton methods with great success and soon raising the number of boys to over two hundred. Among many famous pupils in his day was Samuel Butler, afterwards Bishop of Lichfield. He resigned in 1794 to become rector of Harvington, Worcestershire, where he lived the rest of his life. While at Cambridge he wrote an account of King's College Chapel (1769), later a Compendium of Geography, and an

Algebraical demonstration of the principal propositions of Euclid, Book V, for the use of his pupils at Rugby.

JAPAN, THE EDUCATIONAL SYSTEM OF.—The educational system of Japan is comparatively simple, being determined completely by a series of Imperial ordinances; not by laws, which have to pass through the Diet. Imperial Ordinances are issued by the Emperor on the recommendation of the Cabinet, but those relating to education must previously be submitted to the Privy Council. Minor matters are regulated by departmental ordinances, issued by the Minister of Education.

Primary Education. At the base of the system lies the PRIMARY SCHOOL. The object of primary education is stated, as follows, in the first article of the Imperial Ordinance relating to primary education: "The primary schools are designed to give children the rudiments of moral education and of civic education, together with such general knowledge and skill as are necessary for life, while due attention is paid to their bodily development."

The primary school course is divided into two: ordinary and higher. The ordinary primary course extends over a period of six years, and is compulsory for all children; parents or guardians being required to send children to school from the 1st of April next after they have attained the age of 6, until they have finished the course, unless they are specially exempted on account of bodily or mental infirmity, or of extreme poverty. Children are not admitted at any intermediate period, except in some few schools at the end of the summer holidays, when those admitted form a separate class or classes by themselves.

The higher primary course usually extends over two years, but may be lengthened to three years, and is quite voluntary.

The subjects taught in the ordinary primary course, together with the number of hours per week allotted to them in each year, are: Morals (2 hours throughout the course), the (Japanese) Language (10, 12, 14, 14, 10, 10), Arithmetic (5, 6, 6, 6, 4, 4), Japanese History (3 hours in the fifth and sixth years), Geography (of Japan, of Manchuria, and of the World, 2 hours in the fifth and sixth years), Nature Study (2 hours in the fifth and sixth years), Drawing (1 or 2 hours throughout the course), Singing (1, 1, 1, 1, 1, 2), Gymnastics and Exercises (3 hours throughout the course), Sewing (for girls only, 1, 2, 3, 3, beginning in the third year), Manual Work (optional). The total number of hours per week must not exceed 30 or be less than 18; it is usually from 21 in the first to 28 for boys and 30 for girls in the sixth year, the difference arising from girls learning sewing.

The subjects taught in the higher primary course are Morals, the (Japanese) Language, Arithmetic, Japanese History, Geography, Science (Nature Study), Drawing, Singing, Gymnastics, and Sewing (for girls only); to these may be added Manual Work, Elements of Agriculture, or of Commerce (with English), according to the requirements of the districts. The total number of hours must not exceed 32 nor be less than 24.

Some explanation seems necessary with regard to some of these subjects, but it will be convenient to defer them until after an account of the curriculum of secondary education.

After much trouble about text-books, it has been decided that they must be those copyrighted by the Department of Education. In accordance with this regulation, there is a committee of educationists and scholars appointed by the Government for the purpose of compiling and keeping continually revised the text-books on morals, language (that is, readers and copy-books), and history. The committee also issues books of instruction for the use of teachers, with pedagogical suggestions and fuller information on the subjects.

The rule as to the organization of classes is that children of the same school age shall form a class or classes by themselves; but, if the number of children be small, those of different school ages may be taught together in composite classes. In rural districts, a whole school will sometimes consist of a single class; but in no case must the number of children in any class exceed 70 in the ordinary, and 60 in the higher, primary schools. The number of children attending school, however, has been increasing so rapidly, that this rule cannot always be enforced; indeed, the increase in some districts, especially in cities, has been such that it has been found impossible to provide school buildings and teachers sufficient to accommodate them all. In such cases, recourse is often had to the system of half-day schools; that is, some of the children attend school in the morning and the others in the afternoon. Boys and girls are often taught in the same classes, but it is recommended to segregate them whenever the number of children and teachers, and other circumstances allow of it.

As already stated, the ordinary primary education is compulsory; hence each school district is bound to establish and maintain a sufficient number of schools to accommodate all children of school age within that district. The tuition is usually free, schools requiring fees being very few—not more than 3 per cent. of the whole.

All children, of whatever class or standing, attend the same public schools, there being only 150 private primary schools in the whole country, and they are rather for the poor than for the rich. In Tôkyô, however, several private schools have recently been opened for the children of well-to-do parents, and there seems to be a tendency for such schools to increase.

Attached to many primary schools are *Supplementary Courses*, or continuation schools, for those who have finished either the ordinary or the higher primary course and wish to receive further instruction, but are unable to proceed to higher schools.

In order to provide teachers for primary schools, each of the prefectures, into which the whole of Japan is divided for local administration, is bound to establish and maintain a sufficient number of NORMAL SCHOOLS, where future primary school teachers are taught necessary subjects and trained in their vocation during four years, with practice in tuition in attached primary schools. Graduates of middle schools and girls' high schools may qualify themselves by one year's training in pedagogy and practical tuition in a normal school. Examinations also are held periodically for those who may have otherwise qualified themselves, and the certificates necessary for becoming teachers are granted on their results.

According to the Report of the Minister of Education for the year 1913, the number of ordinary primary schools was 12,764; of schools with both the ordinary and the higher course, 12,447; and of higher primary schools, 404. The number of children attending the ordinary primary course

was nearly 6,500,000; of those attending the higher primary, nearly 630,000. The percentage of the school attendance was 98·7 for boys and 97·5 for girls, or a little over 98 for boys and girls together.

The number of Normal schools was 86, with a little over 17,000 male, and 7,800 female, pupils.

It should here be mentioned that, below the primary schools, there are *Kindergartens*, in which children above 3 years of age are trained in good manners and habits, and in singing, playing, and manual work. The training of teachers in kindergarten work forms part of the curriculum of female pupils in Normal schools. There were 568 kindergartens in 1913.

Schools for the blind and deaf-mute are treated under the category of primary schools. There is but little provision for them at present, there being only sixty-three schools in 1913.

The inspection of schools is carried on by staffs of inspectors of various grades, belonging respectively to cities, sub-prefectures, prefectures, and the Department of Education.

Secondary Education. Boys and girls attend the same primary school, though, as already stated, they are usually taught in different classes if possible. Beyond the ordinary grade, boys and girls enter different schools. Secondary schools for boys are called MIDDLE SCHOOLS; those for girls are known as GIRLS' HIGH SCHOOLS.

Boys enter middle schools directly after finishing the ordinary primary course, when they are about 12 years of age. A middle school course extends over five years, to which a supplementary course of not more than one year is usually added.

The subjects taught in Middle schools are Morals, the (Japanese) Language and Chinese Literature, a foreign language, History and Geography, Mathematics (Arithmetic, Algebra, Geometry, and Trigonometry), Physics and Chemistry, Elements of Law and Economics, Drawing, Singing, and Gymnastics. Singing, Law and Economics, may be omitted. The following standard schedule will show approximately the importance attached to each subject (the numerals are the numbers of hours per week allotted to the subjects)—

Subject.	1st Year.	2nd Year.	3rd Year.	4th Year.	5th Year.
Morals	1	1	1	1	1
The Japanese Language and Chinese Literature	7	7	7	6	6
Foreign Language	6	6	7	7	7
History and Geography	3	3	3	3	3
Mathematics	4	4	4	4	4
Nature Study and Natural Sciences	2	2	2	2-1	
Physics and Chemistry				3-4	4
Law and Economics					2
Drawing	1	1	1	1	
Singing	1	1	1		
Gymnastics	3	3	3	3	3

The foreign language may be English, French, or German; but English only is taught in nearly all Middle schools; the number of schools where French or German is taught is probably not more than four or five in the whole country.

Text-books must be those examined and approved by the Department of Education.

Boys are entered at the beginning of each school year (April), and promotions take place at the end of the school year on the results of the terminal and annual examinations. The number of boys in a class must not exceed 50, and the total number in a school is usually limited to less than 600 and must never exceed 800.

The teachers must be graduates of Imperial Universities, or Higher Normal Schools, or of certain other institutions specially nominated by the Minister of Education; or else those who have passed State examinations held for the purpose. The HIGHER NORMAL SCHOOLS are colleges specially established and maintained by the Department of Education for the purpose of training teachers of normal schools (for primary teachers, mentioned above), and of middle schools and girls' high schools; they have each attached to them a middle school or a girls' high school, and a primary school, for practice in tuition. There are at present four higher normal schools: two for men and two for women.

GIRLS' HIGH SCHOOLS have a course of four or five years; at present, schools with a five years' course are only about twenty in all. A girl may enter a girls' high school directly after finishing the ordinary primary course. The subjects taught are Morals, the (Japanese) Language, a foreign Language (which may be English, French, or German), History and Geography, Mathematics (Arithmetic, Elementary Algebra and Geometry), Sciences, Drawing, Domestics, Sewing, Music, and Gymnastics. The following is the standard schedule for a four-years' course—

Subject.	1st Year.	2nd Year.	3rd Year.	4th Year.
Morals	2	2	2	2
The Language	6	6	5	5
Foreign Language	3	3	3	3
History and Geography	3	3	2	3
Mathematics	2	2	2	2
Sciences	2	2	2	1
Drawing	1	1	1	1
Domestics			2	2
Sewing	4	4	4	4
Music	2	2	2	2
Gymnastics	3	3	3	3

The rules with regard to text-books, entrance and promotion, size of a class and of a school, qualifications of teachers, etc., are approximately the same as for middle schools.

Besides the regular course sketched above, a so-called " practical " course has lately been opened and seems very popular, many schools having only the practical course. The length of the course may be two, three, or four years, according as girls enter it after finishing two years or one year of the higher primary, or directly after finishing the ordinary primary course. The nature and scope of this course will be seen from the standard schedule for a four-years' course, shown on the next page.

It will be seen that the chief difference lies in the number of hours given to sewing, and the introduction of the elements of what are called " practical " subjects, viz., agriculture, technology, and commerce.

There are also supplementary courses of one, two, or three years for those who have completed the regular or practical course and wish to

Subject.	1st Year.	2nd Year.	3rd Year.	4th Year.
Morals	2	2	1	1
The Language	6	6	6	6
History	2	2		
Mathematics	2	2	2	2
Sciences and Domestics	2	2	3	3
Sewing	14	14	18	18
Drawing	1	1		
Singing	2	2		
Elements of Agriculture, Technology, or Commerce			3	3
Gymnastics	3	3	3	3

continue their studies in general or in particular subjects.

In 1913, there were 318 middle schools, with 6,276 teachers and 131,946 boys; in the same year, 19,630 boys graduated. Of the 318 schools, nearly three-quarters were public (*i.e.* established and maintained by local authorities). The number of middle schools is quite inadequate to meet the demands for entrance, only half of the candidates gaining admission. The number of girls' high schools was 330 (69 private), of which 117 were those with a practical course only, with a total enrolment of 83,287 girls; 16,556 girls graduated in the same year. The admission to the regular course was only 59 per cent. of the candidates; to the practical course, 86 per cent.

Subjects of Instruction. Before proceeding to a description of higher and technical education, it will be proper to say a few words concerning some of the subjects of primary and secondary education.

First, with respect to MORALS. Great importance is attached to direct moral instruction; in all schools, at least an hour a week is given to it. The teaching is entirely secular in that it has no connection with any particular religion, but is based upon the almost religious loyalty and devotion to the Imperial House. In the pre-Meiji days, Chinese classical literature, especially philosophy and history, formed the principal part of the education of the *samurai* class, quite young children being set to recite the works of Confucius and others. They were studied, in the first place, for their moral teaching, especially of loyalty and filial piety; and, in the second place, for intellectual culture. It was the same in a somewhat less degree with the education of the common people. Moral training has always been regarded as the essential part of education. Thus, when the new educational system was introduced after the Restoration, and the study of the Chinese classics no longer formed a principal part of the school curriculum, and their teaching had not the authority it had in former days, the need of a new basis for moral teaching was perceived; this basis was found in the old tradition of devotion to the Imperial House—which has reigned over Japan in an unbroken line for more than twenty-five centuries and traces its origin back to the gods of mythology —and of the reverence for ancestors. To speak more correctly, this, indeed, had always been the true basis of moral education, and Chinese philosophy had been but used as its exponent So, in 1890, an Imperial Rescript was issued by the Emperor Meiji, of which the following is a translation—

"Know ye, Our subjects,

"Our Imperial Ancestors have founded Our Empire on a basis broad and everlasting, and have deeply and firmly implanted virtue; Our subjects, ever united in loyalty and filial piety, have from generation to generation illustrated the beauty thereof. This is the glory of the fundamental character of Our Empire, and herein lies the source of Our education. Ye, Our subjects, be filial to your parents, affectionate to your brothers and sisters; as husbands and wives be harmonious, as friends true; bear yourselves in modesty and moderation; extend your benevolence to all; pursue learning and cultivate arts, and thereby develop intellectual faculties and perfect moral powers; furthermore, advance public good and promote common interests; always respect the Constitution and observe the laws; should emergency arise, offer yourselves courageously to the State; and thus guard and maintain the prosperity of Our Imperial Throne coeval with heaven and earth. So shall ye not only be Our good and faithful subjects, but render illustrious the best traditions of your forefathers.

"The Way here set forth is indeed the teaching bequeathed by Our Imperial Ancestors, to be observed alike by Their Descendants and subjects, infallible for all ages and true in all places. It is Our wish to lay it to heart in all reverence, in common with you, Our subjects, that we may all attain to the same virtue.

"The 30th day of the 10th month of the 23rd year of Meiji.

"(Imperial Sign Manual. Imperial Seal.)"

A copy of this Rescript is distributed by the Department of Education to every school in the Empire, those for the Government schools being actually signed by the Emperor. Besides the copy of the Rescript, photographic portraits of the Emperor and Empress are distributed directly from the Imperial Household or by the authorities of the prefectures. On public occasions, such as graduation days, memorial days, and national holidays, they are brought out to the hall, and the ceremony, almost invariably including obeisance before them and the reading of the Rescript, takes place just as if their Majesties were present in person. By this and every other possible means, it is intended to inculcate loyalty to the Imperial House, which in Japan, is synonymous with patriotism.

Next, as to the (Japanese) LANGUAGE. The difficulty of teaching the language is increased enormously by the adoption of the Chinese ideographs or characters in common literature in addition to the Japanese alphabet. Each of the ideographs is a word, having a sound and a meaning, so that a child in learning an ideograph has to learn two things: its pronunciation and its meaning. There are tens of thousands of them, and even a child in the primary school has to learn over a thousand of them so as to know how to write them, and nearly a thousand more so as to recognize them. When it comes to secondary education, not only have boys and girls to learn over 3,000 ideographs, but boys have to study Chinese literature, not as a foreign literature, but as part of the Japanese language work. (Note how in the schedule of middle schools, the language and Chinese literature are put together.) It would take too long to enter into the discussion of this use of Chinese ideographs; which, at first sight, seems quite unreasonable, suffice it to say, that it is historical, and that, although there are many who are endeavouring to bring about its abolition and the introduction of the Roman alphabet in its place, their work is harder

than that of the spelling reformers in England, and there seems to be no near prospect of their success.

MUSIC. The original Japanese music, both vocal and instrumental, not being adapted to school teaching, the music taught in schools is entirely that introduced from the Occident.

In DRAWING, pencil drawing is taught in some schools and brush-work in others. Their relative merits in school work are as yet undecided.

GYMNASTICS taught in schools is a modification of the German system; recently, the Swedish system has been introduced to some extent. For boys above 10 years of age in the primary, and all boys in the middle schools, military drill and exercises form a part of the regular curriculum, as also *Fencing* and *jiu-jitsu*; for girls, marching practice and square dances. Occidental games, such as baseball and boating for boys, basket ball for girls, and lawn tennis are very popular, as well as athletic sports.

SEWING will have been seen to form an important part of a girl's education. This is due to the fact that, in most Japanese families, a great deal of the sewing is done at home. It may be doubted whether in some cases, as, for instance, in the "practical" course of girls' high schools, the time given to it is not excessive, but parents in general do not seem to think so.

DOMESTICS. The following extract from the Regulations will make the meaning clear: "The object of the domestics is to give girls knowledge necessary for the management of household matters, and at the same time to inculcate the notions of industry, thrift, orderliness, carefulness, and cleanliness. The matters to be taught are those relating to clothing, food, and habitation; the care of the old and of children; household management, economy, etc."

Technical Education. By technical education in Japan is understood education in technology, agriculture, commerce, and navigation. Under technology are included civil engineering, mechanical engineering, electrical engineering, shipbuilding, mining and metallurgy, dyeing and weaving, ceramics, lacquer work, metal work, wood work, designing, etc. Under agriculture are included agriculture proper, sericulture, forestry, veterinary medicine, and fisheries and marine products.

The lowest technical schools are TECHNICAL SUPPLEMENTARY or CONTINUATION SCHOOLS; the object of these, usually night schools attached to primary schools, is to give those who have finished the ordinary primary course rudiments of knowledge and practice relating to some one or more of the above-mentioned technical subjects. Next above them are APPRENTICE SCHOOLS for technology, and AGRICULTURAL and COMMERCIAL SCHOOLS (*Class B*). They usually admit those who have finished the ordinary primary course, and have a three-years' course. Above these are TECHNICAL SCHOOLS (*Class A*), admitting those who have finished the higher primary course or the first two years of the middle schools. The length of the courses is usually three years. Some of them have a preparatory course of two years and admit those who have finished the ordinary primary course, so that they are entirely co-ordinate with the middle schools.

Then come the TECHNICAL COLLEGES, which admit graduates of middle schools or girls' high schools, and usually have a course of three years. Above them, again, are the ENGINEERING AND AGRICULTURAL COLLEGES, and the commercial course of the Law College of the Imperial Universities.

Technical institutions of college grade are mostly supported by the Central Government; in 1915, there were 17 such colleges, of which 7 were technological, 3 agricultural, 5 commercial, 1 marine products, and 1 navigation. There were 2 colleges (1 agricultural and 1 commercial) maintained by local authorities, and 1 technological and 1 agricultural private college. There were 33 technological, 79 agricultural, 9 marine products, 51 commercial, and 11 navigation schools of Class A supported by local authorities. There were 2 technological, 4 agricultural, and 18 commercial private schools of the same class. Those of Class B were 108 apprentice, 166 agricultural, and 30 commercial schools supported by local authorities; and 4 apprentice, 4 agricultural, and 4 commercial private schools. The number of technical supplementary schools was 8,010 (308 private), 6,010 being agricultural.

Higher Education. At present, the only officially recognized UNIVERSITIES are the four Imperial Universities of Tôkyô, Kyôto, Kyûshû, and the North-Eastern. To enter, graduates of middle schools have to pass through a preparatory course of three years in a HIGHER SCHOOL. As there are at present only eight higher schools, with a capacity for admitting about 2,000 annually, only a small fraction—less than one-fifth—of those desirous of entering them can be admitted.

There are six "colleges" or faculties in the Imperial University of Tôkyô, namely, Law (with courses in law proper, politics, economics, and commerce), Medicine (medicine proper and pharmacy), Engineering (civil engineering, mechanical engineering, marine engines, naval architecture, technology of ordnance, electrical engineering, architecture, applied chemistry, technology of explosives, mining, and metallurgy), Literature (philosophy, history, and literature), Science (mathematics, astronomy, physics, chemistry, zoology, botany, geology, and mineralogy), and Agriculture (agriculture proper, agricultural chemistry, forestry, veterinary medicine, and marine products). The length of the course is three years, except in medicine proper, which is four years. The number of students on the roll in 1913 was nearly 5,500.

In the Imperial University of Kyôto, there are colleges of Law, Medicine, Literature, Engineering, and Science, with about the same courses. The number of students is about 1,800. In the Imperial University of Kyûshû, there are colleges of Medicine and Engineering, with a total enrolment of about 600. In the North-Eastern Imperial University, there are colleges of Science and Agriculture, the number of students being about 2,000.

There are post-graduate courses in all the Imperial Universities.

Students are necessarily over 20 years of age as the result of the regulations when they enter the university, so that when they graduate they are over 23 or 24: as a matter of fact, owing to various circumstances, the average age of the graduates is 26 or 27. A great deal of dissatisfaction has been expressed over this, and there is a general consensus that it must be remedied somehow; but, as yet, no agreement has been arrived at, although a special committee, consisting of members of the Privy Council, of the two Houses of the Diet, and

of business men and educationists, has been deliberating on the matter for some time.

Graduates of middle schools or girls' high schools, who wish to receive higher education, but do not care to enter the Imperial universities or are unable to do so, may enter technical colleges already mentioned, or other colleges. There are colleges of law, medicine, pharmacy, literature, foreign languages, history and philosophy, theology, fine arts, music, etc. Some of them have a preparatory course of one or two years; others admit directly graduates of middle schools or girls' high schools. All private colleges belong to this category; such are Waseda University, founded by Count Okuma; and Keio University, founded by Fukusawa. Among Government institutions of this class are five medical colleges, a foreign languages college, a fine arts academy, and a musical conservatory. Among private institutions, there are 7 colleges of Medicine, 11 of Law (including politics, economics, and commerce), 12 of Literature, and 23 of Religion (founded by various Buddhist and Christian sects); they have a total enrolment of over 23,000 students. It is probable that before long the Imperial Ordinance relating to the universities will be amended so as to give official recognition to some of these private institutions. D. K.

JAPANESE, THE TEACHING OF. — (See ORIENTAL EDUCATION IN GREAT BRITAIN.)

JAQUES-DALCROZE, EMILE.—(See EURYTHMICS, THE JAQUES-DALCROZE METHOD OF).

JAVA, EDUCATION IN.—(See DUTCH COLONIES, EDUCATION IN.)

JEBB, JOHN (1736–1786).—He was lecturer on mathematics and Greek at Cambridge University from 1762 to 1776. In 1773 he devised a scheme for the annual examination of undergraduates preparatory to the examination for the Bachelor's Degree. His plan was unfavourably received and rejected by the Senate, as was also a similar plan in the next year. In 1776 he removed to London and practised medicine,

JEFFERSON, THOMAS (1743–1826).—The third president of the United States; was for many years a member of the Virginia House of Burgesses. He attempted to establish in Virginia a system of free elementary education, co-ordinated with secondary education and a college or university. His aim was to encourage talent in every rank of life, and to give the poorest boy opportunities to develop his talent. His plan was not accepted by the Virginia assembly. During a lengthy visit to Europe he studied European systems of education, and after his retirement from the Presidency in 1809, he again brought forward proposals in Virginia, which resulted, in 1818, in the establishment of a State University. Jefferson became the first rector, and until his death practically managed all the affairs of the University and devised its entire system of education.

JENA UNIVERSITY.—A Lutheran institution founded in 1558, it became a University in 1577, devoted chiefly to the study of theology. It is now a State University and has the usual four faculties of philosophy, law, medicine and theology. The degree of Doctor is conferred on both men and women, but women are not allowed to attend the lectures, being admitted as candidates for the Doctor's degree from other universities. Special attention is paid at Jena to pedagogy, for which study a seminary was established in 1843, with a practising school attached. Holiday courses for teachers are held in August in philosophy, philology, pedagogy, and science. Fichte and Hegel were the greatest teachers of philosophy of Jena University. In the eighteenth century it became the centre of the teaching of Kant's philosophy, and philosophy is still its most prominent study. Scientific subjects receive special attention in regard to agriculture (for which an institute was founded in 1826), optical research, and zoology, of which Ernst Haeckel was professor from 1862 to 1909. Jena has a large library, and the students number about two thousand.

JEROME (A.D. 346–420).—Was the most powerful writer among the early Fathers of the Church. He was a native of Dalmatia and studied grammar and rhetoric at Rome, where he embraced Christianity in 366. After many wanderings he became a priest in 379 at Antioch. At Rome he revised the Latin translations of the New Testament and the Latin Psalter. Living as a hermit at Bethlehem, he continued his transactions and laid the foundation of the Latin version of the Bible known as the Vulgate. From his quiet retreat he wrote many fierce and bitter treatises on religious controversies, such as marriage and monasticism, and the Pelagian heresy.

JERSEY, EDUCATION SYSTEM IN.—Secondary and Primary education by recent legislation have been co-ordinated and the whole system is administered by a Committee of the States (the legislative Assembly of Jersey) composed of three Jurats, three Rectors, three Constables, and three Deputies. His Majesty's Attorney-General and Solicitor-General for Jersey have also the right to attend the meetings of the Committee. This Committee is called the Public Instruction Committee.

With the exception of Victoria College (for boys) the secondary and higher elementary schools are carried on as private enterprises and receive no monetary assistance from the Government of Jersey. The cost of Victoria College is now entirely defrayed out of funds provided by the States of Jersey. There are close Scholarships and Exhibitions to Exeter, Pembroke and Jesus Colleges, Oxford.

All the Public Elementary Schools in the island of Jersey are managed entirely by the Public Instruction Committee. For certain purposes, however, this Committee is assisted by the School Council of each parish (*e.g.* when teachers have to be appointed the Public Instruction Committee confers with the School Council of the parish concerned, in order that the member of the Council which represents the managers of a school previously known as a denominational school might have the opportunity of presenting objections to the proposed teacher).

All these public elementary schools (thirty-six in number) are State schools, and none of them is now known as a denominational school.

Religious Instruction. In all the public elementary schools, the teachers give simple Bible teaching in accordance with a syllabus drawn up by the Public Instruction Committee to all children, except those

Perugia—Garibaldi Square with the old University

PLATE LIV

whose parents have asked that they should receive "extended religious instruction" from the minister of their own denomination, or those whose parents have notified that they do not wish them to receive any religious instruction at all. This "extended religious instruction" is given during school hours, from 9.15 to 9.45, either by the minister himself, or by some one delegated by him, but in no case may any of the teachers on the staff of the public elementary schools give this "extended religious instruction."

Inspection. All the public elementary schools are visited each year by one of H.M. Inspectors of Schools by arrangement with the Board of Education, Whitehall.

The Curriculum. The curriculum followed in the public elementary schools is based on the curriculum contained in the Code of Regulations for Public Elementary Schools in England, issued by the Board of Education. The Public Instruction Committee, however, have the power to vary the curriculum if they deem it expedient.

School Age. Attendance at school is compulsory between the ages of 6 and 14. Children between the ages of 4 and 6 may attend school if their parents desire it. S. F.

JESUIT EDUCATION. — After its definitive approval by Pope Paul III (1540), the Society of Jesus soon developed the work of "teaching Grammar and Humanities" as one of its main functions. Educationally, it was also engaged throughout Europe in (1) the advanced education of its own members; (2) the revival of theological and philosophical study and teaching, which followed the Counter-Reformation; (3) research, since 1580, in mathematical and physical sciences; while in the missionary field it developed and applied, in the Paraguay region (1608–1767), a most successful combination of religious instruction with agricultural training, manual crafts, music, and the fundamental school subjects. This account is limited to the liberal education provided by the Order for lay students. About five-sixths of its colleges were engaged in this work in Western European lands and in European Colonies. The statements made are based on sources recently made available, and include citations from John Dury's careful report on the organization of a Jesuit school, written about 1645 (Sloane MSS., B.M., Vol. 649).

The entire number of Jesuit colleges was over 300 before 1610, and at the Suppression period (1759–1773) was 670. Of this maximum, 90 in France, 104 in Spain and Portugal, 94 in German lands, 130 in Italy, and 91 in the Americas and the Indies, were engaged in the secondary education of lay students. Every effort was made to avoid the creation of boarding-schools. Thus, in 1761, none of the Spanish and Portuguese colleges had resident scholars, and but 15 out of the 90 French colleges had boarding-houses attached for a small minority of the scholars in each place. In 1710, the Jesuits had but 12 such hostels in German countries. The number of scholars attending the classes may be judged from the figures from some French cities. The Paris College had 1,827 on the roll in 1627, and about 3,000 in 1675. In the former year, Rouen had 1,968; Amiens, 1,430; la Flèche, 1,350; Rennes, 1,485 (2,500 in 1675).

The following figures for the teaching staffs of the French colleges are derived from an analysis of the unpublished catalogues of 1761–1762. The total number of Jesuits (all ages and occupations) was 3,060. The number engaged in the education of lay scholars in 90 colleges was 820, viz., 90 Rectors, 90 Prefects of Studies, 15 Directors of Boarding-houses (called *Primarii*), 456 teachers of Grammar and Humanities, 70 teachers of Physical Sciences, 25 teachers of Mathematics, 74 lecturers in Introductory Philosophy. Only six colleges had fewer than 5 teachers each; the standard number was 7, expanding in the larger cities to 9, 10, and in one case (Toulon) to 11. The usual course was five years of classical instruction, followed by one year of Introductory Philosophy, and one devoted to Physical Sciences and Mathematics; the analogy with the French secondary curriculum of to-day is strikingly close. Each class had one teacher for Latin and Greek.

Education in all Jesuit colleges was rigorously gratuitous; no scholar, however poor, could be denied admission if of good character and able to read and write. The few boarding-houses were expected to be self-supporting, but no profit was permitted to be derived from them; they were administered separately from the day colleges to which they sent their resident scholars. The revenues on which the teaching staffs were maintained came from founders (royal, as Henry IV, Ferdinand II, Philip II; municipal, as frequent in France, Italy, and Flanders; episcopal, as often in the Empire; or wealthy private families). Many foundations were derived from the canonical suppression of religious houses no longer useful, effected during the Counter-Reformation period (*cf.* the policy of Cardinal Wolsey, 1520–1527, in England). Administration was vested exclusively in the General of the Order, the Provincial Superior of a group of colleges (15 to 25, as a rule), the Rector of the single College, and in the Prefect of Studies, directly in control of the class-teachers. The functions of each grade were set out in detail in the scholastic code. Every class was a public class; any well-conducted visitor, layman or cleric, could enter and observe its whole working at any time, as did John Dury, Puritan divine, friend of Cromwell and of Comenius.

General Organization. The great mass of the scholars attending Jesuit colleges were day-scholars from homes not situated near the towns where these colleges were. The usual provision made for them is vividly described by Marmontel (1723–1799) in his *Memoirs*. At the age of 12 he was brought down by his father from their mountain farm to the little town of Mauriac, in Auvergne, where there was a Jesuit College with seven class-teachers. With four other scholars he lodged in the house of an artisan, whose wife saw to it that they kept regular hours, and prepared their lessons round a common table. Every week, Marmontel received from home a packet containing a large loaf of rye-bread, a small cheese, some lard, and two or three pounds of beef. The housewife cooked for them, and provided vegetables. Marmontel declares that no scholar at the college fared better than himself, and that (clothing apart) the cost to his father was about five *louis* a year. In cities like Bourges or Bordeaux, noblemen's sons would have better lodging; if they were of princely dignity (a Condé, for instance), they might have a separate chair in the classroom. In a few places (German or Italian), the Jesuits were forced to provide separate "academies" for nobles; these never existed in France,

where the duke's son and the son of the artisan met in the classroom on terms of strict equality in all cases.

Good conduct among these thousands of secondary scholars was fostered through religious associations or *sodalities*, whose membership was a mark of high standing, and could be secured only by election. Such membership was for life, and carried federal privileges throughout all the Jesuit colleges. Formal religious instruction did not exceed 45 minutes per week, even where the colleges were important instruments of the Counter-Reformation. Great store was set by the comparison of pagan and Christian principles and ideals in the teaching of Greek and Latin; this teaching was "moralized" to a degree unthought of in modern classical instruction. It is now realized by Jesuit writers that the amount of definite doctrinal culture and intellectual training in religion in the French colleges in the eighteenth century was quite below what was needed to meet the strong onset of infidelity. St. Francis Borgia, third General of the Society, prescribed that lay scholars should not be preached to more frequently than twice a month.

Supervision of the teaching of classes in each college was the duty of the Prefect of Studies. He initiated new teachers into their work, to which they usually came at the close of their philosophical training, and after receiving special preparation for their duties during a three months' practical course under an experienced teacher. Every effort was made to develop a taste for teaching as a life-work, especially in the lowest and the highest classes of letters, and in Physics and Mathematics. In the earlier years, a Jesuit teacher would "go up," year by year, with his class: if he returned to teach after his theological studies were complete, he usually taught permanently one of the classes just named. Practically every Jesuit taught for at least five years; the supply of able teachers was thus considerable. But the main cause of the success of Jesuit colleges was organization, secured through the complete and uniform execution of the Scholastic Code known as the *Ratio Studiorum*.

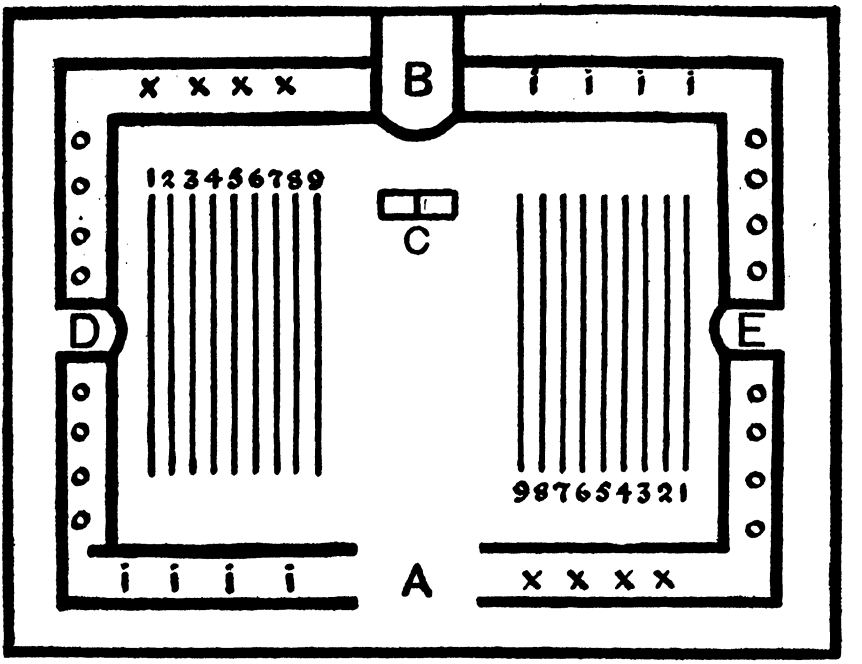
The Ratio Studiorum. A large number of tentative drafts of such a code were prepared in the years 1560–1580, and forwarded to Rome. Under the fifth General, Claudius Aquaviva, a European Commission of six members met (1584–1586), and devised a trial code. They expressly tell us that they drew upon a vast mass of documents descriptive of the established customs of European schools and universities; that they kept intact many points of settled practice, added some new material, and made some excisions. The resultant *Ratio* was, therefore, an innovation in little save its order and precision. It went provisionally into operation throughout Europe in 1586, came under intermediate revision in 1591, final revision in 1598, and became a definite law of the Order in 1599. The draft of 1586 is (as regards secondary instruction) characterized by a series of dissertations on the scope of humanistic education, followed by a *horarium* and a programme of instruction. That of 1591 added specimen "notes of lessons," as models of teaching and exposition for (*a*) a speech of Cicero, (*b*) Roman history. These notes were wisely withdrawn: however good, they would tend to cramp a teacher's initiative. The final form of the Code was a set of rules, embracing administration, organization, and method for every officer and every class-teacher; for examinations, and for select "Academies" in Rhetoric, Poetry, and Grammar, comprised of the "honour" scholars of each class. The aim of the language instruction is defined by the scope of the final year of Rhetoric: "*ad perfectam eloquentiam informat.*" Latin and Greek were taught mainly because of their practical utility in all professional and public life: "*eloquentia utilitati servit.*" The spoken word was insisted on in the work of the classroom, in declamation, in disputation; reading was directed to personal work in "free" composition; and these written compositions were the sole test of distinction in examinations and in class organization. Philological erudition was rigidly limited; history and geography were always taught as accessory subjects; declamation was a weekly class exercise. The class-hours were usually 8–10 a.m. and 2–4 p.m. in the winter period; 9–11 a.m. and 3–5 p.m. in summer. The more routine portion of lesson-hearing was often devolved on the leading scholars in a class. Not being under the delusion that originality can profitably be expected from secondary pupils, and taking a more favourable view of natural human qualities than the Jansenists did, the Jesuit teachers held that the generous rivalry of the playing field can also be laudably used in the classroom. They would all have subscribed to the views of William James: "In the schoolroom, imitation and emulation play absolutely vital parts. . . . Emulation is the very nerve of human society." They would think with him, too, that "when all is said and done verbal material is, on the whole, the handiest and most useful material in which thinking can be carried on"; and that "constant exercise in verbal memorizing must still be an indispensable feature in all sound education."

John Dury's Account. A few typical portions of John Dury's MS. description of classwork in a Jesuit College will explain its organization.

1. ARRANGEMENT OF THE SCHOOLROOM AND THE SCHOLARS. "The schoole itself is of an oblong square figure, commonly hung round with pictures or Maps, divided into two parts, viz.: into Orientall and Occidentall; and whatever places there are on the one side, there are as many and the same on the other. The Regents pulpit is betweene both, from which there is a vacant alley to the doore, according to this platforme:

"At (A) is the Doore, (B) the Regent's pulpit: (C) the seats of the two Censors, (E) the Chaire of the Emperor of the West, (D) of the East: (oooo) the Senators on each hand of the Emperors, (xxxx) the Equites, whereof hee next the Senators is called Princeps Equitum, (iiii) the Comites, whereof hee next the Emperor is called Primus Comitum. The low benches marked with Arithmeticall figures are called Decuriae, the chief whereof is called Decurio."

2. HEARING OF LESSONS, FOLLOWED BY THE *Praelectio*. "The Regent either opening his pulpit or walking into the Alley, biddeth any whom hee most suspecteth of negligence to render his lesson: as suppose the first Decurio of the East. The said Decurio of the East, and also hee of the West both rise together: hee of the East sayeth the lesson, hee of the West correcteth him where he misseth, and then the Decurio of the West sayeth also, and is corrected in like manner by his fellow opposite of the East. The Regent spendeth neere halfe an houre in this business, which having done, hee giveth another lesson out of the same author, in the lower Classes construing the author into the vernacular tongue; and in the higher Classes the



PLAN OF CLASSROOM IN A JESUIT COLLEGE.
[*After a drawing by John Dury (circa* 1645).]

Greeke into Latine. They write also such glosses, comments, analyses, and other explications in their Margents as the Regent dictates, according to the capacity of his respective Classis."

3. THE GRADUATED USE OF THE TEXT OF CICERO. "All Classes, from the highest to the lowest of Humanity, render some piece or other of Cicero, but with different intentions: some his Epistles simply to *construe* and parse them, others to learne the running of the style, the phrases and other elegancies, others to learne by him the Art of Rhetorick, the way of making orations, framing and carrying on of Arguments, etc."

4. PRACTICE IN THE SPOKEN WORD. (*a*) *Weekly Exercise in Each Class.* "On Saturday, repetition thereon. And what remaineth of the forenoon is spent in hearing some scholler, whom the Regent shall call out to repeat some verses of Seneca, Terence, or any other Tragoedian or Comoedian, that hee best knoweth, without booke, with their true life, grace, and actions. After all this commonly one or others declaimes either prose or verse, or repeates an oration which he hath made against some other of Ciceroes, answering all his Arguments, and the like."

(*b*) *Dramatic Work each Month by the Class in the Classroom.* "Every month there is acted a Tragedy of about an houres durance, of about 10 or 12 parts by those of the higher Classes, and the Actors come privately to be instructed therein by the Regent, to whose charge the business is committed."

(*c*) *Annual Public Drama.* "The Great Tragedy, whereof the Regent of the first Class is to be Author. There are commonly 60 actors of the better rank taken out of all Classes, with ornaments for interludes, Musick, and hanging the Theater with pictures of the subject of the Tragedy, etc. To this Tragedy, which dures commonly 4 or 5 houres, all the Gentry of the Country resort, more especially the Parents of the Schollers and Actors in it."

Influence on Modern Education. The figures cited above for all the French Jesuit colleges show that lay students at the end of their literary course were provided with a further training in physics and mathematics (95 specialist teachers in 90 colleges; 5 colleges only did not furnish this course), and in Introductory Philosophy; the instruction in these subjects covered two years. Evidence of this supply, and the demand that created it, is found in the publication by Jesuits of 24 text-books in arithmetic, before 1700, and of 44 more between 1700 and 1773. The earliest text, by Clavius, numbered 25 editions from 1585 to 1670. Before 1773, 53 algebra texts, 31 trigonometry texts, and 17 works on calculus were issued, besides many works on optics, electricity, hydrodynamics. The Euclid of André Tacquet, S.J., translated by Whiston, was well known in England; the Mathematical treatise on Naval Evolutions, by Hoste (1697) was used as "the Jesuit's book" in the English Navy down to 1840. The *Ratio* of 1586 declared that the practical utility of mathematics and the sciences must steadily be kept in view: and this explains why these subjects were reserved to the end of the secondary course. Thus the teaching of the various subjects was "successive," as distinguished from the "concurrent" and crowded curricula of to-day. The restoration of the

Order in 1814 was mainly intended by Pius VII to subserve education. The changes from the old Order are very considerable. Uniformity is now limited to principles, for national distinctiveness in education has become dominant. The loss of foundations and endowments makes "free education" rarely possible. Boarding-schools have become more common, in all lands, for secondary education; modern subjects are fully provided for, and taught concurrently with classics. The educational activities of the Order have been crippled or suppressed in Poland since 1820, in Italy since 1860, in Germany since 1873, and in France since 1901. But since 1814 they have been greatly developed in the British Isles, in the United States, in South America, British India, Canada, Australia, Syria, Egypt, and the Far East (China, Japan, Philippine Islands). In 1906, it was definitely ruled that non-classical schools were within the scope of the work of the Order. The total number of colleges for lay students is now about 240, with upwards of 65,000 pupils. It is in the many flourishing colleges of the Order in the United States that the detailed provisions as to method in linguistic instruction approximate most closely to the *Ratio Studiorum*.

T. C.

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JESUITS IN SPAIN, THE.—(See ABARCA Y BOLEA.)

JEWISH EDUCATION.—The course of enthusiasm for education runs without intermission from the earliest records of Israel to modern times. There have been differences as to scope; there has been no difference as to the paramount obligation to fit men to fulfil the real end of man's existence—a righteous and useful life.

From the glowing orations of the prophets—teachers essentially, though not technically—the course of Jewish education flows to the pedagogic labours of the Scribes. Gradually the Synagogue acquired the function of a school, being supplemented by institutions which arose from it as a centre—colleges for adults and, at about the beginning of the Christian era, organized schools for the young. After the loss of political independence in the first century, the school system was greatly extended, for education was the chief means of holding the community together. In Babylonia, whither large numbers of Jews migrated, an elaborate educational system was founded. In the Middle Ages, schools, based on much the same efficient model, continued to flourish everywhere, despite tribulations and ghetto repressions. At various times, outer influences affected the programme of Jewish schools: Greek civilization did so at Alexandria in the Maccabean Age; Arab culture, the Italian Renaissance, the Revival of Learning—all interfered with the curriculum. But nothing seriously affected organic growth until the French Revolution, with its modernizing, levelling, and emancipating results. The end of the eighteenth century witnessed the foundation of "modern" schools in the Central European Jewish communities; the second half of the nineteenth century saw the establishment of many such schools in the Orient. Since then, Jewish education has taken new directions. The causes and consequences of the most significant of these changes will now be briefly analysed.

Hellenism and Hebraism. A notable feature of the Synagogue liturgy is a passage ordered for recitation thrice daily—

"Thou favourest man with knowledge, and teachest mortals understanding. Oh, favour us with knowledge, understanding, and discernment from Thee. Blessed art Thou, O Lord, gracious Giver of knowledge."

This aspiration, which cannot be later in date than the first century of the Christian era, and may be considerably earlier, strikes the keynote of the Jewish attitude towards the culture of the intellect. Many contrasts, more or less false, have been drawn between Hellenism and Hebraism. A true contrast may be detected in the different objects for which the two systems approached the problem of knowledge. Briefly stated, the Greeks pursued knowledge as an end, the Hebrews as a means. Hence we owe to the Greeks the foundation of scientific inquiry as such. To the Hebrews, on the other hand, curiosity as to Nature and her secrets was conditioned by the desire to reach through Nature to Nature's God. The Hebrew wished to know in order that he might serve.

In the early fourteenth century, when controversy arose as to the validity of Maimonides' conciliation of Judaism with Aristotelianism, philosophical research was justified by its Jewish advocates on this very ground. The anti-Maimonists urged that conduct was the end, and the performance of the Commandments of God the one and only duty. "True," replied the Spaniard, Joseph ibn Caspi; "but, then, to acquire philosophical insight is the first of these commandments." Not merely to have faith, but to know rationally that God is, that He is One, that man must love and fear Him—these to ibn Caspi and many other Jewish thinkers were the fundamental principles on which is based the whole scheme of conduct inculcated by Judaism. But "how can I know God, and that He is one, unless I know what knowing means, and what constitutes unity? No man really knows the true meaning of loving God and fearing Him, unless he is acquainted with natural science and metaphysics." Not that ibn Caspi required every man to be a philosopher in the technical sense. "I do not say that all men can reach this intellectual height, but I maintain that it is the degree of highest excellence, though those who stand below it may still be good." The whole pragmatic theory, that knowledge was necessary as the best means of attaining to a perfect moral life, was derived from a famous text (1 Chron. xxviii, 9). To the assembled princes of Israel, David gave his last directions concerning the erection of the Temple in Jerusalem. Then, turning to his successor on the throne, he uttered the memorable

injunction: "And thou, Solomon my son, *know thou* the God of thy father, and *serve Him*, with a perfect heart and with a willing mind." Know, in order to serve. True, some might know and fail to serve; others might serve without knowing. But the ideal lay in neither extreme; it lay in the mean, knowledge and service: not obedience with blind eyes, not disobedience with penetrative gaze; but open-eyed obedience and service. This was the ideal of Maimonides, and, on the whole, may be said to be the ideal of Judaism.

Aim of Jewish Education. The problem turns, so far as education is involved, on the nature of the end sought. "Fear God and keep His commandments: this is the whole duty of man"—thus does the author of Ecclesiastes sum up the matter. Wisdom, knowledge, were prized; so much so, that Pharisaism has been assailed for its well-nigh Hellenic tendency to identify wisdom with virtue. But wisdom was really held lower than reverence. "Whosesoever fear of sin precedes his wisdom, his wisdom stands; and whosesoever wisdom precedes his fear of sin, his wisdom stands not." From the other side the same conclusion was reached. Practical goodness signified more than theoretical wisdom. "Whosesoever wisdom is in excess of his works, to what is he like? To a tree whose branches are abundant, and its roots scanty; and the wind comes and uproots it and overturns it. And whosesoever works are in excess of his wisdom, to what is he like? To a tree whose branches are scanty, and its roots abundant; though all the winds come upon it, they stir it not from its place." Thus the Torah (Law) enshrining at once the principles and the contents of the good life, must be man's chief study; yet the study of the Law must be no spade to dig with, no tiara for self-adornment.

It is significant that it is impossible to discuss the Jewish scheme of education without simultaneously discussing the Jewish theory of life. To many moderns, the educational problem concerns the young, and includes, at latest, preparation of the adult for his vocation. In the Jewish scheme, education applied to the old as well as to the young; there were no hard-and-fast lines between school years and maturity. Naturally, it was realized that the best results were obtained when the teacher had to deal with plastic material. Not that there was to be a division into teachers and taught; every one must be a learner, every one a teacher. But clearly there were degrees, there were stages. The Rabbis liken learning in youth to graving on stone, and learning in old age to scratching in sand. But such views did not override the sense that education is a continuous process going on from childhood to old age, just as life is a continuous growth from birth to death. "In the morning sow thy seed, and in the evening withhold not thine hand: for thou knowest not whether shall prosper, either this or that, or whether they both shall be alike good" (Eccles. xi, 6). On this the Rabbi commented: "Though thou hast studied in thy youth, study also in thine age, for thou knowest not which effort will be of more avail, or whether the two devotions may not prove equally efficacious."

The olden Jewish scheme of education, therefore, contemplated no limitation of "school years" to a specified period. The view was firmly held that a man was bound to qualify for earning his livelihood by the work of his hands, or, at all events, by some occupation of utility to the common good. Most of the Rabbis whose activities are recorded in the *Mishnah* and other traditional lore were engaged in handicraft, agriculture, or trade. The same fact meets us throughout Jewish history until we reach the specialized *régime* of modern times. Maimonides was a hard-worked physician; Spinoza earned his living by grinding lenses. Maimonides attacked those who occupied themselves solely with study and lived on the doles of the benevolent. Yet he accepted the Rabbinic view that business was secondary, and the study of the "Law" primary. What men call their livelihood was a means to living. To live was to know the Law of God and obey it.

These views have dominated Jewish education even when realization was difficult. But, if education was conterminous with life, it was necessary to provide a scheme to cover the various stages of life. The Bible contemplated the father as the instructor of his children in morals and religion. Abraham was singled out "to the end that he should command his children after him to keep the way of the Lord to do justice" (Gen. xviii, 19). So, too, the Deuteronomist, after laying down the fundamental principles of the unity of God and the obligation to love Him, proceeds: "And these words, which I command thee this day, shall be upon thine heart: and thou shalt teach them diligently unto thy children, and shalt talk of them when thou sittest in thine house, and when thou walkest by the way, and when thou liest down, and when thou risest up" (Deut. vi, 6, 7). A wonderful system of beautiful home rites, mostly of educational value in the highest sense, was built up round this gracious text. It is no small object of congratulation both to Josephus and Philo that, in Israel, religious education was established on a firm basis. "Our principal aim of all is to educate our children well," says the former. The latter terms the synagogues not merely houses of prayer, but houses of instruction.

In the synagogue, no doubt, the adult received the chief consideration, and it is not till rather late in the post-exilic period that we find a school system specifically for the young. Scribe and prophet taught the community as a whole, and the young were left to their parents. When a change became necessary district schools for young men were founded; and then the high priest Joshua, son of Gamala, instituted public schools for boys over 5 years of age in all the cities of Palestine. This was done at the beginning of the Christian era, and from that time onwards there have always been schools, of some kind or other, for the young in every organized Jewish community. From the elementary school, the child would proceed to the Academy, equally a feature of a Jewish settlement.

Scope of Jewish Education. Naturally there were grades in technical acquirements, and the learned formed a class. This was, however, because some profited more from their studies than others; it does not mean that there was a class of professional scholars. Still less does it contradict the general truth that the system of education, devised with especial completeness in the third century in Babylonia, was essentially popular in character. Certain studies were regarded as not fit for the masses, especially metaphysical discussion of the cosmogony of the first chapter of Genesis and the theosophical treatment of Ezekiel's Chariot. In this sense, there was an esoteric lore, open only to the initiated. But with these exceptions, the whole desire of the leaders of Jewish thought was to

popularize the Scriptures, the traditions, and the practical deductions made for the ordering of life. Denunciations were hurled against those who, possessed of knowledge, were reluctant to impart it to others. The subject and manner of instruction certainly depended on the capacity and character and age of the pupil. " At five years old, Scripture; at ten years, Mishnah (the teachings of the Scribes up to the end of the second century); at thirteen, the Commandments; at fifteen, Talmud (the later Rabbinic teachings); at eighteen, marriage; at twenty, seeking a livelihood." But though careful rules were formulated as to the qualifications of teachers and their pedagogical methods—often anticipating modern requirements with startling particularity—there was an almost absolute absence of the esoteric. Education dealt with the common principles of life, and applied to all men who desired to live in accordance with Jewish ideals. This democratic principle was established strongly in Southern Mesopotamia, whither the Jews migrated in large numbers in the early centuries of the Christian era, enjoying something like autonomy under their own Exilarch. From the third to the eleventh century, great Rabbinic Academies flourished here. The students were drawn from all classes, specialists rubbing shoulders with the non-professional seeker after knowledge. In fact, the only distinction between professional and lay scholar consisted in the extent, not in the content, of knowledge. An outstanding feature of this elaborate system was the holding of public assemblies twice annually, at the end of summer and at the beginning of spring. At these were gathered vast numbers of outside students of the most heterogeneous attainments. Instruction was given, problems were discussed, decisions reached. Thus the Babylonian system combined the functions of special Law schools, public universities, and democratic Parliaments. They were a characteristic product of the Rabbinic view of life, and provided a model for future Jewish educational institutions in extensive areas of the diaspora.

It becomes desirable to refer to the possible effects when the edifice was built on an entirely religious and ethical foundation. The unhistorical chronicler of the destruction of the Alexandrian library by the Arabs in the seventh century attributes to Omar the notorious saying that if the other books agreed with the Koran they were unnecessary, while if they differed they were pernicious. At first sight, it seems inevitable that, if not obscurantism, at all events one-sidedness, must result from a thorough-going identification of education with the study and practice of the Torah. " Turn the Torah again and again, for all is therein," said the old Rabbi. It must be recalled what the Torah and its study signifies. To master the Rabbinic discussion of the Scriptures, to follow intelligently its manifold enunciations of legal, scientific, and literary opinions, involved a width of culture rarely equalled by those whose education, following out each discipline as an end in itself, wants the co-ordinating unity which the Rabbinic theory supplied. When one remembers this, it rouses no surprise that so many of the Rabbis, artisans on the one hand, were accomplished linguists and scientists on the other, while the Torah was their main interest. They knew and lauded what we call secular science; they learned several languages; they pursued geometry and astronomy. Of one famous Babylonian Rabbi, the claim is recorded that he was " as familiar with the paths of the stars as with the streets of his city, Nehardea." Similarly, with botany, anatomy, and medicine. Such studies were not mere accomplishments, luxuries of the intellectual life. They were absolutely necessary for the knowledge and application of the Torah. The new moon had to be fixed by actual observation, but the witnesses who presented themselves before the Court with evidence of such observation were cross-examined by means of diagrams of the moon's phases. The dietary laws could not be administered without at least an empirical acquaintance with animal anatomy. Considerable intimacy with botanical classification was required to apply the regulations as to the sowing of mixed kinds. Even when all that the student knew was the science and learning enshrined within the covers of the Talmud, yet that, in itself, constituted no mean body of facts and fancies. The foundation of education on the Torah thus involved a good deal of secular superstructure. This is a feature that must always be remembered. Jewish schools were compelled by the very nature of their main interest to cultivate much that seems foreign to it. It has resulted that Jewish education has rarely sunk into obscurantism. Many a Jewish youth who had never heard of the scientific authorities worshipped at the universities was adept in the subject-matter of which those authorities treated. When the system was at its best, it produced, besides moral character, a rich, full, and many-sided culture. Add to this, that the student not merely felt himself cultivating his mind, but realized himself as performing the ultimate duty of his life when he bent over his tomes or listened to the teacher's discourse.

The Secular and the Religious. The jewries of Northern and Central Europe inherited and maintained this system. Elsewhere, external forces worked to produce some modification. In the older world there had been a similar difference between Palestine and Alexandria, where the Jews absorbed Greek civilization, and educated themselves much as the Greek population did. A certain beauty and grace marks the Philonean attempt to harmonize Moses and Plato, just as an undeniable dignity marks the Maimonist effort, made more than a millennium later, to reconcile Judaism with Aristotle. Throughout the Middle Ages in Spain, Northern Africa, Provence, and Italy, the Jews, while trying to uphold their own traditional ideas as to education, contrived to augment those ideas by adopting current programmes, thus to a certain extent introducing a dividing line between the religious and the secular. So soon as that division is admitted, the native Jewish scheme of education loses something of its originality and driving power. It must be recalled that, when the Jewish scheme identified the religious and the secular, this was not in the interests of a dogmatic theology or of an authoritative church. So little dogmatic was Jewish theology, that, in the eighteenth century, Moses Mendelssohn was able to deny altogether the existence of dogmas in the religion of the Synagogue.

This is not said with the intention of arguing that in the modern world it would be possible or desirable to maintain the identification of the secular with the religious. It has been merely urged in behalf of the thesis that the ancient Jewish scheme made for unity, covered the whole of human life with its various activities and needs, did so on a religious basis at once firm and spacious, and yet escaped the

danger of narrowness or obscurantism. Obviously, however, it was possible only under favourable conditions. These were the restriction of intercourse with those who followed other roads to truth, and the absence of specialization in learned and scientific studies. It was possible before the fourteenth century for the same man to double the parts of theologian and physician. It became far more difficult when medicine began to make fuller demands on the probationer's time and prowess, and the New Learning called for the devotion of those who would qualify as masters in letters. Similarly, with regard to intercourse. Though the ghetto isolation was by no means complete and many broke through the walls of the jewries on both sides—from without inwards and from within outwards—nevertheless, till the eighteenth century, the Jews, in their more populous settlements, were able to follow their own scheme of life without excessive thought as to its effects on their relations to the wider environment. To many Jewish observers in the period before and after the French Revolution this self-concentration was an evil, and progress was to be sought by assimilating Jewish education to the then dawning ambitions of European emancipation. The Jew was no longer to be distinguishable except for his religion. In all other respects, he was to be taught to play his *rôle* in the greater world, to take his place in the general life equipped, by his education, in the general manner.

Nineteenth Century Changes. Thus we witness in the nineteenth century three changes, all of importance. As the century developed, Jews more and more sought entry into the ordinary schools and universities, struggling in England for the abolition of tests, and finally winning their right to share in the ordinary educational life of their fellow-citizens of other creeds. To some extent, this change corresponded to a general transformation in the modern world. In Judaism, at all events, there was a period in which the principles of life could no longer be formulated in exclusively religious terms. Conversely, Jews would hardly have fought so resolutely for admission into European universities unless these too had moved from their theological foundations. It is unnecessary to pursue this thought further, nor need the second change detain us. A struggle within the Synagogue broke out under the same impulses as produced the modification in the external conditions of the Jews. Political and social emancipation impelled many to demand what they considered religious emancipation from the traditions and customs of the olden synagogue. This struggle does not much concern our inquiry, but it reacted on education. The fight for the modernization of Jewish schools for the young—and girls were now included far more emphatically than of old—was conducted by much the same protagonists as were engaged in the campaign for religious modernization. Soon the whole of Western Jewry fell into line. Conservatives and Liberals alike were forced to acquiesce in the newer methods of education. The only difference was that in some schools the traditional Judaism retained a fuller place. But it only occupied a place, it no longer filled the building. Gradually the revolution was admitted; and Sabbath and religion classes, Talmud Torahs, and courses for Jewish elementary teachers, were frankly formed to supplement that scheme of education which religion formerly had controlled entirely. In all most progressive countries, Jewish day-schools as such have dwindled and seem doomed to vanish, except in Palestine, and possibly in the new Poland, where different conditions prevail. Elsewhere, the gap between the secular and the religious has been consciously realized, and Jewish education has entered on a new phase. There are not wanting signs that the Synagogue, by increased activity within, will accommodate itself to the new *régime* under which it no longer controls education with absolute sway. The third change alluded to may also be briefly dismissed. The alteration in the general educational system rendered it necessary to establish professional colleges for those who devote themselves specifically to Jewish learning with a view to becoming teachers or ministers of religion. The change has not been absolute. In many parts, the old Yeshibas, or Rabbinical academies, flourish, and everywhere some Jews continue ardent students of the Talmud, though they have chosen commercial or scientific pursuits. Nor, while Judaism endures as an organized institution, is it conceivable that such students will be wanting. But the fact remains that the modern tendency was towards the creation, practically for the first time in history, of a professional ministry, trained simultaneously in the general universities and in the denominational seminaries, the latter being attended almost exclusively by those who are intending to make Jewish learning their career. This vocational attitude towards learning is essentially distinct from the older view, which regarded learning as the handmaid of all vocations, or rather all vocations as handmaids to learning. There is some likelihood that the seminary system in Jewry will not enjoy a long life. The Academy of Jewish Studies is an alternative that has strong advocates.

Anyhow, the older view survives. The fact is shown in a practical form by the disproportionate number of Jews who seek a university training. The tradition that education is the inalienable right and duty of all has given rise to what, in continental jargon, is termed an "intellectual proletariat" among the Jews. Foreign universities, in some parts, do their utmost to discourage this mass of intellectuals. In certain institutions, severe restrictions are imposed as to the percentage of Jews allowed to matriculate. Again, the almost complete secularization of the university spirit is not acquiesced in by all. For, though the spirit is secularized, it is none the less based on a theory of life not always in harmony with the Jewish conception. These considerations and others have led to the proposal in London of an Academy of Jewish Studies and of a Jewish or, as some prefer to call it, a Hebrew university in Jerusalem. The academy would have to be the unsectarian home of all intellectual interests specifically Jewish in subject-matter. The university, while providing in a manner absolutely free from sectarian prejudice all that a great university has to offer, might also become a centre whence the Jewish spirit, unfettered by incompatible associations, might spread its influence anew on Jewish life. It is doubtful whether this dream can or ought to be realized, whether (in fact) the now initiated University of Jerusalem will fully realize the dream. But it is the dream not only of Jewish "nationalists." It is shared by some who, while glorying in the assimilation of Jews to the general life of humanity, and repudiating the notion of a distinct Jewish nationality, nevertheless would

welcome some means for saving the old Jewish ideal of education from oblivion. I. A.

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JEWISH ELEMENTARY SCHOOLS.—There are at the present time in the British Isles thirteen Jewish elementary schools, *i.e.* public elementary schools administered by the local education authorities for all purposes of secular education, but with special arrangements for teaching Hebrew, Scripture, history, and the tenets of the Jewish religion, as the children in attendance are of the Jewish persuasion. They are—

School.	Number on Roll.	Date of Foundation.
Jews' Free School, Spitalfields	2,730	1817
" Infant School, Spitalfields	610	1841
" Infant School, Whitechapel	489	1841
South London Jewish School	300	1866
Bayswater Jewish School	367	1866
Stepney Jewish Schools	778	1863
Westminster Jews' Free School	505	1811
Spanish and Portuguese Schools—		
(*a*) Villareal School for Girls	324	1730
(*b*) National and Infant School	315	1839
Jews' School, Derby Street, Manchester	1,588	1838
Hebrews' Educational Institution and Endowed Schools, Liverpool	720	—
Hebrew Schools, Birmingham	480	1840
National and Hebrew Schools, Dublin	180	1893
Hebrew Girls' School, Hull	200	1863

Of these, the largest and, perhaps, the most interesting, is the Jews' Free School. Although it may be said that the present school was founded in 1817, it was really a development of a much earlier school. In the year 1770 a charity was formed for the purpose of "clothing, apprenticing, and educating in Hebrew and English twenty-one poor boys." These boys were the children of Jewish parents from the East End of London, and were chosen by ballot. They formed a Talmud Torah school, which met in a room in the neighbourhood of Spitalfields. Their teacher was required to instruct them for 6-7 hours daily, and, in addition, to take them to the Synagogue every morning and evening, and to be responsible for their good behaviour there.

This Talmud Torah school, which was specifically retained as an integral part of the new school in 1817, still in a sense survives, for twenty-one boys —called Talmud Torah boys—are still selected from the elder scholars of the Free School. They are expected to attend the early morning service at the Great Synagogue, Duke Street, and each receives two suits of clothes per year. Originally, the Hebrew instruction must have taken precedence of English, for, in 1791, the committee, in choosing a new master, or Rabbi as he was called, resolved that at least three hours a day shuold be devoted to English, and directed that, if the Rabbi were not capable of imparting this instruction, he should appoint an English master and pay him out of his own salary. An English teacher was accordingly engaged in 1791, and in 1806 the school removed to more convenient rooms in his house in Gun Square, Houndsditch.

The Lancastrian School. In 1812, a new development was proposed, viz., that a Free School on the plan of Joseph Lancaster be added to the existing Talmud Torah School. The suggestion was approved by the committee, who formed a sub-committee to carry it into effect. A plot of ground was bought in Harrow Alley in 1815, and the building of a school to be carried out exactly on the Lancastrian model was undertaken. This was completed in 1817, and opened on 13th April for the admission of 102 boys, each on the recommendation of a yearly subscriber of not less than a guinea. A new Code of Laws was arranged, but the same curriculum was retained. A special resolution was passed to enforce the observance of the original provisions for the twenty-one Talmud Torah boys. The numbers rapidly increased, and in 1819 it was resolved to build new premises and to include girls as well as boys in the school.

Accordingly in January, 1822, a school on the present site in Bell Lane, Spitalfields, was completed, with accommodation for 600 boys and 300 girls. It consisted mainly of two large halls: one for the boys, sub-divided by sliding partitions of wood and glass; and one for the girls with curtained off compartments. In each case a raised platform at one end of the Hall enabled the Head Teacher to get a comprehensive view of the whole school, and thus control to some extent the work of the various monitors. Attempts were made to improve the teaching by the systematic training of the monitors after school hours by the head teachers; but the inherent weakness of the monitorial system was recognized by the committee' who, in 1846, abolished it entirely in the boys, school. They accordingly engaged six class-masters under Mr. Moses Angel, who had been the Head of the Talmud Torah School since 1840. The school now rapidly developed owing to the organizing ability of its new Head Master.

The numbers steadily increased; the curriculum was gradually widened, and included subjects quite beyond the scope of most elementary schools of the period; the equipment was greatly improved; a library was founded; and much was done for the personal welfare of the children.

These latter efforts were made possible by the generous support of Sir Anthony de Rothschild and his family. In 1847, he was elected President, which office, from that time to the present day, has been held by a member of the house of Rothschild, to whose practical interest and generosity the school owes so much. Amongst the many benefits conferred by members of this family may be mentioned the establishment of a savings bank, the providing of annual treats and prizes, the giving of large quantities of boots and clothes, and the providing of breakfasts for necessitous children. In 1852, the school came under Government inspection, and the curriculum was brought into line with the requirements of the Education Code.

The Work of Moses Angel. Much interest attaches to these early reports from the fact that they were from the pen of Mr. Matthew Arnold, who, as Her Majesty's Inspector, examined both schools annually till 1872. He was much impressed by the training of the staff. In 1853 the last vestiges of monitorial teaching lingering in the Girls' School were swept away, and the Pupil Teacher System substituted. The pupil teachers received all their subsequent

training at the school, until they became duly qualified as certificated teachers, and many were encouraged also to work for university degrees. It was this, really the work of a Normal School, that was specially recognized by Mr. Arnold, who claimed in his Report of 1871 that Mr. Angel stood in the place of the training college to his assistant teachers. Mr. Arnold constantly refers also to the excellent results achieved in the school notwithstanding its special difficulties. These arose chiefly from the infusion of a large foreign element. This seems to have been specially noticeable for the first time about 1858, when, out of 1,701 children, 318 were foreign born. They were probably mostly Dutch and German children, and their numbers increased rapidly till, in 1866, there were 1,305 out of a total of 2,317. Later, when the May Laws of 1881 and the Pogroms of 1885 and onwards drove large numbers of Russian and Polish Jews to this country, we find a still greater proportion of foreign-born children, who spoke only Yiddish, and of whom many had received little or no previous education. On admission, they were generally placed together in a class, irrespective of age, and preferably under a teacher with some knowledge of Yiddish, and for a time all subjects were subordinated to the learning of English and acquiring a simple English vocabulary. This was often accomplished in a remarkably short time, as extreme quickness and adaptability was always a distinguishing characteristic of these children, who were drafted as soon as possible into the ordinary classes of the school, where their Anglicization was soon completed by intercourse with the other children. The language difficulty, of course, always remained, and was intensified by the fact that in the very large majority of homes, Yiddish was the sole language spoken. The difficulty could only be met by constant correction of the foreign idiom, by careful teaching of English composition, and by the encouragement of reading.

The Modern School. In 1883 the old school was practically demolished, and a new one erected in which, for the first time, a separate classroom was provided for each class. There were now approximately 3,500 boys and girls on the roll. The schools continued to increase in efficiency, gaining excellent Government reports and with a very high average attendance. In this respect they compared favourably with the Board schools of the time, and in many others also, notably in the strengthening of the staff from time to time in both schools, in the number of outside scholarships gained by boys and girls alike, and in the development of the curriculum. This was widened by the introduction of technical work, cookery and laundry for girls, woodwork and metal work for boys.

The addition of a new wing, in 1897, provided a gymnasium and a laboratory, so that courses of gymnastics for the elder children were instituted, and the teaching of chemistry and physics was introduced into the Boys' School.

Associations were made for the encouragement of outdoor sports, and swimming was included in the curriculum. Other special features included the establishment of associations for past scholars—both boys and girls—and the institution in the Boys' School of a military band, a cadet corps, a rifle range, and a course of semi-military drill—all of which contributed largely to an improvement in the *morale* and physique of the boys.

Plans for re-organization of the Boys' School were carried out in 1908, necessitated chiefly by the large numbers and the desirability of closer control. It was divided into an Elementary Department, with three sub-sections each in charge of a Vice-Master; and a Higher Grade Department, later known as a Central School. This provides a higher course of training arranged for four years for the more promising boys, to which, also, certain children of neighbouring schools are admitted. The Central School has a double bias—the Commercial, in which Book-keeping, German, and Business Routine are taught; and the Industrial, which specializes in Science Subjects, Drawing and Designing, Manual Work, and the making of scientific and mechanical models.

In 1909, an Evening Play Centre was established, where all kinds of educative recreations are afforded. In 1910, a Care Committee was appointed to undertake the supervision of the feeding and clothing of the necessitous children, and the visiting work in connection with medical inspection: so that the dispensing of charity, so long a marked feature of the school, is now organized on a separate footing.

In recent times, certain special features have been introduced. Such are a school magazine, published quarterly; class magazines; a rowing club; and a camera club.

The foregoing notes refer rather to the development of the schools on the secular side, but there has been noticeable development also in the teaching of Hebrew and religion. This applies not so much to the teaching of Hebrew reading and writing as to translation. This was at one time taught practically by a look-and-say method, that is, by constant repetition of a few words or a phrase, first in Hebrew and then in English, till whole passages were acquired by heart. For many years now, more modern methods obtain. Hebrew grammar and inflexions are taught, especially with reference to the context; and a sufficient vocabulary is acquired to enable the elder children to translate practically at sight portions of the Bible and the Jewish Prayer Book, particularly with a view to understanding the Synagogue Services, which they are encouraged to attend.

Much care and attention have always been bestowed on the teaching of Hebrew and religion, as it was recognized that one of the main objects for which the school was founded was their encouragement; and, when it was found that the exigencies of a wider curriculum caused a decrease in the time that could be allotted to them daily, a separate session was arranged for Sunday mornings, devoted to these subjects alone, and which still remains a special feature of the school.

E. BENJAMIN.

JEWISH SCHOOLS.—(See GHETTO SCHOOLS OF LONDON, THE.)

JEX-BLAKE, DR. SOPHIA.—(See WOMEN IN ENGLAND, HISTORY OF THE MEDICAL EDUCATION OF.)

JIU-JITSU. — (See CALISTHENICS AND THE PHYSICAL TRAINING OF GIRLS.)

JOCUND ADVENT.—(See STUDENT LIFE, THE HISTORY OF.)

JOHN HOPKINS UNIVERSITY, U.S.A.—(See UNITED STATES, COLLEGES AND UNIVERSITIES OF THE.)

JOHNSON, CHRISTOPHER (1536–1597).—He was educated at Winchester and Oxford, and in 1560, on a recommendation to Archbishop Parker, was made headmaster of Winchester College. He remained there for ten years, distinguishing himself by his industry and skill in teaching. While headmaster, he practised as a physician, and in 1570 gave up his school and removed to London, where he afterwards held various official positions in the Royal College of Physicians. Johnson wrote a number of elegant Latin poems, three of them in connection with Winchester College. He also edited Latin works for the use of his pupils, and wrote a medical work on infectious diseases.

JOHNSON, SAMUEL (1709–1784).—The son of a Lichfield bookseller, he was first educated in a Dame School where he was the best pupil the dame had ever had, and then under a severe schoolmaster, whom he afterwards praised for his use of the rod, and who educated many other famous scholars. At an early age Johnson gained that consciousness of superiority over his fellows which he maintained through life. Indolence and aversion from amusements characterized his school days, though his capacity for reading and learning was enormous. After a year at Stourbridge school he spent fourteen months (1728–1729) at Pembroke College, Oxford, leaving without a degree on account of his father's bankruptcy. He married in 1734 and set up a school near Lichfield, but its failure drove him to London, where he spent many years in a severe struggle for a living, doing hack work for publishers. Dodsley published his satire *London* in 1738, and from 1747 to 1755 he was engaged on his *Dictionary*. In 1749 he published *Vanity of Human Wishes*, and in 1750 commenced the publication of a bi-weekly paper, *The Rambler*, which spread his fame far and wide. The appearance of his dictionary caused Lord Chesterfield to attempt a patronage which he had refused when Johnson was less known and less famous. Johnson replied in a very severe letter declining Lord Chesterfield's overtures. In the years 1779 to 1781 he wrote the *Lives of the English Poets*. *Rasselas*, the most popular of his works appeared in 1759. His long struggle with poverty was terminated in 1762 by the grant of a Civil List pension, and during the remaining years of his life Johnson assembled around himself a large number of literary leaders in a club founded by himself and Sir Joshua Reynolds. The members included Oliver Goldsmith, Edmund Burke, Garrick, Gibbon, Sheridan, Adam Smith, and Boswell, the last-named of whom has given in his *Life of Johnson* an account of Johnson's dictatorship, and of the conversations in which he laid down the law to all members and others. The degree of Master of Arts was conferred on Johnson by the University of Oxford in 1755 on the publication of his *Dictionary*. Dublin University made him Doctor of Laws in 1765 and Oxford University in 1775.

JOINT CONFERENCE OF EDUCATIONAL ASSOCIATIONS.—To understand the evolution of the Joint Conference of Educational Associations it is necessary to go back to 1896, when the Teachers' Guild organized a large meeting of its members in London for the purpose of discussing the educational questions of that time. At this conference over 1,200 tickets were issued, and the educational world was much impressed by the magnitude of the undertaking.

From this date, two kinds of Sectional Associations began to come into existence: (1) those consisting of teachers working in different types of schools, which may be called "Class" Associations; and (2) those consisting of teachers of different subjects, which may be called "Subject" Associations.

Most of these Sectional Associations got into the habit of holding separate conferences, for discussions of subjects of particular interest, at the same time as their annual general meetings, generally in London and towards the end of the Christmas holiday.

These meetings were often poorly attended and, as the discussions were of a character likely to interest only a limited number of teachers, the broader educational issues were naturally excluded.

When the idea of a British Association of Education was first mooted, it was hoped to include both kinds of sectional societies, but it was the "Class" Sectional Society which practically killed their first idea.

In 1905, the idea of a Joint Conference of Educational Associations developed out of a talk between the Secretary of the Teachers' Guild (Mr. Herbert B. Garrod) and some members of the Council, notably Miss Henrietta Busk, who has continuously kept in close touch with the Conferences, both as hon. treasurer and later as hon. secretary. Such a conference where members of many associations might meet at one time, under one roof, which could be likened to a British Association of Education, commended itself to the Council, and a scheme was drawn up stating three main reasons why such combined meetings would be valuable: (1) to bring together the various educational bodies into closer contact, thus consolidating the profession; (2) to minimize the time and energy then taken up in holding separate annual meetings and conferences, and (3) to reduce, as much as possible, the reduplication of lectures and discussions, thus securing better attendance.

The Teachers' Guild Council resolved to invite educational associations to send representatives, and thus form a provisional Conference Committee.

On 17th May, 1906, representatives appointed by fourteen associations of teachers in England and Wales met in the offices of the National Society at Westminster to consider the advisability of establishing a general Education Congress. After careful discussion, the representatives agreed to the following resolution—

"That, in the opinion of this meeting, it is desirable that a General Education Congress be established for the discussion of purely educational subjects."

This resolution was submitted to the respective Executives, and they were invited to appoint representatives to attend a meeting, or meetings, of a Provisional Committee to carry the matter further, and settle a draft scheme for such a congress. After about a year of negotiations, the scheme was dropped for a time, as few of the associations were then prepared to carry it through. It was not until the autumn of 1910 that the duly appointed representatives of eighteen associations met and agreed that steps should be taken towards ascertaining more definitely the probable number of associations willing to take part, what the probable expense would be, what the most convenient place of meeting, and other details.

In January, 1912, matters had advanced so far,

that it was agreed to try the experiment in January, 1913; and the Committee of Representatives arranged to meet again in June, 1912, to determine the programme and the place of meeting.

Before this time, however, Mr. Herbert B. Garrod, who had been acting as honorary secretary to the scheme, was taken ill with what proved to be his last illness, and was unable to be present at the meeting; but the committee reaped the benefits of all his preliminary work for the scheme. Those who had worked with him, though greatly grieved at the loss of such a valuable colleague, agreed that they would best show their appreciation of his work by carrying out his ideals to a successful issue. His great hope lay in the unification of the profession, and the bringing together of teachers of as many kinds as possible on the common ground of a conference managed by the associations themselves was, for him, an important step in this direction.

Without the willing co-operation of all the associations concerned, the arrangement of a Joint Conference would be impossible, and this co-operation has always been willingly given. It is clear that since the growth of specialization there has been an accompanying growth of societies dealing with special subjects. There are advantages in this, but the difficulty of organizing a Joint Conference is greatly increased by this very specialization. Co-operation among the various societies is essential to success.

The Conferences. In January, 1913, the first Joint Conference of Educational Associations was held. The Senate of the University of London most generously placed a large part of its building at the disposal of the Conference Committee—the Marble Hall, the Great Hall, the East and West Galleries, and several smaller rooms for the less important meetings. They also arranged for the use of the Jehanghier Hall in the Imperial Institute. The University authorities have, throughout, shown the greatest sympathy with the idea, and have done their utmost to forward, in every possible way, the interests of the associations.

The finance of such an undertaking was naturally of great importance, and each of the associations contributed a certain sum towards the preliminary expenses. Educational publishers were invited to send exhibits, and this has proved of great value to the Conference, for nearly all of them have taken space at this exhibition, and one of the halls of the University has been placed at their disposal. This feature increased the available income, and such expense as is not covered by the sale of tickets and by contributions from the publishers for space at the exhibition is met by the associations themselves.

The general arrangements for the Conference are in the hands of the Committee of Representatives. The drafting of the time-table will always be difficult, since teachers often belong to several associations, and wish to attend the meetings of all with which they are connected. The meetings are of two classes: (1) those purely business meetings which every association holds, and which are of a private nature, open only to the members of the association; (2) open meetings, which, although under the immediate control of one or other of the associations, are open to all the members of the various associations taking part in the Conference.

Throughout the meetings, the audiences were large and better than would have been the case had each association held its own meetings. There is a certain comprehensiveness about the whole which is in striking contrast to the frequent insignificance of the meetings of sectional associations. This seems to have impressed the general public and the Press, which has, at any rate, given much more space to educational matters during the period over which the Conference was held than hitherto. Representatives of the leading daily and educational papers have been present at all those meetings not of a private character.

The opening meeting is managed by the General Committee, and on each occasion an eminent educationist has been obtained to introduce a subject of general interest. The social part of the Conference is managed by an Entertainment Sub-Committee.

At the first Conference in 1913, thirteen associations only took part. The proceedings were opened by Sir Henry Miers, then Principal of the University of London, who gave a very hearty welcome to the Conference on behalf of the University of London, and expressed the hope that the first conference of its kind would be crowned with the greatest possible success. Dr. Michael Sadler came from Leeds to give the inaugural address, choosing for his subject the question of the advisability or otherwise of teachers becoming Civil servants.

In 1914, there were twenty-one associations represented; thus the Conference had grown and prospered in accordance with the expectations of its founders, and more nearly attained the ideal aimed at—namely, the founding of a British Association of Education. The inaugural address was given by Viscount Bryce, and the following paragraph from it shows how much he appreciated the aim and work of the Joint Conference. He said: " To-day I see represented here a large number of societies which cover nearly every field of educational effort and endeavour. You have a long array of societies taking up a great number of special branches of education, approaching it from different sides and breathing into it different ideas, but all contributing something to the common stock."

In the years during the war, the Conferences were not so large owing to the difficulties of travel and the preoccupation of many teachers in vacation time, but it was decided not to break their continuity. In 1915, Bishop Welldon, the then Dean of Manchester, gave the inaugural address on " The Principles of Educational Science," with Professor Gardner in the chair. In 1916 Sir Alfred Pearce Gould took the chair while Sir Oliver Lodge gave an address on " Education after the War." In 1917, with Sir Henry Miers in the chair, the Master of Balliol, Mr. A. L. Smith, spoke on " The Present Opportunity in Education." In 1918 the Conference could not be held at the University of London, as the buildings were being used for war purposes. The meetings, therefore, took place at University College, Gower Street, where 25 Associations held meetings, and Sir John D. McClure, Headmaster of Mill Hill School, gave the inaugural address. One meeting was also held in which all the Associations were asked to take part in the discussion, thus making truly a " Joint Conference " of all teachers. In 1919 and 1920 the Minister of Education, the Rt. Hon. H. A. L. Fisher, gave the opening addresses on " The Art of Keeping Alive "

and " Our Ignorance." At the former the Rt. Hon. Augustine Birrell was the chairman and at the latter Miss K. Jex-Blake was the first woman to take the chair at these Conferences.

Two joint discussions were held at both these Conferences and the number of affiliated Associations rose to 37, which has now increased to 40, so that the range of subjects dealt with is widening each year. Some of the meetings in 1920 were held near, but not in the same building, but they were all included in the same programme, thus giving all the information together.

The Publishers' Exhibition is also growing in size and importance, and makes a very real centre of interest for all teachers.

General Aims and Procedure. These conferences have been the means of bringing together for discussion of educational questions and for social intercourse a far greater number of teachers and others interested in educational matters than has ever before been the case, owing to the fact that each association is represented on the managing committee; the overlapping of meetings has, to a great extent, been obviated; and questions of general educational interest, which were hitherto discussed by one association with practically closed doors, have now been thrown open to the educational world. If the ideals of the originators of this Joint Conference are to be carried out, then more still remains to be done, as several important associations have not yet joined in the scheme; and, until they do so, it will not be possible to send the programme of the conferences to all teachers, nor to prevent some from receiving more than one copy. If it were really a British Association of Teachers, lists of the members could be prepared and much administration work be simplified.

The first Committee felt that the papers read at the Conference in 1913 had been so valuable that it was a mistake that they should be printed only in various educational publications as isolated papers, and not collected into one volume; therefore, in 1914 and 1915, complete reports were issued of the various meetings. Each association has been responsible for the reports of its own meetings. The papers have been generally printed in full, together with *résumés* of any discussions that followed, thus making a valuable permanent record of the proceedings, useful for future reference. Many teachers who were unable to be present at the Conferences bought copies of the Reports, and they were sent for from all parts of the world. Besides all the European countries, copies have been asked for from China, Japan, Canada, the United States, Jamaica, South America; many parts of South Africa, Egypt, India, and Australia, thus showing that the Conferences have a widely extended usefulness.

These Conferences form a real attempt to draw teachers together, and to cause them to feel that, although they may primarily be interested in one particular branch of educational work, education is a cognate whole, and that their allegiance is due to their profession as a whole. Teachers are helped by such meetings as have been organized to compare their different experiences by discussion; to correct and inform each other on questions that interest them all; and to see that, although their own particular subject may be of primary interest to them, yet the future welfare of the children covers a much wider field; and it is only by the study of the whole scheme of education that they will be able to develop fully the character of their pupils, and so best prepare them to fulfil their destinies in the scheme of the world. F. F.

JOUFFROY, THÉODORE SIMON (1796-1842).—He was a French philosophical and psychological teacher and writer. He taught philosophy privately as well as at the Normal School and the Bourbon College at Paris. Later he became Professor of Ancient Philosophy in the Collège de France, and Librarian of the University. He translated Stewart's *Moral Philosophy* into French, and wrote several treatises on philosophical subjects.

JOURNALISTS, THE INSTITUTE OF.—A royal charter was granted in March, 1890, by Queen Victoria to establish the Institute of Journalists, previously known as " The National Association of Journalists." Among the first members were Sir Algernon Borthwick, Sir Edwin Arnold, Justin McCarthy, and Harry Furness.

The object of the Institute was to promote " whatever might tend to the elevation of the status and the improvement of the qualifications of all members of the Journalistic profession." To this end it obtained power under the charter to devise measures for testing the qualifications of candidates for admission to the membership of the Institute by examination or by other tests.

Under the society's by-laws there are two professional classes of membership, Fellows and Members; and a class of junior members consisting of persons over 16 years of age, undergoing preparation for professional membership. The society also includes Associates and Honorary members, who are non-professional.

Members must be not less than 21 years of age, and their qualifications must include not less than three years' professional experience upon the staff of a journal, or as contributor to journals, or in some other journalistic capacity approved by the council of the society. Members of recognized professional standing or of especial experience or distinction may be elected as Fellows. Persons of either sex may become Members or Fellows of the Institute. Fellows are entitled to append to their names the letters F.J.I., and Members, M.J.I.

Associates are persons who, by their connection with journalism, " are qualified to concur with Journalists in the advancement of the Profession."

Junior Members are admitted on having passed the Institute Examination; or on having passed one of the recognized examinations which include Matriculation, University Locals, and similar tests. The Institute examination is similar in nature to those named, and is intended to afford evidence of good general school education.

The benevolent work of the Institute includes an Orphan Fund for maintaining and educating orphan children of journalists; a Benefit Aid Fund, to provide aid to journalists in need, especially in cases of unemployment; and a Provident Fund, insuring members against age, sickness, death, incapacity, or other misfortune.

The society has also a Committee of Arbitration and Conciliation to consider disputes arising out of professional grievances, and provides professional and legal aid for its members in defence of their rights. For the use of its members, the council has laid down elaborate rules of professional usage in news correspondence.

Every member on his election receives the diploma or permanent certificate of the society; and, as long as membership continues, an annual or small certificate.

The Hall of the Institute is in Tudor Street, London, E.C.4.

JOURNALISTIC EDUCATION.—In the many discussions which have taken place on the subject of journalistic education, there has usually been someone to say "that a journalist is born, not made." The saying has some element of truth; but the inborn talent, which is the chief element in the making of a journalist, will be fruitful of good work in the degree to which it is informed and guided by a sound education, systematically acquired. Alertness, initiative, resource, imagination—these are natural qualities; but the journalist, even though he possess them, will be a superficial workman unless his natural capacity be reinforced by a great deal of general knowledge and an acquaintance with the technicalities of newspaper production, at least on the literary side. It is true that a man may be a writer for the Press—and, to that limited extent, a journalist—without having any knowledge or experience of work in a newspaper office. The door is open, and will probably always remain open, for such men, and women also; and this it is which differentiates journalism from other professions. One cannot "drift" into the law, or medicine; but persons trained for these and other occupations are constantly "drifting" into journalism. It has been a standing difficulty in the way of establishing any standard of qualification or attainment for entry into the profession.

We are concerned here, however, not with those who drift in—they are proportionately to the whole a small and probably diminishing number—but with those who, in their early years, resolve to make a career on the Press. There is not in the United Kingdom any generally accepted course of study for such persons; but various schemes have been propounded, and from these it will be possible to derive a trustworthy impression of the basis of knowledge which will be found most useful in newspaper work.

Training in a Newspaper Office. Two lines of advance are open to the youth who desires to become a journalist. He may enter a newspaper office as a boy, or he may pursue his studies to any stage up to a university degree and then seek an appointment. The second course will, other things being equal, naturally produce the better work, and the better paid work. The boy who is compelled to obtain employment at the age of 14 or 15 will have a harder fight, and will always be handicapped by his educational limitations; still, the career is open to him, and he will succeed if he has sufficient of the inborn qualities already indicated. The system of apprenticeship has in the past yielded many excellent journalists, and though the system has of late years tended to decline, there are a number of good offices, mostly of weekly papers, where a very good training can be obtained under indenture, on payment of a small premium. Supposing, however, a boy cannot pay a premium, or find a capable and conscientious editor who will accept him as a pupil, he can make no better start than in the reading room as "copyholder" to the corrector of proofs. Some journalists of the present day, occupying good positions, have served apprenticeship as compositors; but there is no better starting point for a poor boy than that found in the reading-room.

Courses in Secondary Schools and Universities. It is, however, the systematic course of education associated with the secondary school and the university, supplemented by specialized training, that all concerned for the future of journalism will wish to encourage—and this in the interest of the public as well as of the profession—for the newspaper has become the public educator, the text-book of the great democracies. The first essential of a good journalist is to know the facts he has to write about, the second is to express them clearly and accurately, the third—if this be his function—is to argue from them soundly and convincingly. He must, therefore, have a well-stored mind, the gift of expression, and a logical faculty. All these things depend largely on education and training.

The University College of Cork (*q.v.*) led the way in the United Kingdom in the establishment of a curriculum of studies for those who may intend to adopt the profession. It is a special course for the B.A. degree and (or) diplomas. The first year subjects are general (history, English, etc.). In the second and third years there is added a journalistic seminar, including descriptive article writing (in part founded on visits to museums, works, historic sites, etc.), leading article writing, paragraphing, and reviewing. During these years, opportunities are afforded to students to attend lectures from time to time on the professional aspects of journalism, and they are strongly advised to acquire a thorough knowledge of shorthand. Secondary subjects, optional for the degree examination, are logic, jurisprudence, and constitutional law, and the law of evidence, of libel, and of commerce. Diplomas are given to students who have not taken the full course. The obligatory subjects for the degree, in addition to the journalistic seminar, include economics and geography; and a commercial course, comprising finance, credit, and banking, the economics of transportation, industrial organization, insurance and tariffs. It was a bold and interesting experiment, but—perhaps because of the war—has not been very successful in attracting students.

Another guide to the requirements of a student of journalism is to be found in a scheme prepared in 1910 for the foundation of a School of Journalism in association with the University of London and the London Education Authority. The scheme was drawn up for the Institute of Journalists, and is set out fully in No. 72 of the *Proceedings of the Institute* (May, 1910).

Under this scheme it is proposed that students should enter at about the age 17-18, and the educational work would extend normally over two years. It is divided into two branches—professional and academic. The former would include the preparation and condensation of reports; proof reading; the writing of articles, with a view to gaining knowledge of works of reference and other sources of information (an important thing in everyday newspaper work); criticism of essays and other literary training; instruction in the general principles of law, especially in relation to the Press; and general instruction in the methods of compiling, printing, circulating, and managing newspapers, and in the production of books. Some of these subjects can at present be acquired only in the practical work of the newspaper office; and, probably, experience of this kind will always be the best school for the

purpose, if it can be obtained under proper conditions and is based upon a good foundation of general education.

The war arrested the development of this and other schemes of instruction for intending journalists, but the conditions incidental to the demobilization of the Army promoted a revival both of office tuition and of university training for journalism. By co-operation of editors and directors of newspapers with the Appointments Department of the Ministry of Labour and with the Institute of Journalists, many ex-service men were placed or replaced in office pupilage. A very important step was also taken by the University of London. Responding to proposals of the Institute, and collaborating with the Appointments Department and the Board of Education, the Senate of the University adopted a scheme of courses for journalism, leading to a diploma. The courses opened in October, 1919, and there was a large enrolment of students, including some women. The work is governed by a Journalism Committee, composed of members of the Senate and the Board of Studies, and journalists experienced in different branches of the profession, with the Dean of Arts (Sir Sidney Lee) as chairman. The studies are, in the main, courses in higher general education, but are planned on such lines, and adapted in such details, as will afford diversity of knowledge and breadth of outlook, rather than specialized concentration on a more limited range of subjects. Extending over only two years (in some cases less), they allow time for practical training in the actual services of journalism, within limits of a reasonable period of serious preparation for the profession. For many students, if not for all, at least a short pupilage in a newspaper office, or some equivalent position, is presumed to have preceded or to follow the course. Also, such subjects of practical utility as shorthand (of a professional standard of efficiency) and typewriting are presumed to have been acquired before, or to be studied concurrently with, the University courses, unless special grounds of exemption from these subjects are recognized. The syllabus and regulations are issued by the Secretary of the Journalism Committee, University of London, South Kensington, S.W.7.

Journalistic Education in America. Opinion and practice on the subject of journalistic education are more fully developed on the other side of the Atlantic than in the United Kingdom. The University of Missouri was among the first—if not the first—to place this training on the same plane as the training for other professions, with special organization, separate faculty, and separate courses of study. Professor Walter Williams, himself an old journalist, is Dean of the Faculty.

Statistics gathered at the close of 1915 show how strongly the need for professional training in journalism has impressed itself upon the educational institutions of the United States. No fewer than sixteen universities offered instruction in journalism through separate departments or schools. Throughout the United States, the total enrolment of students in journalism courses at universities or colleges was 2,021, of whom 419 were women—the increase over the enrolments of 1914 being 25 per cent.

It is not considered that the award of a degree in journalism makes a journalist; but "it is expected," says Professor Williams, "that the student who faithfully pursues these courses will be more thoroughly equipped for high service than he who has not had such training." This is the root of the matter. It is not essential to the making of a journalist that he should have had a specialized training for the profession; but, other things being equal, the better and more thorough the training and education he has received, the better journalist he will become. J. SYKES.

JOURNEYS, IN ELEMENTARY EDUCATION, SCHOOL.—The term "School Journey" was first applied to day excursions for educational purposes; and, so long ago as the '80's, the students of Westminster Training College received practical instruction in this method of teaching from Dr. Joseph Cowham, their Lecturer on Education.

When the Board of Education recognized open-air instruction, day excursions were included under the heading "Visits to places of educational interest," and the term "School Journey" was reserved for excursions on which the children slept away from home.

Apparently the first definitely organized long-distance journeys took place in 1896, when two young assistant masters (Mr. H. E. Edwards, of Liverpool, and Mr. G. G. Lewis, of London), on their own initiative and unknown to each other, made their first essays in school travel. It is interesting to note that these young pioneers knew nothing of the school journeys of Germany—a blessing in disguise, for the English school journey developed along essentially British lines, with an absence of the cast-iron military organization so characteristic of everything German.

In the *School Journey Record* for 1912, Mr. de Montmorency, in comparing the school journeys of different countries, expresses the opinion that "the best English School Journeys are the most efficient for their purpose of correlating all parts of the school work. These journeys have a sanity of organization and elasticity that are almost exclusively their own." This elasticity is probably due to the fact that for the first ten years the English pioneers had to experiment in their holiday time, and were, therefore, quite free from any official restraint.

When the Board of Education, in 1906, sanctioned school journeys in term time, the wealth of experience accumulated by teachers was such that they were able to convince both inspectors and doctors of the sanity of their methods and organization.

Because of its greater need, London has taken a foremost place in developing the movement; and, in 1918, over 100 London schools sent parties to the coast and country side. In 1911 a School Journey Association was formed to collect and interchange information for mutual help, and to bring to the notice of education authorities suggestions for the easier working of school journeys. It is pleasing to know that their suggestions have received most favourable consideration in every case.

Organization. To arrange for the safe conveyance, board, lodging, and education of a party of from twenty to sixty, or even 100 children for a week or fortnight, obviously calls for considerable organization. Under the Education Act of 1918, Education Authorities may not only provide teachers and equipment, but also pay for transport, board and lodging. The Board of Education will pay one half.

The better class schools usually make arrangements with a temperance hotel or large boarding-house to take the children from 14s. to 16s. per child, per week. Some teachers, especially ex-service men, organize a camp, in which case education has to give way somewhat to domestic duties. A " Retreat " is always well equipped for feeding a large number, but not usually for sleeping. In this case, a tea-room may be turned into a dormitory, with children sleeping between blankets on bags stuffed with straw. Other schools board the children out in cottages at 10s. a week, a plan which relieves the teachers of much responsibility, but robs the journey of several of its most valuable moral influences. The German school tramp has been tried, but is not popular. It is not easy to get fresh lodgings every night, nor is it pleasant to drop into them with clothes wet through.

One of the latest developments is the Ashley Camp House at Loughton, on the edge of Epping Forest. A disused British school has been equipped with dining-hall, dormitory, kitchen, and baths by Sir John Kirk, of the Shaftesbury Society, which allows schools to use it at cost price, viz., 10s. per week. Something of this kind will probably be the most economical solution of the financial problem.

The poorest London schools were for some years helped by a fund raised by Lady St. Helier.

Open-Air Studies. The educational work attempted is extremely varied—its nature being influenced by the teaching material available, the aims and special interest of the teacher, and the age of the children. In some cases, the work is concentrated on some particular subject. Thus, the first London journey to Malvern was occupied very largely with geology, while others have been almost entirely devoted to practical mensuration, or plant ecology. Generally, however, teachers are impelled to plan a more extensive programme. Although taken in school time, the children or their friends have saved up for " a holiday," and they will, at least, expect to see all the sights of the district. The teacher, too, finds it difficult to resist the claims of interesting geographical, historical, and industrial material. Generally, then, the School Journey has a special bias in one direction, but embraces also observation and instruction in a number of others. Thus, Hastings would obviously suggest an historical trip, but the call of wave action and seashore life would be irresistible. Beaconsfield supplies a good literary journey, having associations with Milton, Gray, Waller, Burke, and Disraeli in the immediate neighbourhood, but few teachers would ignore the chalk of the Chilterns and its distinctive flora.

Among some of the more popular centres may be mentioned: Chepstow (river work and history), Abergavenny (coal mining and mountain making), Shanklin (geography, geology, and naval defence), Dovercourt (port and naval defence), Dymchurch (farm life), Darley Dale (river work and history), Stratford-on-Avon (Shakespeare), Loughton (Nature study, geography, and history).

Teaching Methods. Generally speaking, a " guide book " is prepared on the hektograph, or cyclostyle, containing programme, maps, and notes on the work. This is placed in the children's hands some days before the trip, and lessons are given in the class-room previously. During the journey, rough sketches, with short notes, are taken at intervals; and, if a wet day occurs, these may be elaborated into essays. Specimens are collected and brought back to school. On the return, a revisory lesson is given, and accounts are written in essay form.

G. G. L.

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JOURNEYS IN SECONDARY EDUCATION, SCHOOL.—With the birth of curiosity came man's impulse to go out and see. Here is the primitive origin of educational journeys. The senses provide food for the mind—for thought, imagination, and emotion.

Teachers and books have developed ears and eyes into channels of verbal instruction.

It is significant that every great educational renaissance has been accompanied by the revival of observation and of travel; for first-hand experience is essential to the understanding of everything. All interpretations of books and of life must rest ultimately on personal experience. Since the Renaissance, and especially since Locke and Rousseau urged the importance of direct contact with Nature, educational methods have laid more and more stress upon the need for observation and experiment. The equipment of secondary schools with laboratories, workshops, geography and French rooms, art rooms and gardens, shows that the importance of first-hand experience for older pupils is being more fully recognized.

The Aims of a School Journey. The school journey is one method of bringing the pupil into direct contact with the matters which he is expected to understand and discuss. The kindergarten is able to introduce most of the things dealt with into the school, but experience must progress with, or rather in front of, instruction; and for older pupils it can often be got only outside the school walls. Hence educational visits and journeys are an important general means of education. A visit to a museum, a factory, a botanical garden, a theatre or a concert, is not less an educational visit than a journey to Winchester or Paris. We find all types of teachers, giving their pupils that wider experience which makes their subject more intelligible, interesting, and valuable.

But while the school journey is invaluable as supplementing school work because it brings pupils into the outer world, it is not less valuable in correcting false or half-true impressions. In the laboratory and the classroom many things are studied as specimens which suggest or illustrate principles or facts. Thus, lifted out of their environment, they are shorn of many natural relations and lose in meaning. The gaps are filled in, often unconsciously, by wrong ideas. The school divides and isolates for convenience, for concentration and closer observation. The school journey presents some part of the world as a going concern. Things are seen in their natural environment and right proportions. It re-assembles; it correlates.

A visit to a quarry, a cathedral, a wood or a hill, creates a background for the study of geology, architecture, trees, timber, or contours, which will facilitate and enrich the teaching, prevent many wrong impressions, and correct others. These lessons do not exhaust the value of such experience. They gradually shape the child's outlook and interests, and inform his mind in those ways and in those matters in which class work is least successful. A visit to France will often reform a boy's

attitude towards his French lessons, and give them a new meaning. It will enrich his vocabulary, add to his general knowledge, provide some atmosphere for the lessons and, maybe, implant some feeling for the language itself.

Among the most valuable results of a successful school journey are those broad and subtle experiences of Nature and of man which influence deeply both mind and character. Pupils of all ages receive impressions suitable to their point of development. Adolescents who experience the solemn beauty of a cathedral, the mystery of a pine forest, the brilliance of a summer night, or the suggestions of an ancient city are cultivating both their imagination and their emotions.

When the school, with its characteristic restraints, is left behind, the personal relations of pupils to each other and to their master are changed. New interests and new enthusiasms create new contacts and sympathies. A journey is not less fruitful in improved and diversified personal and social relations than is the playing-field, and the individuals most affected are often those not attracted by games and scout work.

Educational journeys have a special value for secondary schools. The value of travel in sweeping away narrow prejudices and in developing insight, tolerance, courtesy, and confidence has always been recognized. These qualities are particularly desirable in those who are to hold positions of responsibility and influence. The indirect and general influence of school journeys alone is sufficiently great to warrant their use. In laying his general plan, the teacher will, if possible, free his pupils for some part of the time for independent inquiry and activity with the aid, perhaps, of a guide book.

Organization. It is generally best to visit a strange locality first without pupils, plan the itinerary on the spot, and make all arrangements with local authorities, caterers, etc. Teachers in the locality are often able to give valuable help. The inquiry offices of continental towns will supply much information, but the best terms are made on the spot. Each means of travel has its own advantages. The slower travel by road, river, or canal gives a much more intimate knowledge of the country and its people than do rail journeys. Railways are, unfortunately, not very helpful to secondary schools. To obtain the cheapest fares, pupils must be under 14 years of age. Those over 14 and teachers pay single fare for return journeys. With the present high railway fares, motor transport is often cheaper and much more adaptable,

On the Continent, the minimum number of pupils of any age is usually ten; often the teacher gets a free pass.

The desirability of school journeys abroad is often questioned. Much depends on the school, the teacher in charge, and the pupils; but certainly school journeys should begin at home, and gradually widen their scope. Pupils of 15 are young enough for foreign travel.

In England, the cheapest and one of the most interesting means of travel is by canal. All the navigable canals south of Birmingham are clean and suitable for this purpose, and some (*e.g.* the Kennett and Avon Canal) pass through beautiful and interesting country. It is best to embark some distance from London. The cost of travel is low; living and sleeping (in hammocks) on board the boats are very inexpensive. The slow progress gives ample opportunity for attention to Nature study, geography, local history, architecture, etc. Bristol and Warwick have been found excellent centres for visiting respectively the South Wales district and Shakespeare's country. The life in this moving camp is a healthy and happy one, and provides the widest range of valuable experiences of any type of journey.

It is assumed that pupils pay their own expenses. If the master lays modest plans at first, and increases the range of the journey as the pupils grow in experience and years, it will be possible to take journeys lasting a week or a fortnight as soon as it is desirable to do so.

Teachers who have power to organize and control, will find school journeys and visits full of interest and value. The element of sacrifice involved is more than repaid by the mutual understanding and the spirit of *camaraderie* that develop, as well as by the sharpened interests, wider outlook, and increased intelligence shown in the classroom.

H. E. P.

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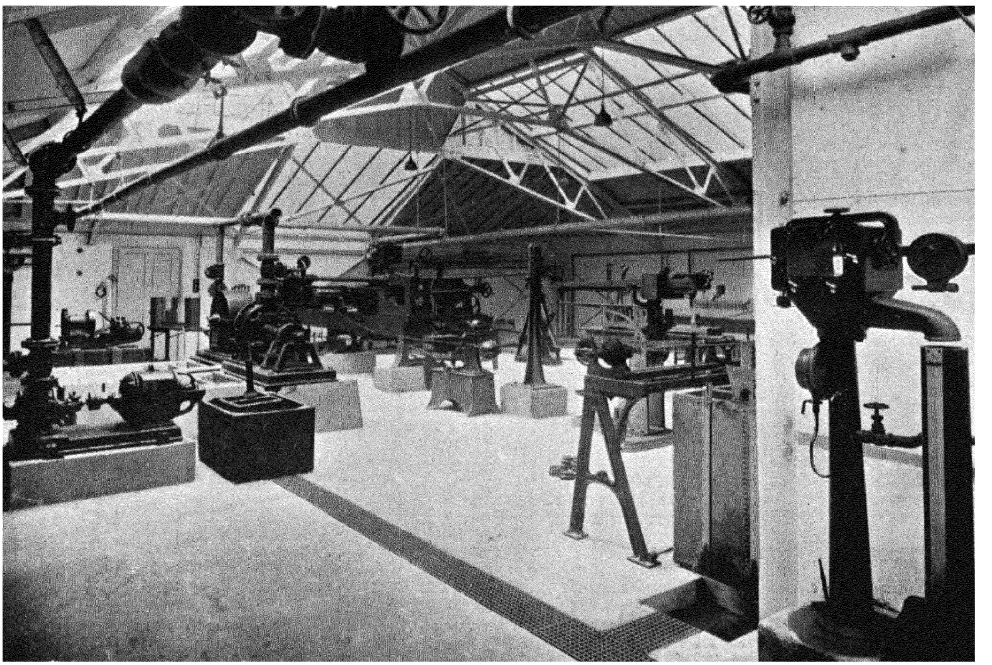
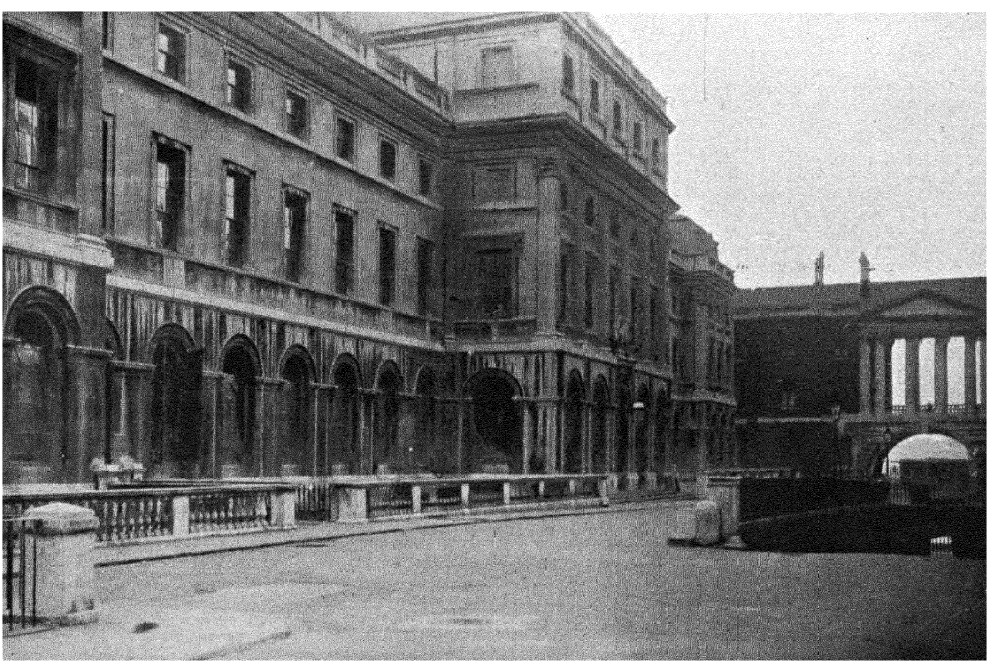
JOWETT, BENJAMIN.—He was, when I first knew him in 1863, about 45 years old, and had long been not only Fellow and Tutor of Balliol College, but also Regius Professor of Greek in the University of Oxford. Living as he did in the transition from catechetical lectures, in which the learners had to answer questions, to epidictic lectures, in which the teacher delivers himself of a declamation, Jowett lectured in a manner which partook of both styles. It is surprising how many subjects he taught in his half-dialectical, half-dogmatic way: he lectured on Sophocles, Thucydides, Textual Interpretation, pre-Socratic Philosophy, The Stoics, the Gospels, Plato (above all), and Aristotle's *Politics*. During this last course, I heard him say: "Aristotle, though he cited many historical illustrations of political principles, is not to be pitted against the great historians. In fact, we know far more and far less about Greek History than we suppose; far more from the contemporary historians, Herodotus, Thucydides, and Xenophon; far less from all other sources whatever." His mind was stored with such pithy and piquant sayings; and his genius lay, not in a continuous harangue, but in isolated remarks, which to the superficial might appear jejune, but in reality went to the heart of the subjects. It was the same in his tuition. When a pupil read him an essay, Jowett said little; but what he said was *multum in parvo*, and such as to reveal unsuspected defects. Once, in an essay written for him on Aristotle's *Ethics*, I declaimed with juvenile enthusiasm Aristotle's *dictum*, "There is no being good without being wise, nor wise without being good"; but Jowett interrupted me with the laconic remark, "I do not think that true at all." From that moment I began to avoid exaggerated antithesis, and to acquire limitation of statement.

Jowett as a Teacher. What was the secret of Jowett's teaching? He knew man and men, and was himself most human and humane. He devoted himself to his pupils. He never lost sight of them: in term, in vacation, in after-life. He not only taught them, but started their careers, and became their life-long friend. He has been accused of



The Hydraulic and Materials Laboratory, King's College, University of London



King's College and Quadrangle, University of London

PLATE LV.

favouritism to aristocrats. No charge could be more unjust. Jowett's favourites were able men of all sorts and conditions: the able rich, in order that they might fill their place, the able poor, in order that they might rise in the world. It was he who as Vice-Chancellor procured for needy non-collegiate students the erection of a fine building next the university schools. Moreover, he cared for ability of all kinds—mental and bodily. He was an ardent supporter of the removal of university cricket to the university parks; and he did not rest till he had procured a like benefit for his own college. To his comprehensive mind, education meant the development of all man's capacities for good—physical and psychical; speculative, moral, political, religious. But he always required some ability, objecting only to those who are good for nothing. Above all, following his masters, Socrates and Plato, he did not try to import knowledge into the pupil's mind, but helped it to bring forth knowledge by its natural power. In short, because he was a man who knew men, loved them, and taught them to think for themselves, Jowett was the greatest teacher of our time. Hence also his influence on education in general. He enlarged the scope of learning and teaching, and opposed their separation. When Mark Pattison, the apostle of learning, proposed to divide the classical school of Literae Humaniores into three special schools of scholarship, philosophy, and history, Benjamin Jowett, the apostle of liberal education, won the victory over this attempt to separate the inseparable. His idea was to make the classics the bridge from antiquity to modern times. So, also, his books were designed to instil the wisdom of the ancients into the souls of the moderns. He, therefore, devoted much literary skill, first, to editing the Epistles of St. Paul, and afterwards to translating Plato, Thucydides, and Aristotle, in the forlorn hope that the Greek spirit might inspire even those who knew no Greek.

Jowett as a Philosopher. Like all great men, this great teacher had his failings. His intellect was subtle rather than strong. He seemed to go far, but stop short of the goal. He was always thinking, reading, talking, and writing philosophy, without becoming a great philosopher. Being of an academic turn, he was content to regard philosophy as our different thoughts about the same things; and he distrusted first principles, about which he said to me: "The so-called laws of thought are partly untrue, and partly trivial." So, in 1892, when many asked him to publish his sermons, his answer contained the characteristic objection that "the truths of theology are supposed to be eternal, but the fashions of theological opinions change from year to year." To be interested, not convinced, was one of his defects. At first he encouraged the study of Kant and Hegel at Balliol. Long afterwards, when I asked him what he thought about Hegelianism, his reply was: "Hegel said many brilliant things, and taught us to look at both sides of a question; but his philosophical principles and system are not to be accepted." But by this time the Hegelian philosophy was not only rooted in Balliol, but had branched out into the University and darkened the Church. The fact was that Jowett's character was a compound of strength and weakness, which fitted him to be studious rather than profound, to have insight without foresight, and to start movements which he lived to regret. Nevertheless, this mixed character did not mar his teaching, but afforded us an example to prove that it is one thing to be a great teacher and another to be a great thinker; and that the art of teaching needs not so much the overpowering strength which forces men into a system, as the insinuating subtlety which induces each man to think for himself. T. C.

JUDGMENT.—The term "judgment" is used philosophically to express the act of thought in making assertions. Two problems, therefore, arise concerning (1) the assertion as an event in the history of an individual mind; and (2) the content or meaning asserted. The former problem belongs to Psychology, the latter to Logic and Metaphysics.

Judgments or propositions—the terms are used almost interchangeably, the proposition being the judgment so expressed as to exhibit its logical structure—are held in formal logic to be analysable into three parts: subject, predicate, copula. S is (or is not) P. On this basis, judgments are distinguished in three ways: (1) according to *form* into categorical (or simply assertive), hypothetical (or assertive under a condition *e.g.* if S is M, it is P), and disjunctive, (or asserting alternatives within a system—*e.g.* S is either P or Q); (2) according to *quality* into affirmative and negative; and (3) according to quantity into universal and particular (*e.g. all* S is P, and *some* S is P).

Such a classification is artificial; and, though it is useful for the purposes of formal logic, it represents no vital process of thought. It divides a single act of thought into two elements and an external relation. Much discussion has taken place as to the nature and justification of that relation. There are two main views. The relation is taken to be either that of substance and attribute, or that of inclusion or exclusion between two groups of things. On the first view, S is taken as a thing, or group of things, of which an attribute P is predicated. The difficulty here is that we can group things together to stand as the subject, only because they possess some common quality. Hence the conception of attribute must enter into the subject as well as into the predicate. This difficulty operates also against the second view; and there is the additional objection that, if the judgment expresses merely a relation of inclusion or exclusion, it tends to become purely quantitative, and ultimately equational in form.

Neither of these views is satisfactory, or accounts for the function of judgment in relation to knowledge.

The Relation of Judgment to Knowledge. That function may be expressed in three characteristics (*cf.* Bosanquet's *Essentials of Logic*, Lecture II). Judgment is (*a*) constructive; (*b*) universal; (*c*) necessary.

(*a*) In making any significant assertion, we express and expand our knowledge of the real world. We say that something is true (*i.e.* we take some event, or feature, or quality, and assert that this belongs to the real world as we know it).

And (*b*) we say that, in being true of the world as we know it, our judgment is true of the world as it is (*i.e.* that others, if they can be brought to see the grounds of our judgment, will equally assert its truth).

For (*c*) every judgment has grounds, and is so far the expression or embodiment of a system. It is connected with every other judgment in which we interpret reality, and is supported by, and

supports, our whole construction. Its truth or falsity involves that of the whole system in so far as it is organic to that system. If the judgment is thought out in all its implications, its necessity is the necessity of the whole.

This implies that the judgment cannot be isolated from the system of reasonings which constitutes the individual's knowledge of the real world. It is the concentration of that system into one articulate expression. In the same way, the judgment cannot be regarded as a compound of two terms or concepts originally indifferent to it. There are not *two* ideas in judgment, but *one* content which is asserted to be true of Reality. "Reality is the ultimate subject of every judgment." And the form which the judgment takes in our ordinary speech is the product of an analysis of this one thought-content; and, at the same time, the assertion that this content qualifies the real world. "S is P" ultimately means that "Reality is such that the content S-P belongs to it." S and P cease to exist as separate elements of the judgment: they are distinguishable functions within it. The copula is not a link between two unrelated ideas, but the expression of the unity of the whole judgment. Thus judgment is at once *analytic* and *synthetic*—an analysis of one content, and a synthesis of two distinguished aspects within the unity of the real.

This conception of the nature of judgment reflects back on the classifications of formal logic. It is necessary, *e.g.* to distinguish between different kinds of universal judgments, and especially between that which expresses a mere enumeration and that which indicates a necessary connection of attributes. The latter is the true type of universal judgment, for here the relation between S and P is not simply coincidence, but an analysed and intelligible, universal, and necessary connection. The advance of scientific knowledge is from a universal of the first type to a universal of the second.

In the same way, the inter-relations of the various forms of judgment become apparent. A judgment is not either categorical or hypothetical, or disjunctive. Since all judgments assert (or deny) a content of reality, they are categorical. But, since all judgments have in some degree an internal necessity, they are hypothetical. In proportion as they approach genuine universality, they more naturally take the hypothetical form. And the disjunctive form is the union of categorical and hypothetical in which the system S-P is articulated into various alternatives compatible with the nature of that system.

The question of the *modality* of judgment (*i.e.* whether it is probable, assertive, or necessary) is soluble from this point of view. Every judgment has a ground; and its modality is simply the measure of the degree or kind of its connection with the general system of our knowledge.

Finally, negative judgment is, equally with positive, an expression of the systematic character of knowledge. To deny a predicate is to assert the inconsistency of that predicate with the system within which it would fall. And, where knowledge in any sphere reaches the level of complete system (*i.e.* where perfect disjunction is possible), affirmative and negative judgments are equivalent in power.

H. J. W. H.

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JUDGMENT, INDIVIDUAL.—(See INDIVIDUAL JUDGMENT AND ITS EXERCISE.)

JUNIOR SCHOOLS ASSOCIATION AND FROEBEL SOCIETY.—Founded in 1874 and incorporated in 1891, this society has as its object the advancement and reformation of Infant Education along lines suggested by progressive experts in the subject.

Free evening lectures are given in London and elsewhere. The Society has a scholastic agency in connection with the Society for kindergarten and junior form teachers and for governesses. There is a reading room with a lending and reference library.

The organ of the Society, *Child Life*, is published monthly.

JUNIOR TECHNICAL SCHOOLS.—(See ART EDUCATION AND INDUSTRY.)

JUNIUS FRANCISCUS (1545-1602).—Born at Bourges in France, is chiefly known for his edition of the Latin Old Testament, to which he added a version of the New Testament. His son, also Junius Franciscus (1589-1678), was brought up in Holland by his brother-in-law, Vossius, a professor of Leyden, who brought him to England in 1624. He was a student of Gothic and Anglo-Saxon, and published a Gothic version of the Gospels and works on ancient art.

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KANT, IMMANUEL, IN RELATION TO EDUCATION.—The work of Kant entitled *Ueber Pädagogik*, published in Königsberg in 1803, the year before his death, and included in all the collected editions of his writings, was edited by his friend and former pupil, Friedrich Theodor Rink, to whom Kant, in his old age and failing strength, committed the lecture notes of his unpublished professorial courses. The book is a small duodecimo of less than 150 pages. It belongs to the period of Kant's greatest intellectual activity, though published in his extreme old age. A University rule required one of the Professors of the Philosophical Faculty to give public lectures on Pedagogy two hours a week to the students. Kant took up this duty in his turn, and delivered altogether four semesters: two in the session 1776-1777; and two, ten years later, in the session 1786-1787. In each he took for his course a standard text-book. The title of the first course was *Pädagogik über Basedow's Methodenbuch*, and for the second he took Bock's *Lehrbuch der Erziehungskunst* (Königsberg, 1780). The *Ueber Pädagogik*,

however, contains no references to these text-books. Rink, the editor, was himself a student at Königsberg when the 1786-1787 lectures were delivered; he was Privat-docent and Extraordinary Professor in the University from 1795 to 1801, and a preacher in Danzig from 1801 to his death in 1811.

There are translations of the *Ueber Pädagogik* in all the principal languages, and there are two recent English translations. These are: *Kant on Education*, translated by Annette Churton, with an Introduction by Mrs. Rhys Davids (Kegan Paul, 1899); and *The Educational Theory of Immanuel Kant*, translated and edited with an Introduction by E. F. Buchner (Lippincott's Educational Series, 1904). The latter of these contains, in addition to the translation of the *Ueber Pädagogik*, a collation of passages from Kant's general works directly bearing on educational theory.

Scope of the "Ueber Pädagogik." Kant, in his early life, had had experience of tutoring, but he disliked it and felt himself not specially qualified for it; and he is reported to have said that he had never been able to apply the excellent precepts of his own *Pädagogik*. The story gives the flavour of the book, which is not a treatise on Education, although the word "Abhandlung" appears at the head of one of its sections. It is a series of excellent precepts, drawn up on the basis of what must have seemed at that age an eminently rational and kindly view of human nature. The philosophical ideas of the great *Critique* occasionally shine through, but there is no systematic attempt to connect the philosophy itself with a theory of education. The influence of Rousseau is very manifest, not only in the actual references to his writings, but also in the concept of "Nature" as a directing influence in education. Another writer whose influence seems to pervade the book is Sterne, and one of the precepts is delightfully and effectively illustrated by the story of Uncle Toby releasing the fly: "There is room enough in the world for thee and for me." An allusion is also made to an experimental system of education of that time, known as the Philanthropinen of Dessau.

The original work is not divided, as the translations are, into numbered sections and separate chapters. It consists of an introduction occupying about a quarter of the whole, which gives a general survey of the principles which ought to guide the educator; and this leads to the subject of education itself, which is divided into physical and practical or moral, education.

General Principles. Man, he tells us, is the only creature who must be taught. All other animals have instincts, and therefore have no need of education. This apparently applies, however, only to essentials, for he thinks that birds learn their song from their mother, and he gives a quaint description of the process. Sparrows, too, he declares, if reared by a canary and kept from hearing the twittering notes of their kind, will learn the canary's song. Teaching the human being includes his nurture, his discipline, and the forming of his character; for man is successively suckling, stripling, and scholar (*Säugling, Zögling, und Lehrling*). Education is necessary only up to the age when man becomes himself capable of engendering offspring. Culture (*Bildung*) may extend beyond this period, but it is not a necessity. In physical education, nature is the main guide and director, and as much as possible should be left to its direct influence. He even suggests that writing might be naturally acquired, and in support of the suggestion argues that the first man who acquired the art could not have been taught it. There seems to him a sharp distinction between the man and the child; the perfect education (physical) would make a man at maturity fully reasonable. "It is really extraordinary how reasonable men can sit by the hour and shuffle cards. It is not, it seems, so easy for men to leave off being children."

The moral education is also based on a view of man's nature. Is man by nature morally good or bad? He is neither, for he is not by nature a moral being. He becomes a moral being only when his reason has developed ideas of duty and law. We may say, however, that he has a natural inclination to every vice, for he has inclinations and instincts which would urge him one way while his reason would drive him in another.

Religion is morality applied to the knowledge of God. In teaching a child religion, we must first begin with the law which is in him. This law within us we call conscience.

This last remark, recalling, as it does, the ethical doctrine of the *Critique of Practical Reason*, indicates the whole standpoint from which education is regarded by Kant. The precepts and maxims, and their order and arrangement, rest on a theory of human nature, according to which the powers of the man lie dormant in the child; and are drawn forth, not acquired, by the individual in his education. H. W. C.

KARKOV, THE UNIVERSITY OF. — (See RUSSIAN UNIVERSITIES.)

KAY-SHUTTLEWORTH, SIR JAMES PHILLIPS. —The son of Robert Kay, of an old Lancashire yeoman family, James Phillips Kay was born at Rochdale in 1804. At the age of 20 he entered Edinburgh University to study medicine. Having graduated M.D., he settled as a physician in Manchester. His work there lay, from choice, among the lowest classes of the population, and brought him into prominence, not only as a physician, but also as a social reformer. In 1835 he was appointed an Assistant Commissioner under the Poor-law Act passed the year before. In this connection he laboured first in the eastern counties, and afterwards in the metropolitan district.

The experience he gained was important, not only for the education of pauper children, but also, as the event proved, for elementary education at large. The first employment of pupil teachers was in a Norfolk workhouse at his instance; and, later, he introduced the pupil-teacher system into the poor-law schools of London. His conviction of the utility of the plan was confirmed by what he saw of its working during a visit to Holland in 1838. Again, finding great difficulty in procuring teachers "acquainted with the organization and management of elementary schools, and skilful in the application of approved methods of instruction," he founded, in 1840, with the help of his friend Carleton Tufnell, the Battersea institution for the training of parochial schoolmasters. In laying their plans, the two friends had taken a long Continental tour, and learned much, especially from the normal and industrial schools of Switzerland. At Battersea great attention was paid to improved methods, such as the phonic method of teaching reading, the Mulhäuser system of writing, and the fixed-doh system of teaching singing.

Work as Secretary of the Committee of Council on Education.—Meanwhile (1839) the Committee of Council on Education had been established, with Kay as permanent secretary. He held this post for ten years, and laid the foundations of modern State-aided education in England. His experience had convinced him that no progress could be made without properly qualified teachers. Undaunted by his failure to create a State Normal School, he secured that the money intended for that purpose should be handed over to the great voluntary societies for the building of residential colleges; and the institution at Battersea was transferred to the National Society and made available for the general training of elementary teachers. For fifty years (1840–1890) the training of teachers was carried out entirely in these residential colleges, managed by voluntary societies and subsidized by the State, according to the plan laid down by Kay-Shuttleworth. Another measure was the appointment of school inspectors, more, however, at first, for the collection of accurate information than for the direct improvement of the schools. In his zeal, he often failed to appreciate the intensity of religious rivalries, and this was practically exemplified in the matter of appointing inspectors. The difficulty was surmounted by an agreement that one of the archbishops should have a veto on the appointment of an inspector of church schools. The inspectors found that the teachers in charge of the existing elementary schools were largely the flotsam and jetsam of the labouring and small trading classes; and no wonder, because the teacher often had an income "very little greater than that of an agricultural labourer, and very rarely equal to that of a moderately skilful mechanic." Kay-Shuttleworth found that the monitorial system, which had hitherto been relied upon, stood self-condemned, and, in the famous Minutes of Council issued at the close of the year 1846, his plans for setting up the pupil-teacher system, and enabling the ex-pupil teacher to proceed to a training college by means of a scholarship, were fully elaborated. The committee and its secretary had enormous difficulties to encounter. There was an extreme church party which claimed national education as the church's province; an extreme nonconformist party which opposed State interference in any shape or form; a party which conceded the necessity of State intervention, but contended that religious teaching should be left entirely to the churches, and excluded from State-aided schools; a party which advocated "right of entry" for all churches alike; and a party which believed it best to continue to work through the voluntary societies. Through thick and thin Kay-Shuttleworth adhered to the last of these as the only practicable solution, and so he became the real author of that denominational system which remained unmodified till 1870, and to this day has left a deep mark on English elementary education.

Later Work.—In 1849, a breakdown in health compelled him to resign his post, at the early age of 45, when he received the well-deserved honour of a baronetcy. Relief from the duties of office led to his recovery, and he lived to complete his 72nd year. In the latter part of his life he published several works, including *Public Education as affected by the Minutes of the Committee of Council from* 1846 *to* 1852, *Four Periods of Public Education, as reviewed in* 1832, 1839, 1846, *and* 1862, and *Thoughts and Suggestions on Social Problems.* He actively opposed Lowe's Revised Code of 1862, but had the mortification of seeing some of his best work spoiled by the operation of that instrument. In 1870 the honorary degree of D.C.L. was conferred on him at Oxford, and in 1870–3 he served on the Royal Commission on Scientific Instruction. He died in London in 1877.

Matthew Arnold has well said of him that though he was not a man of high cultivation, nor a good writer, nor a genial and even-tempered administrator, and though he left on many persons the impression of a man managing and designing, if not an intriguer, yet his faith in popular education was "no intriguer's passion. It was heroic, it was a gift planted by Nature, and truly and earnestly followed, cultivated, and obeyed. And he, who had this clear vision of the road to be pursued, had a clear vision also of the means towards the end. By no other means than those adopted by him could a system of public education have been then introduced in this country." T. R.

KAZAN, THE UNIVERSITY OF.—(See RUSSIAN UNIVERSITIES.)

KEATE, JOHN (1773–1852).—Educated at Eton, he became assistant master there in 1797 and headmaster in 1809. He was a little man about 5 ft. in height, and in 1809 the staff at Eton was so small that he had charge of about 170 boys of the upper school in one room. The discipline was extremely bad, and Keate had a long and severe struggle to secure supremacy, which was attained only by continual and merciless flogging. On one day in 1832 he flogged eighty boys, but his courage and real kindliness of heart made him very popular, and they cheered him after the great flogging was ended. As a teacher he was not fond of new methods, but encouraged school debating societies. When he retired in 1834, the upper school contained 570 boys but there were still only nine masters.

KEBLE, JOHN (1792–1866).—A brilliant Oxford scholar, who associated with Edward Pusey and John Henry Newman in writing *Tracts for the Times* (1833). His *Christian Year* (1827), had already assisted the Oxford movement, and placed its author in the first rank of religious poets of the century. In 1831 he was appointed Professor of Poetry at Oxford and distinguished himself in criticism as well as in poetry. His other poetical work is contained in *Lyra Innocentium* (1846) and a collection of *Miscellaneous Poems.* His *Praelectiones Academicae* in Latin, mark him as an accomplished critic.

KELLER, HELEN. — (See DEAF-MUTISM AND EDUCATION.)

KEMPIS, THOMAS Á.—(See BRETHREN OF THE COMMON LIFE.)

KENNEDY, BENJAMIN HALL (1804–1889).—He was the son of a Scottish schoolmaster and poet, and from his father acquired a love of learning and an admiration for poetry. In 1819 he became the pupil of Samuel Butler, who, as headmaster, had made Shrewsbury school one of the first in the country. Kennedy rapidly reached the head place in the school and gained renown for his Latin verse.

At Cambridge (1823–1827) he gained many distinctions, and in 1827 returned to Shrewsbury as assistant master for a year. After taking pupils at Cambridge, and teaching at Harrow, as assistant master, he became in 1836 headmaster of Shrewsbury. He held this post till 1866, and during that time the boys of the school held an unequalled reputation for classical learning. Under very unfavourable conditions Kennedy taught the upper boys of this school of 140, and the innumerable distinctions gained by them prove him to have been the greatest classical teacher of the century. His work was characterized by energy, an infectious enthusiasm, and a real love of knowledge for its own sake. After leaving Shrewsbury he became Regius Professor of Greek at Cambridge, and held that office till his death. During those years he took an active part in the business of the University. His *Elementary Latin Grammar*, originally published in 1843, was adopted by the nine chief public schools in 1862 as a basis of the new Latin Grammar, *The Public School Latin Primer*, 1866, to be used in all public schools. Kennedy revised the Primer in 1888. His *Public School Latin Grammar* is the most thorough and complete work of the kind.

KEPLER, JOHANN (1571–1630).—He was born in Wurtemberg and educated at Tübingen, where he studied chiefly mathematics and astronomy. He became professor of mathematics at Gratz in 1593, and in 1599 went to Prague to assist Tycho Brahé in his work. He remained at Prague for eleven years, and then for fifteen years was mathematical lecturer at Linz, dying in poverty at Ratisbon in 1630. Kepler's great work was to extend the investigations of Copernicus, who in 1530 had established his theory of the solar system and the revolution of the planets round the sun. Kepler, after many years of patient study and the failure of many speculative theories, established the famous "Kepler's Laws." In 1609 he published the first two laws, (1) Each planet moves in an elliptical orbit, of which the sun is one focus; (2) As the planet travels, its radius vector covers equal areas in equal times. These laws formed the basis of Newton's discoveries. The third law, published in 1619, was that the "square of a planet's periodic time is proportional to the cube of its mean distance from the sun."

KIEL UNIVERSITY.—Was founded by Duke Christian Albert of Holstein in 1665, and under his rule flourished as a seat of learning. Danish wars after his death led to the decline of the University, which was under the Kingdom of Denmark till 1864, since when it has been Prussian. New buildings were erected in 1876. The chief faculties are philosophy and medicine, and women are admitted as hearers.

KIEV, THE UNIVERSITY OF.—(See RUSSIAN UNIVERSITIES.)

KINAESTHETIC SENSATIONS.—These sensations arise from the movement and exercise of the muscles, and are conveyed to the brain by means of sense-organs in the muscles, tendons, and joints.

KINDERGARTEN, THE.—It was not till the nineteenth century that there was any definite movement towards providing training for children under recognized school age (*i.e.* 6 or 7). In 1816 the first infant school was opened in Lanarkshire by Robert Owen, a millowner, to provide shelter and care for the young children of his workers. The plan was carried on by Samuel Wilderspin, whose efforts led to the founding of thirty-four infant schools in Great Britain; this was followed up by the organization of training departments for teachers in these schools. The whole movement arose, not from any independent desire to educate infants, but from the rapid development of the factory system, which had drawn into itself thousands of young children, who worked for long hours under intolerable conditions.

About 1870, the infant school might be regarded as firmly established; it was modelled largely on the Senior School, and the infants were regarded simply as immature beings; the chief aims were instruction and good behaviour, and the best products in the eyes of teachers were the "infant prodigy" and the "infant saint." This was far removed from the more enlightened concept of Owen in 1816.

There was no recognized provision for the young children of the richer classes: it was not the fashion to send them to school, and in most families there was a governess; for older children, there were private schools of the type described by Dickens and Thackeray, as well as public schools for boys. There was a smaller middle class than now, and for their children there were dame schools.

The Early Phases of the Movement. The first kindergarten was opened by Friedrich Froebel, in 1837, at Blankenburg, in Thuringia. Twelve years before this, he had embodied most of his principles in his greatest work, the *Education of Man*. The Baroness Von Marenholz Bülow, one of Froebel's most faithful followers, came to London in 1854 to promote the kindergarten movement there; one of her strongest supporters was Charles Dickens. The first kindergarten was begun at 32 Tavistock Place, Bloomsbury, by Madame Ronge and Madame Kraus-Boelte. The National Society's Inspector, as the result of a visit to it, sent in a report condemning existing infant schools. At the International Educational Exhibition of that date, there was a Kindergarten exhibit; and the American representative to the exhibition, Dr. Henry Barnard, was so much influenced, that he wrote on Froebel's System to the *American Journal of Education*. This was the first introduction of the movement to America. During the following twenty years, kindergartens were established; and Kindergarten Associations were formed at Manchester, Dublin, Bedford, and in various districts of London, especially Croydon, Hampstead, and Bloomsbury. They were among the people of the wealthier classes.

Between 1870 and 1874 considerable development took place. In 1870, the London School Board was established; in 1872, the Girls' Public Day School Trust was founded: both organizations influenced the movement. In 1871, a sub-committee of the School Board recommended the introduction into infant schools of "some of the exercises of hand and eye, such as are given by the Kindergarten System." Many of the high schools had a kindergarten attached. It was very evident, therefore, that teachers for both kinds of schools required to be trained. In 1874, the Froebel Society was founded for propaganda purposes, and, in 1876, examinations for teachers were established by each of the different Kindergarten Associations. As this was

found to be unsatisfactory, a Joint Board was formed in 1887 with representatives from each Association, and is now known as the National Froebel Union. Its function is to hold examinations and grant certificates to teachers of kindergartens, infant schools, and junior forms and standards of senior schools.

Since the establishment of kindergartens more than fifty years ago, the development of the movement has been internal rather than external, and in application rather than in principle.

The earlier kindergartens were extremely decorous and organized. The teachers were trained in the *system* of Froebel, though some of them caught his spirit and thus saved the system. The work centred round the gifts, occupations, and games for the most part, though the Nature Lesson and Story likewise found a place in the curriculum. The use of the gifts was almost a ritual: the children examined the bricks in the old object lesson manner; they built, at the teacher's dictation, sequences of structures which developed one from the other without destruction of the previous form, and without waste of material. Tablet-laying, stick and pea work, were similarly organized. Occupations centred round prepared and almost patented materials. The best example is the use of paper. Only certain forms and sizes were recognized (*e.g.* the 4-inch square and triangle). Certain "groundforms" were stereotyped, and from these sequences of objects were folded or cut, to represent objects familiar to the children. Frequently the resemblance was very slight, for development in complexity was the underlying principle, and the relationship of each piece of work to its predecessor and to its successor was very important. The connection of the object made with the children's surroundings had, of necessity, to be forced, as the main thing was the geometrical and constructional development. This fantastic logic also dominated drawing, painting, and the weaving of paper mats. The games centred round a song of Nature, or of family life, or of some trade. There was a certain sentimental beauty about some of these, and the playing of them by the children was touching, and often moved adults to tears. But they were not, as they were intended to be, self-expression—for the movements were all, to say the least, "suggested" by the teacher. They were not children's games, though the children often enjoyed them; but only as rhythmic exercises, or as a change from sitting still. The stories were subject to rigorous censorship as to what might and what might not be referred to: the Nature period can be better described as a "lesson" than as activity of any kind. But all this took the place of the dame school or the private governess, and many teachers began to understand the spirit: the more enlightened kept it alive.

In the infant school, things were worse. The term "kindergarten" was regarded as a subject, and appeared on the time-tables in the same sense as reading and writing. For example, a head mistress of thirty-five years' professional standing, remarked, as late as 1906: "We have Kindergarten on Wednesday afternoons, and then it is over for the week." As an applied lesson, kindergarten meant the use of either gifts or occupations in the way described, or the "playing" of games. But even this interpretation made a difference: a kind of lightening of the atmosphere of the school was taking place. Froebel's system was giving way to Froebel's spirit. Between the *Education of Man* and the earlier kindergartens there was a great gulf, which was beginning to close, though there is still a considerable aperture.

Changes in Great Britain since 1870. Most of the changes can be traced to a different interpretation of the spirit in which Froebel conceived the kindergarten: instead of his more definite instructions and, above all, instead of the books of his earlier disciples, the kindergarten teacher goes to the *Education of Man* for inspiration; and for application, where her own experience is not sufficient, she goes to such modern interpreters as John Dewey, Karl Groos, Stanley Hall, and to the practical work of the best modern kindergartens. One of the fundamental changes in the British kindergarten is the very elastic programme, almost an outline only, which depends on the events of time and surroundings, on the children's more immediate needs, and on such daily happenings as cannot easily be foretold. The events of life and the needs of life are the dominant influences, and we have got this largely from Dewey's essay on the *Child and the Curriculum.* The child's living interests make the programme.

One of the external differences is in what were known as "gifts" and "occupations." The terms now used are descriptive of the change—toys and handwork. Instead of the formal and changeless bricks, tablets, and sticks, we have the ordinary toys of the nursery, used very much in the method of the nursery as far as community life allows. Instead of the prescribed materials of the occupations, we have the materials of everyday life, even down to the odds and ends we call waste. And the method is that of experiment and discovery. To Dewey, again, we owe this change: from his courageous experiment described in *The School and Society*, as well as his essay on the *Psychology of Occupations*, but no less foreshadowed in Froebel's *Education of Man.*

It is probable that the music of the kindergarten will be greatly influenced by the work of the school of Jacques-Dalcroze. Long ago, Froebel called attention to the strongly developed instinct for rhythm, on which so much of this work is based.

There was an intermediate period, about the end of the nineteenth century, when we were in the grip of a new form of correlation: the worked-out programme for a week, a month, a term, even a year, was the *sine qua non* of every good kindergarten. The connection of lesson with lesson was often merely a verbal one, though some tried to go deeper, sometimes reverting to the old symbolism of the earlier kindergartens in another form. But it was soon evident that a child's efforts to relate the things of life arose out of his own interests and surroundings, and were not satisfied by an adult-made scheme, which allowed nothing for unforeseen happenings. The tyranny of this, however, is nearly a thing of the past. These changes are evident both in the infant school and the kindergarten: but they are more possible in the latter, where fewer children and better surroundings give favourable conditions.

One of the most hopeful developments in Great Britain is the work of the nursery school, which is excellent in quality, but far too limited in extent. The first was started in 1900 in Greenwich, and since that time others have sprung up in Edinburgh, Birmingham, Salford, Thornton-le-Dale, and in several parts of London (*e.g.* Westminster, St.

John's Wood, Bermondsey, Notting Hill, Somerstown), Deptford. They demonstrate what can be done under right conditions with the poorest children, and they form a socializing and civilizing centre for the neighbourhood.

Development Abroad. In most of the countries of Europe, kindergartens are established to a greater or less extent. In many cases, the earlier form still holds ground, notably in Italy. In the United States of America, kindergartens are widespread; they are largely, but not entirely, incorporated into the Public State School System, and consequently reach all classes.

In Australia, the movement is fairly widespread; perhaps it is most alive in New South Wales. In 1895, a Kindergarten Union was formed, which promoted the formation of kindergartens among both rich and poor. The influence has come largely from America, but the interpretation is broader. One of the best features is the widespread development of the free kindergarten, by which many of the worst districts in large towns have been regenerated. The kindergarten work in India is carried out chiefly through the missionary teachers. Between thirty and forty years ago, the American Mission Board organized kindergartens in Japan, and the movement continues to flourish. A beginning, too, has been made in the English schools of South Africa.

The direction of progress lies undoubtedly in less teaching, less adult organization, and more opportunity on the children's part for creative self-activity and initiative. The kindergartens must sweep away many of their time-tables and programmes. The infant schools must, in addition, clear out their heavy desks, and give space as well as freedom. The formal subjects of Reading, Writing, and Arithmetic must be relegated to their rightful place, the early class of the Senior School—in spite of the dictates of ambitious parents or the promotion-mongering of education authorities. More and more should the maxim of Froebel, interpreted by Karl Groos, permeate the whole institution: "Children do not play because they are young; they have their youth that they may play." It is on this that we should build the future.

H. B. S.

KING ALFRED SCHOOL, HAMPSTEAD.—(See EXPERIMENTAL EDUCATION.)

KING WILLIAM'S COLLEGE, ISLE OF MAN.—The school was founded in 1668, and derived its first revenues from endowments bequeathed by Isaac Barrow, Bishop of St. Asaph, and uncle of the celebrated mathematician and divine. It was re-founded in 1833. The Lieutenant-Governor of the Island is chairman of the trustees and governors. King William's College is a first-grade public school, situated on a farm of about 200 acres, a mile or so from Castletown, the old capital. The buildings are extensive, and include chapel, library, laboratories, gymnasium, sea-water swimming-bath, engineering laboratory, drawing-school, workshops, photographic room, etc. About 150 boarders are accommodated in three hostels, and there are also forty or fifty day-boarders. A number of entrance scholarships, of which six are confined to Manxmen, include two of £50 a year; and there are two scholarships of £30 and £40, tenable at the university, awarded annually. The education provided admits of much specialization in the higher forms, but is largely directed towards the services and professions through the Northern universities.

KING'S COLLEGE, LONDON.—In the year 1829, King's College was founded by Royal Charter "for the purpose of giving instruction in the various branches of literature and science and the doctrines and duties of Christianity as the same are inculcated by the United Church of England and Ireland." The scheme was, for those days, very wide in its scope. There were to be two departments, a Senior and a Junior, the latter of which has ever since been known as King's College School. The Senior department was to provide instruction in religion and morals, classical learning, history, modern languages, mathematics, natural philosophy, medicine and surgery, chemistry, jurisprudence and some other subjects. A building site was provided by the Government within the precincts of Somerset House, and the work of the College began in 1831, five years before the University of London was founded. In 1838, King's opened an Engineering Department, which was quickly widened into a "Department of Applied Sciences," and became the most important in the College. In 1839, the medical school was strengthened by the founding of King's College Hospital in the neighbouring locality of Portugal Street. In 1847, a Theological Department was opened, for the preparation either of graduates or of non-graduates for the Sacred Ministry. As always the pioneer of learning and education, the Church in 1856 set the example of holding evening classes of a university standard. Some of its other ventures, such as the day classes for Home Civil Service candidates, the teaching of Oriental languages and literature, and the School of Practical Art, have proceeded on different lines, the Home Civil Services classes becoming a secondary school under the L.C.C.; the Oriental languages etc. Classes being merged into the School of Oriental Studies at the London Institution, and the School of Practical Art ceasing its activity when the polytechnics had established themselves in a strong position. In 1881, fifty years after its founding, King's established a Department for the Higher Education of Women. The Divinity, Arts, and Science work was, in 1914–15, assigned to King's College, and the Home Science Department now occupies new buildings on Campden Hill.

The reconstitution of London University, in 1900, as a teaching university had an immediate effect on the whole life of King's College. In 1903, with the exception of the professors and lecturers in the Faculty of Theology, every member of the College was exempted by Act of Parliament from making a declaration of membership of the Church of England. University College having, in 1907, become incorporated with the University of London, the Council of King's College, which, by continuing to be only a school of the University, would have been disadvantageously placed in regard to University College, applied for incorporation, which was granted by Royal Assent in 1908. All the secular work of the College that is of a university type (with the exception of the Advanced Medical School) and the Women's Department were transferred to the University's control, but the Theological Faculty remains under the government of the Council of King's College as a school of the University.

Thus, from its original foundation in 1829,

King's has developed into seven important institutions: (1) University of London King's College; (2) King's College Theological Department; (3) University of London King's College for Women; (4) King's College Hospital and Medical School, with the hospital buildings transferred to Denmark Hill; (5) King's College School, now situated on Wimbledon Common; (6) the L.C.C. School at Elm Park, Brixton; and (7) the Civil Service Department, now called St. George's College, situated in Kingsway.

KING'S HEAD SOCIETY.—(See THEOLOGICAL EDUCATION AMONG NONCONFORMISTS.)

KINGSLEY, CHARLES (1819–1875).—He spent his childhood at Holne (Devonshire), Barnack (near Peterborough), and Chelsea. Life at Holne inspired *Westward Ho!*; Barnack suggested *Hereward the Wake*; Chelsea brought him into connection with St. Mark's Training College. After education at King's College, London, and Magdalene College, Cambridge, Kingsley became curate (1842) and rector (1844) of Eversley, Hampshire. He was associated with F. D. Maurice in the Christian Socialist Movement; and his vigorous writing in *Yeast* and *Alton Locke*, and his many lectures and addresses, did much to call attention to the bad conditions under which the poor were living, though remedies came slowly. His writings were too outspoken, and his opinions too advanced for the aristocracy and ruling classes of the day. He became more popular and famous through his novels above mentioned. In *Two Years Ago* (1857) he deals with the cholera epidemic and the evil effects of filthy dwellings and neglect of sanitation, as well as unprogressive religious prejudice. His educational works are very numerous. He was an accomplished amateur naturalist; and his *Water Babies* (1862), *Glaucus* (1855), and *Madam How and Lady Why* are simple scientific treatises of great value. Kingsley was also a poet of the highest class, and excelled as a writer of lyrical verse. His services in many social and national spheres were rewarded in 1869 by his appointment as Canon of Chester, and in the same year he became President of the Education Section of the Social Science Congress at Bristol. His address was printed, and produced a great sensation at a time when all thoughts were turned to national education and Mr. Forster's scheme. He dwelt on "the duty of the State to educate all alike in those duties which are common to them as citizens; that is, in all secular matters, and in all matters also which concern their duties to each other as defined by law." When he died at Eversley in 1875, Kingsley was perhaps the most popular man in England, and his funeral was attended by representatives of every profession, rank, religion, and school of thought in the country.

KINNER, CYPRIAN.—A Silesian by birth; took a Doctor's degree in both law and medicine, and practised both for a livelihood. On his marriage with a wealthy lady, he persuaded her to set apart a large sum for the advancement of educational ideas. The invasion of Silesia by Frederick the Great despoiled Kinner of his property and drove him into exile. For a time he was a colleague of Comenius (*q.v.*) in the preparation of school books; and in 1648, while in sore straits at Dantzig, was sought out by Hartlib (*q.v.*), who wished to call public attention to the ideas of Comenius on methods of teaching. The result was the publication of *A Continuation of Mr. John Amos Comenius' School Endeavours; or a Summary Delineation of Dr. Cyprian Kinner: His Thoughts concerning Education.* The *Delineation*, in a few quarto pages, gives a systematic account of a plan of teaching in which object lessons and the mother tongue play an important part. The writer insists on teaching by "Things," natural and artificial; by appeals to the senses; and by the use of the mother tongue in reformed school books.

KNITTING AND CROCHET, THE TEACHING OF.—Knitting is the art of forming a fabric from a single strand of yarn by employing needles to produce a structure of loops. It was probably unknown in the British Isles before the sixteenth century, though practised on the Continent considerably earlier. Doubtless employed at first for producing hose, it has since widely extended its scope, and a great variety of useful and ornamental articles are now knitted by hand.

Crochet-work in its simplest form is analogous to knitting: it consists in forming a chain of loops from a single thread. The loops are produced by means of a hook instead of needles. In its elementary form, it is a simpler operation than knitting, and probably of greater antiquity; it was not, however, until the beginning of the nineteenth century that its use became general in Great Britain. Its popularity spread fast, and many highly finished crochet cottons, silks, and threads have been manufactured in response to the demand for materials suitable for the more elaborate work. An immense range of articles, useful as well as decorative, are now made with the crochet hook.

Both occupations perform such evident social service, and offer so wide a scope for initiative, that no defence is needed for their inclusion in the curricula of primary and secondary schools. Further, interest in these enjoyable forms of handwork appears to be instinctive, and will, if rightly fostered, certainly survive school life, providing delightful occupation for leisure hours.

The "Specimen" Method. In the past, much time, labour, and material were expended in working the abstract, isolated, monotonous exercises called "specimens." This dreary plan led to unhappy results: it often induced a positive distaste for the work, and its educational value was almost negligible. The method completely contradicted the fact that a child "thinks in order to do." There was no desired goal to reach, no inspiring motive, and thought was reduced to a minimum.

The "Specimen" plan also disobeyed the maxim that teaching should proceed from the concrete to the abstract: it ignored the actual article or garment within the sphere of the child's understanding and interest, and not only began, but frequently ended, with a long series of abstract exercises.

The instinctive lines of a child's development (always a valuable guide) lend no support to the plan of abstract exercises. If a little child is supplied with material, she does not knit a neat little square of no particular use or meaning, but evinces the keenest interest in making a scarf for her dolly or a purse for herself. This indicates the most natural way of approaching the subject. The plan suggested below is an attempt to arrange the teaching of all types of knitting and crochet by embodying them from the beginning in actual useful articles

and garments. This will satisfy the girl's instinct to do and make, and oblige her to think out how to overcome difficulties. The interest aroused is a powerful incentive to sustained attention. The knowledge that the least carelessness may spoil her treasure induces the same thing; and it is impossible to over-estimate the value of an established habit of concentration.

Girls who learn to knit and crochet actual articles and garments will always feel at ease with the subjects, and will acquire an aptitude for planning new and original work which no subsequent adult training could have given them.

Modern Principles. The best general plan of teaching knitting and crochet being, then, to discard "specimens" and to introduce each new point through concrete work, the next topic to consider is the principles which should guide the drawing up of a practical scheme. Briefly they are as follows—

1. The work should be carefully graded, so that the child's self-confidence may be preserved, while sufficient new work is introduced to call forth effort.

2. The time required for completing an article should also be graded, so as to increase gradually with the child's age. A remote end makes no appeal to a little child: small articles provide exercises short enough to sustain interest in the younger ones.

3. In choosing articles, guidance may be derived from the development of a girl's instinctive interests: from the doll's clothes of the small girl to the garments and other articles, supplying social needs, which give dignity to the work of the older girl.

4. A considerable variety of wools, knitting and crochet cottons, needles, etc., should be introduced to give experience in qualities, quantities, and prices. It is advisable for older girls to bring their own materials, because it gives them practice in buying, and judging qualities, quantities, and prices suitable for special garments.

5. The dictates of fashion should be considered, and the lessons should cultivate a spirit of artistic appreciation, teaching how to select materials and colours which are suitable and in good taste.

6. The educational aspects of knitting and crochet in connection with drawing and arithmetic should be kept in view (*e.g.* rough sketches of completed garments, or of the different parts of these, help to give children a clear idea of the work they are undertaking and the proportions of the parts to be shaped. Further educational training is provided by encouraging children to work from written directions. A spirit of independent inquiry may thus be created, and girls will come to rely more and more on their own efforts. In such cases, the full directions should first be discussed with the class, the girls being allowed to ask questions. Necessary points should then be demonstrated by the teacher before the girls set to work independently.

7. Every article should be made to fit the child who makes it or some other child, doll, or doll's house. Even a simple article like a pincushion should be made to a specified size (*e.g.* 4 in. × 4 in.). It is a good plan to keep at school a doll, say 16 in. high, to which children may fit their dolls' garments. To a very large class, a teacher can more effectively teach a new stitch if all the children are working on articles to fit the same doll. After the method of making a garment (*e.g.* a bonnet) has been grasped, children should bring their own dolls; they can then make the garment again, estimating entirely for themselves, from knowledge already gained, the number of stitches required. In making the second article, it is well to encourage the children to introduce variations from the teacher's type, thus giving scope for initiative.

8. The scheme should provide a choice of garments for each class. Each girl may then select those which embody new points to be taught, and need not make the same articles twice.

Teaching Methods. A few general suggestions with regard to conducting lessons in knitting and crochet may be found helpful—

1. It is important to remember that the number of stitches or "chain" required to produce a given width varies with the fineness of the needles or hook employed. The work of individual children also varies so widely in slackness or tightness, that the same number of stitches may produce pieces of work of very different sizes. When it is necessary to assess the number of stitches required to produce work of a definite width, it is, therefore, a good plan for each child to work a small piece of knitting or crochet from which to ascertain the number of stitches which produce unstretched work 1 in. in width. From the result, the number of stitches necessary for producing any width can be calculated.

2. In teaching new points in knitting, the teacher should demonstrate to the whole class by means of large wooden knitting needles and thick rug wool. A very coarse crochet hook and rug wool are suitable for demonstrating points in crochet work. Good blackboard diagrams are, of course, always a valuable help.

3. The following are logical stages in teaching the making of a new garment by knitting or crochet:

(*a*) Let the girls first examine a made-up article or garment, and discuss the kind, quality, and cost of the material employed.

(*b*) The girls should next measure the child, doll, etc., to be fitted; note any variations from the standard size, and discuss the best way of carrying out necessary alterations. All measurements and instructions should be entered in a record book.

(*c*) The teacher should now demonstrate any new points the girls must know before they begin their work. She will subsequently, as the work proceeds, demonstrate other new points to the whole class as questions on these arise.

(*d*) The girls will next proceed independently with their own work; the older girls working as far as possible from the written instructions, and asking for help only when necessary. The garments should from time to time be fitted on the intended wearer, in order to ascertain whether exactness of fit is being produced.

A certain amount of co-operation is often advisable (*e.g.* the older girls may decorate the garments of the younger ones with crochet edging, or sew together for them garments which are difficult of construction). Good social training is afforded by such exercises. (See also NEEDLEWORK, THE TEACHING OF.) E. P. C.

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KNOWLEDGE.—The term "knowledge" is employed in a variety of senses in different contexts. (1) Sometimes it is used in the wide sense of cognition (*i.e.* any kind of mental activity by which we

acquire familiarity with, or insight into, things), as contrasted with Feeling and Volition. It is in this sense that Knowing, Feeling, and Willing are said to be the three functions of Mind. (2) At other times, "knowledge" is treated as the equivalent of "truth" or "true belief" in contradistinction to "error" or "false belief." (3) Sometimes, again, "knowledge," in the sense of "mere theory," is contrasted with "wisdom," or practical insight into the concrete problems of life and conduct. This usage is illustrated in the poet's plaint: "Knowledge comes, but wisdom lingers." (4) Most usually, however, the term "knowledge" is applied to objectively grounded, or adequately supported, belief, in contradistinction to merely personal opinion, or subjective conviction, unsupported or insufficiently supported by evidence. In this sense of the term, the beliefs or doctrines taught by science are typical of what is really knowledge, as distinguished from mere fancy, superstition, or gratuitous assumption. Closely connected with this usage is the use of the term "knowledge" in a kind of collective sense for (5) the whole body of beliefs, or doctrines, considered to be adequately established, and therefore accepted by contemporary men of science.

All science, indeed, all inquiry, has knowledge for its object. "Science," in fact, means knowledge. Usually, however, the knowledge sought is knowledge of certain things or events—say, the stars, or the chemical elements, or certain historical occurrences—not of the process of knowledge itself. But knowledge itself may be, and is, studied. It presents a peculiar complex of problems, in the study of which the mind must, so to say, turn upon itself, instead of being directed outwards, which is its more normal *modus operandi*. Speaking broadly, knowledge presents three kinds of problems—

(*a*) First, there is the question as to the nature of the mental processes by which we come by our beliefs, be these true or false. This is part of the task of Psychology, which seeks to furnish a descriptive or positive account of *all* the activities of the mind, including the various cognitive processes.

(*b*) Secondly, there is the problem of the kind of evidence required in support of that part of knowledge which is professedly inferential in character, and does not profess to be the direct object of observation or intuition. This is the main problem of the study of Logic and Scientific Method, the aim of which is to furnish a connected, critical account of the main types of evidence commonly required and supplied by the sciences.

(*c*) Lastly, there is the problem of the validity of immediate or non-inferential knowledge, the direct observations and intuitions which constitute the data or bases of all our inferential constructions. This is the subject of inquiry of Epistemology or Theory of Knowledge.

Kinds of Knowledge. In connection with most of these problems of knowledge, a distinction is commonly made between (1) direct, immediate, or intuitive knowledge; and (2) indirect, mediate, or inferential knowledge. The same, or approximately the same, distinction is also made sometimes between (1) knowledge by acquaintance, and (2) knowledge by description. The distinction is occasionally employed in everyday discourse (as, *e.g.*, when we distinguish between "knowing" somebody, and only "knowing of" him; or between being "acquainted with" a person or place, and only "knowing about" him or it). Naturally, the distinction is drawn much more finely and critically in philosophical literature than in ordinary discourse. Much that would ordinarily be described as direct knowledge must, from a more critical point of view, be considered as "construction" and "description." Moreover, some writers draw the line of demarcation much more subtly than others, for the subject is a very difficult one, and competent authorities are by no means agreed about it. On the whole, there is a tendency to regard "knowledge by description" as composed of elements with which we have been "acquainted"; and to acknowledge, at the same time, the importance of "knowledge by description" as enabling us to transcend the limitations of individual experience, by bringing within the range of our comprehension things beyond our actual acquaintance.

One other distinction must be briefly referred to, namely, the distinction between different kinds or degrees of knowledge. Some of the oldest Greek philosophers already distinguished between ἐπιστήμη and δόξα ("knowledge" and "opinion"). The distinction was elaborated by Plato and, in modern times, by Spinoza. The essential points may be summarized as follows: There are three principal ways of viewing reality. (*α*) The lowest is that of regarding the world merely as a collocation of fleeting things and events. (*β*) The next higher view is the scientific one, which contemplates the universal laws and connections of things. (*γ*) Lastly, the highest view is that which the philosopher strives after, namely, the view of the essential unity and rational coherence of all reality *sub specie aeternitatis*.

A. WOLF.

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KNOWN TO THE UNKNOWN, THE.—An educational principle quoted in every text-book on teaching. In school practice, it is of cardinal importance; but only because it expresses a necessary psychological condition; the mental process is fundamental and constant, and no advance in knowledge is possible otherwise. Given consciousness and a beginning, all continuation in knowledge is the gathering into the mental content of the known of something till then unknown, and then known only because of its new relationship. The complex of ideas is in constant flux and process of enrichment by the progressive acquisition of what can be coherently and rationally associated with the total mentality as thus progressively modified.

Clearly, then, the unknown is not entirely unknown, or it would remain unknown: it must lie in the same objective universe of observation or thought with the known, and must be capable of subjective grasp by virtue of the existing mental equipment. Clearly, again, the known is never entirely known; each fresh addition is but progress from the known in defect to the known in less defect. We may note, as consequent in school procedure: (1) The preparation of schemes and syllabuses, and courses of instruction and working lists of lessons—all with correlation in view and made pertinent to the attainment and opportunity of the pupil, each lesson growing out of its predecessor and giving life to its successor; (2) aim and purpose as defining the

particular path of progress; and—in the single lesson—(3) questioning to discover and fix the known, and set the special problem of the unknown.

KNOX, JOHN (1505-1572). — A great Scottish reformer, was educated at Haddington Grammar School and Glasgow University. He was a pupil of the famous Scottish schoolman John Major, learned to speak and write Latin fluently, and became skilled in dialectic. He left the University without becoming Master of Arts, and consequently could not become an academic teacher. In 1544 he was a tutor to private pupils, and about that time his association with Wishart led him to embrace the reformed religion. On the establishment of Protestantism in Scotland in 1560, Knox took a prominent part in the preparation of the *Book of Discipline*, which contained suggestions for the religious and educational organization of the country. It contained a scheme for national education, and proposed that money for schools should be obtained by the appropriation of Scottish ecclesiastical revenues. This scheme did not obtain the sanction of the Scottish Parliament, but the new Church took over the superintendence of education. The next six years of Knox's life were largely occupied in disputes with Queen Mary, whom he considered a member of his congregation in St. Giles's parish. His interviews with her are described in his *History of the Reformation*, a valuable contribution to historical literature, which, though showing only one side of the events, is unique as a portrait of the writer's own individuality.

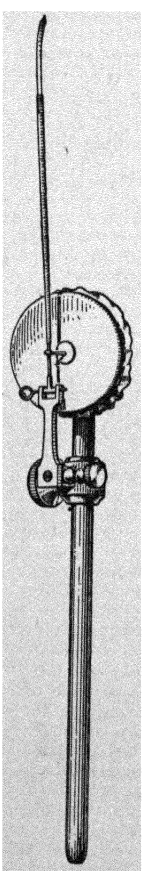

FIG. 1.
A Marey Tambour.

KNOX, VICESIMUS (1752-1821). —He was head master of Tonbridge School from 1778 to 1812. He published, in 1781, in two volumes, a treatise on *Liberal Education*, in which he examined current methods and suggested reforms. He was strongly in favour of classical education, and wrote against a Bill, before Parliament in 1821, to introduce elementary education for poor children into the old grammar schools. Knox, however, was willing to add other more advanced subjects, such as French, history, and geometry to the classical curriculum; and advocated the better education of women. He was also in favour of regular periodical examinations. Among his other writings are a number of essays, school editions of Latin classics, and books of poetical and prose extracts for school use.

KYMOGRAPH, THE PHONETIC. —The kymograph is an instrument for recording minute variations of air-pressure.

The following is a brief description of the phonetic kymograph. The air set in motion by speech movements is caused (by one of the means described in the next paragraph) to pass into a Marey tambour (Fig. 1), and so to affect a very light needle or style. The tambour-membrane is made of some elastic material ("perished" rubber generally gives the best results); the vibrating air causes this material to vibrate, and the end of the style reproduces these vibrations on an enlarged scale. By placing the style in contact with smoked paper on a revolving cylinder, a tracing is produced which shows in white on a dark ground. (Fig. 2.)

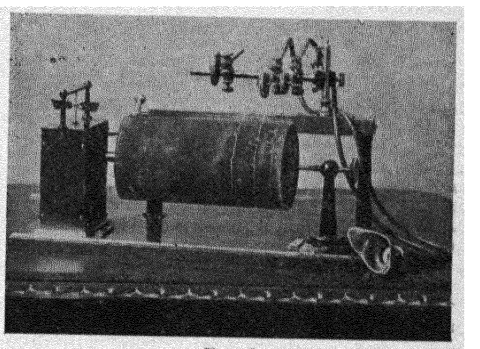

FIG. 2.
A small Kymograph.

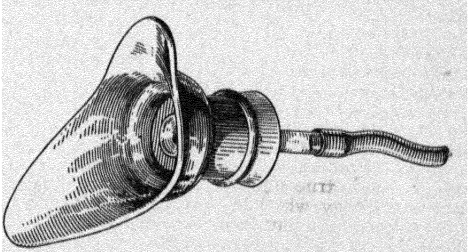

FIG. 3.
A Mouthpiece.

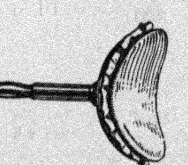

FIG. 4.
A Larynx Indicator.

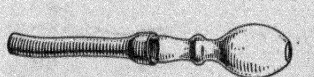

FIG. 5.
A Nasal Olive.

The air-waves set up by speech may be made to affect the tambour (1) by speaking into a mouthpiece (Fig. 3), which is connected to the tambour by a rubber tube; (2) by applying to the outside of the larynx a "larynx-indicator" (Fig. 4), similarly connected to the tambour; (3) by using a "nasal olive" (Fig. 5) to connect the nose to the tambour.

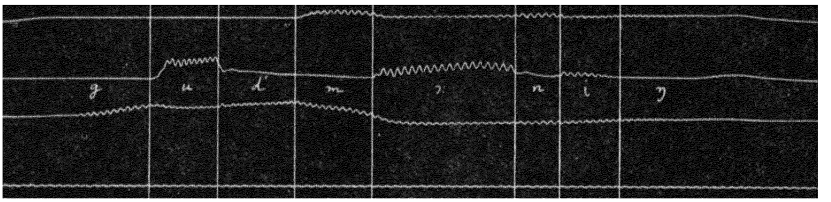

FIG. 6.
Kymographic Tracings.

Any two of the methods, or all three, may be used simultaneously if desired.

The nature of kymographic tracings will be seen from Fig. 6, which shows simultaneous mouth, nose, and larynx tracings of "Good morning" (said on parting). The very small waves are caused by the air set in motion by the vocal chords when they vibrate and produce "voice." The uniform wavy line at the bottom is the record of a tuning-fork giving 100 vibrations per second.

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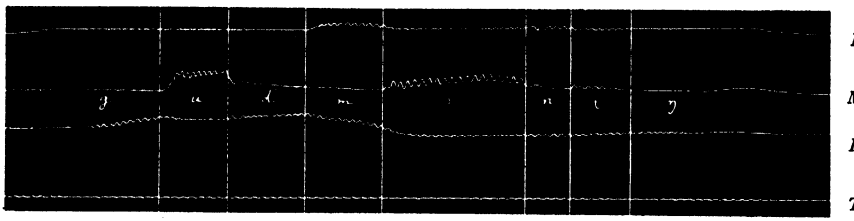

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lever, parallelogram, and triangle of forces can all be carried out experimentally on this frame. One or two strong hooks or rings in the ceiling, so secured that weights up to 50 or 60 lb. can be suspended from them, is the only other necessary fixture for this work: the rest can all be carried out with the usual portable apparatus and machines. The working benches are best in the form of strongly-built tables, with room for four pupils at each, thus leaving plenty of gangway. Their tops should be of hard, unpolished wood. It is convenient if each table has its own water supply, sink, and a " waste " bucket for solids, such as used matches, paper, broken vessels, and so on. Gas must be laid on to each table, though one four-way jet fitment will suffice at the table itself. An upright, to which gauze-rings, etc., can be fixed, is desirable—one rising up midway from each side, joined at the top by a rail for suspension, is recommended.

Whenever possible, a low-voltage supply of electricity should be available at each place, thus avoiding much carrying about of cells and accumulation. If the battery supplying this is charged by its own motor generator, so much the better; fitted with a well-equipped switch-board, the whole plant is invaluable for students. There should be a separate mercury table.

The necessary apparatus for the practical courses should, as far as possible, be kept in the laboratory, and specially distributed to students as wanted. A great saving of duplication is effected if students work together in pairs: thus ten sets of apparatus suffice for twenty students, and no elementary laboratory should hold more than this number, unless more than one demonstrator is available.

There should be a separate room for rather more advanced students, where apparatus, when once set up, can be left for an experiment to be completed at some subsequent period. The standard instruments can be kept in this room.

The detailed apparatus will depend on the syllabuses to which the pupils work, and any good scientific instrument maker will give a quotation for sets. An initial expenditure of about £250 is necessary to provide adequately for sets of twenty pupils in physical practical work; particular instruments can be added subsequently as the need arises.

Chemical Laboratory. The Chemical Laboratory can, with advantage, be over other rooms; but in this case the floor must be of some impervious material, in which channels have been cut for the drains. It is of the highest importance that it should be easy to get at any drain, so as to remove obstructions and keep them clean. The drains themselves should be impervious to acids and other chemicals. This is best secured by using open channels lined with pitch, both from the benches and in the floor. They can be roofed over with wooden panels lying flush with the surrounding surface.

The long continuous working benches usual in advanced laboratories are not suitable in a school elementary laboratory. They prevent the teacher from getting readily from place to place, and thus lead to preventable accidents. If, as is often the case, they are provided with shelves carrying reagent bottles in tiers, they are still more unsuitable, as they entirely prevent the quick bird's-eye view which is essential for discipline. No bench should be more than 8 ft. to 9 ft. long and 5 ft. wide, thus providing accommodation for four pupils; each bench should have a central earthenware sink—two water taps over it and four gas jets.

Underneath each working place there should be a drawer and cupboard to contain the simpler apparatus in constant use—such as tongs, stirrer, one or two beakers and flasks, evaporating dish, funnels, etc. As a succession of different pupils uses each place at different periods during the week, it is not usually possible to store at the working place the material a pupil may require to keep from one period to another. There should be a store cupboard in which such articles can be kept; before any article is removed to this cupboard, it should be labelled by the pupil with his name, and the date and time of the period at which it will next be required. It can then be placed out ready at the student's place.

The objection to continuous benches does not obtain, of course, along the walls or under the windows, if there is any such space available. But there are large demands on the wall space. One or more fume closets for the extraction of offensive fumes and sulphuretted hydrogen must be provided. There must be a strong draught to the flues to ensure the removal of these fumes. Next to the fume closet, there must be a bench with a draught hood for combustion furnaces and evaporations. The drying oven can be conveniently associated with a still for the preparation of distilled water. If there is not a separate balance room, the balances can be protected from the action of acid fumes by glass screens.

There should be a separate table for blow-pipe work. A large sink for washing up, which should have a drying rack near it; shelves for reagents and chemicals, and a frame for standard solutions, and a rack for glass-tubing, are further necessaries. Retort-stands, tripods, gauzes, sand-baths, and so on, can be kept in some recess on the floor under a bench; but retorts and other special apparatus—spare sponges, dusters, corks, cork-borers, etc.—should have special cupboards and drawers.

Initial expenditure on apparatus and chemicals for divisions of twenty pupils will exceed £300. Higher work, needing more costly apparatus, should be in a different room. If power is available, it will be convenient to have a power-plug with ammeter, portable rheostat, etc., fixed. This room should also be provided with a long, continuous bench suitable for carrying out elementary organic work. A metal water-pump, constant-level hot water bath, and such apparatus can be added as necessary.

Biology Laboratory. One set of windows should face north, and be brought down flush to the working bench so as to ensure a suitable light for microscopic work. This bench should simply consist of a plain, smooth top on specially strong, well-fixed legs to avoid vibration as much as possible. This bench and other working tables in the room should not exceed 2 ft. 4 in. in height.

The walls are required for diagrams; for shelves, for specimens and preserved materials; and for cupboards (preferably with glass fronts). Skeletons, skulls, models, and other material are kept in these, and one will be required for microscopes (if they are not in their own cases).

Each pupil should, if possible, have a drawer or cupboard for slides, coverslips, instruments, and other properties. One bench should be reserved for storing experiments in physiological botany, growing specimens, and clinostat work.

If there is no greenhouse associated with the laboratory, accommodation must be found for a vivarium, and living aquatic specimens in glass bowls.

Water and one or two large sinks are essential, and a paraffin bath and incubator are highly desirable, though not vital for elementary work.

As all the working benches must face the window, the dais and blackboard are best fixed across a corner, which the pupils can face by sitting at an angle to their working places.

Apart from the specimens, the necessary apparatus is simple; much of it is best got through the chemical laboratory order. Dissecting instruments can be bought in sets or separately. Ordinary pie dishes suffice for much work: if lined with blackened paraffin wax, they are ready as dissecting dishes. Simple or compound microscopes can be provided, or students can supply their own. Special arrangements must be made for the provision of fresh or living material; and, apart from certain stock types, this presents considerable difficulty.—(See also BUILDINGS, SCHOOL.) A. V.

LABOUR COLLEGE, THE.—This College, situated in London, was founded, in 1909, as a result of a dispute at Ruskin College, Oxford (*q.v.*). It has aimed, from the first, at providing for young Trade Unionists anxious to take a part in the Labour movement a definitely propagandist training in the social sciences. Originally founded in Oxford, it moved, in 1910, to 13 Penywern Road, Earl's Court, London, where it still is. The College has always been governed by members of the working class, and it is now under the management of two of the leading Trade Unions—the National Union of Railwaymen and the South Wales Miners' Federation. In addition to resident students, most of whom hold scholarships given by their Trade Unions, the College provides courses of lectures in various provincial centres, and conducts a considerable amount of teaching by correspondence. The subjects taught at the College include Economics, Sociology, Industrial History, History, and Philosophic Logic. The Economics taught are, in the main, those of Karl Marx and, throughout, the education is definitely Socialist in character. The aim is to train educated men to be the future leaders of the Labour movement. So far, the Labour College has often been in financial difficulties, but it is expected that these will be removed now that it has passed definitely into the hands of two great Trade Unions. In face of the former apathy of the Trade Union movement where educational questions were concerned, it is not surprising that these difficulties have been encountered, especially as the appeal of the College has been weakened by continual conflict with other bodies that attempt to provide working-class education. In particular, it has come into frequent conflict with the Workers' Educational Association (*q.v.*). Its auxiliary propagandist organization, the Plato League, with its trenchant monthly, *The Plato Magazine*, has taken a leading part in these controversies. The Labour College has always taken sides with the extreme section in the Labour movement, and judgments upon it are inevitably coloured by partiality or hostility to these extremists. That its past students are exercising a considerable influence in the Trade Union movement to-day none can deny. Practically all the students return to work at their trades when their course at the College is completed. This course is of either one year or two years, the terms being far longer and the vacations correspondingly shorter than university terms. The tutors are, for the most part, themselves of the working class. G. D. H. C.

LABOUR MOVEMENT AND EDUCATION, THE.—The phrase "Labour Movement" indicates all those moral, spiritual, and political elements which have transformed the outlook of the working-classes and infused new hopes and inspirations into their social and political agitations during the last half-century. The social effects of the industrial era had been, in many respects, deleterious and oppressive to the wage-earning classes, and gave rise to grave industrial and political discontent. But those who undertook the task of social reformation early perceived that their only hope depended upon the enlightenment of the people. Thus, Labour leaders have been consistent advocates of the education of the masses of the people. In the last analysis, the Labour movement itself is the result of the breaking of the balance between a new moral consciousness among the people and the external arrangements of society. The origins of this new moral consciousness lie deep in the spiritual sphere, and can hardly be traced; but we may safely attribute much to the moral and intellectual illumination of the Labour movement by their leaders, who, in their turn, owed a great debt to the various educational influences of their time in the nineteenth century. The great impetus given to freedom of thought by the French Revolution issued in far-reaching consequences, many of which are involved in the subject we are discussing. The Adult School movement (*q.v.*) dates from this period, and Mechanics' Institutes (*q.v.*) began to be founded early in the last century. Another great educational force among the working classes was the Co-operative movement (*q.v.*), which, by its continuation classes for children, by classes and lectures for adults, and by the granting of scholarships, greatly aided the cause of working-class education. Another educational influence among labouring classes was added by working men's colleges (*q.v.*). The earliest was established in Sheffield in 1842. The most famous was that founded in London by Frederick Denison Maurice and his friends. The Vaughan College in Leicester, founded in 1863, is another famous college of this type.

A further influence upon working-class education has been exerted by the establishment of public libraries. Lectures and reading circles are often found in connection with these.

To these educative influences must be added the more direct efforts in recent years of the University Extension Movement (*q.v.*) and of the Workers' Educational Association (*q.v.*).

The Labour Party's Efforts on Behalf of Education. The Trade Union movement (see TRADE UNIONS AND EDUCATION) has had a great educational influence upon its members, and has, in the course of its propaganda, vigorously supported the education of the people. More than thirty years ago, the Nottingham Trades' Council assisted in the inauguration of university extension work, and the greater trades unions have been the chief support of Ruskin College, Oxford (*q.v.*), the council of which consists of university graduates and Trade Union leaders. Though the modern Trade Union and Labour movement has been mainly engrossed with

" material " interests, it is also true that the moral content of their agitations has been the desire for a more humane, a more educated life. This becomes obvious by a consideration of the education policy which Labour has consistently pursued. (1) It has agitated for not only primary but secondary education. (2) It has emphasized the need of hungry children to be fed in order that their education may be physically rendered possible. In 1908 the Gasworkers' and General Labourers' Union demanded (*a*) the Government maintenance of all children attending State-supported schools, many of whom are too faint with hunger to learn; (*b*) medical inspection; and (*c*) free secular education from the primary school to the university. In 1909 the Trade Union Congress made the same demand, adding the demand for " open-air recovery schools," the dissociation of such reforms from the Poor Law, and the significant demand for a Royal Commission to inquire as to the disposal of the educational endowments of the nation (public schools and universities). In 1911 the Trade Union Congress reaffirmed the above, adding that the Commission should issue a report stating (*a*) the history and present value of those endowments which were originally intended mainly for the poor; (*b*) the conditions of scholarships and other aids to education in our universities and public schools; (*c*) the relations with other educational institutions; and (*d*) recommendations showing how those institutions may be brought under full public control.

In accordance with these affirmations of policy, the Parliamentary Labour party in 1906 was " largely responsible for " the Education (Provision of Meals) Act, by which education authorities were given power to provide meals for necessitous children. In 1907 a Bill for making this compulsory was introduced. In 1908 the Labour party put forward a Bill to the same effect, adding provision for the medical examination of children. In 1912 the Labour party at its conference at Birmingham laid down its programme in the following resolution—

" In view of the fact that the education of the mass of working-class children to-day begins and ends at the elementary school, this Conference is of opinion that there is urgent need for a generous measure of educational reform in the direction of providing facilities for liberal, as distinct from technical, education, thus laying the basis of the national life in an educated democracy. This Conference, therefore, directs the party in Parliament to appoint a small committee to consider the general question of educational reform and draw up a report thereon. In this connection the committee appointed is specially directed to consider—

" (1) A modification of the curriculum in primary schools, in order that in the later years of school life more time may be given to instruction in the duties of citizenship.

" (2) The raising of the school-leaving age to 16 years, and the right of children in primary and secondary schools to maintenance allowances.

" (3) The limiting of the hours of boy and girl labour up to the age of 18 to 30 per week, so as to provide 20 or more hours per week for physical, technological, and general training.

" (4) The establishment of medical treatment centres in connection with each primary school or group of schools.

" Further, this Conference urges the party to press the Government to appoint a Royal Commission to consider the matter of university endowments, with a view to their adaptation to the educational requirements of the people."

The Parliamentary party instructed its education committee to consider the whole subject, and the following memorandum was prepared and subsequently adopted by the party as a whole—

The Policy of the Labour Party. " It is impossible within the limits of a report of this character to do anything more than indicate the general lines along which it appears most desirable the educational policy of Labour should be developed. The matters to be dealt with may be conveniently divided under three heads—

" (1) Those concerning elementary education.

" (2) Those concerning continued and secondary education.

" (3) Those concerning university education.

" 1. The matters relating to ELEMENTARY EDUCATION which appear to be of special importance and most urgent in character are—

" (*a*) The raising of the school age. The reports of the Poor Law Commission, the Committee on Partial Exemption, and the Consultative Committee of the Board of Education, as well as previous decisions of the Conference, render it unnecessary to advance arguments for the raising of the school age. . . . It is proposed that an Act should be passed raising the age of full-time attendance by progressive stages beginning with 14 years as a minimum from the 1st of January following the passing of the Act.

" (*b*) A reduction in the size of classes to allow of more individual attention being given to the particular needs of each pupil.

" (*c*) The appointment in the future of fully-qualified teachers only.

" (*d*) The removal of existing restrictions on curriculum and age limit of children in elementary schools, with due provision for their further education.

" (*e*) An extension of the powers of local education authorities in the matter of regulating the employment of children and of street trading generally. It is recommended that local authorities should be empowered to make regulations with regard to the employment of children in any occupation, and to place the licensing of street traders in the hands of education authorities.

" (*f*) The development of medical inspection and treatment, so as to include the provision of school clinics, school baths, open-air schools, and an extension of the provision of meals for school children. For this purpose, the present inadequate grants from the Board of Education should be considerably increased.

" 2. (*a*) CONTINUED EDUCATION. At whatever age full-time attendance ceases, it will still be necessary to provide continued education for the vast majority who do not pass to a secondary school. A system of compulsory half-time attendance at a continuation school is required after the age of exemption from full-time attendance has been reached. This compulsory attendance at continuation classes, however, is out of the question unless the hours of labour are reduced.

" (*b*) SECONDARY EDUCATION. At present, the passage of children from elementary to secondary schools is hindered by a variety of causes—

" (i) Because in some districts only those children are likely to win scholarships from the elementary

Photo by Valentine, of Dundee

Old Building, St. David's College, Lampeter

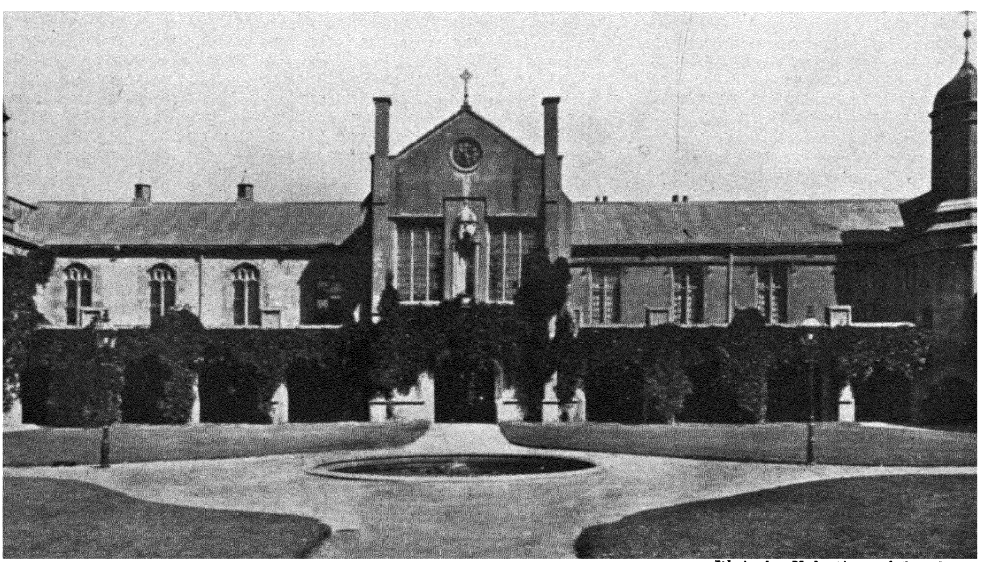


Photo by Valentine, of Dundee

The Quadrangle, St. David's College, Lampeter

PLATE LVI

school who have been prepared for the scholarship examination.

" (ii) Children who win scholarships are constantly prevented from accepting them by the poverty of their parents.

" (iii) The rule as to the provision of 25 per cent. of free places in secondary schools for children from elementary schools is sometimes evaded.

" The only satisfactory method of dealing with these difficulties is a gradual extension of the system of providing free places in secondary schools until they are entirely free, and maintenance grants made available in cases of necessity.

" 3. UNIVERSITIES. What is specially required in connection with the older universities is—

" (*a*) A reform in the constitutions of the governing bodies which would place popularly elected representatives of the public upon them.

" (*b*) A reduction in the cost of living in colleges, and a change in the award of scholarships so that only those students who require financial assistance may receive advantage from endowments expended in monetary grants.

" (*c*) The extension of the non-collegiate systems in order to facilitate the entrance into Oxford and Cambridge of men who do not desire to reside in college."

In 1912 the Labour party appointed a deputation to wait upon the Premier to urge the appointment of a Commission to report upon the endowments and other sources of incomes enjoyed by the older universities. In January, 1916, 500 delegates of the Workers' Educational Association, representing 290 working-class organizations, met in London and passed a resolution against the " war economies " in the educational system of the London County Council. It is significant that in the book *The Child and the State,* published by the National Labour Press, the claim of Labour to the fullest educational facilities is emphatically affirmed.

It is clear from this evidence that the mind of Labour is set upon a complete reconstruction of, and a revolution in, our educational system. It seeks to bring the nation to a change of heart and mind towards working-class children.

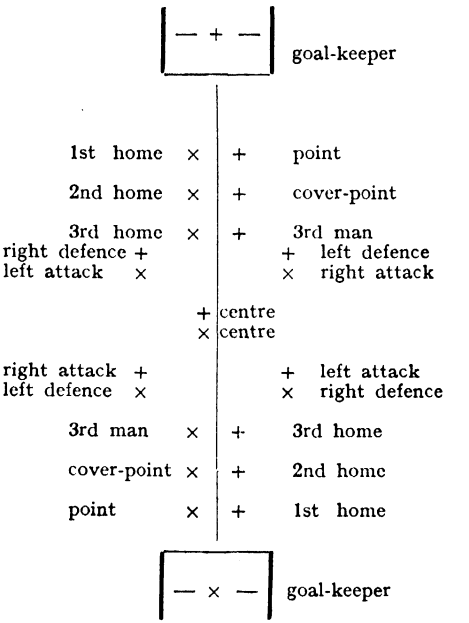
A vista of an educational future for these children has opened before the gaze of the idealists of the Labour movement a fair and wondrous vision of what the nation—the world—might become if education became the inalienable right of children, and if education itself became a true educing of all the latent and " singular gifts of the Holy Spirit " which are theirs. It is this vision which leads Labour to resent some of the present demands for " educational reform " which are based upon the mere idea of increasing our industrial efficiency, and of making Labour, skilled and unskilled, more remunerative to the great productive organizations of commerce. It is this vision which renders even the demand for the training of the working-class children on the grounds of " national efficiency " suspect in the eyes of Labour. The vision which has irradiated the Labour movement calls into existence a new motive, and creates and stimulates a new zeal for the educational redemption of the children of the poor. That motive is rooted in the desire to give to every child the fullness of its inheritance in body, mind, and spirit, and in the belief that only so can the nation's greatest good be achieved. F. L. D.

LA CHALOTAIS, LOUIS RENÉ DE CARADENC DE (1701–1785).—Born and died at Rennes, France; was one of the first magistrates who promoted the abolition of the Society of the Jesuits in France by his *Comptes rendus des Constitutions des Jésuites.* He read two of these reports before the Parliament of Rennes in December, 1761, and May, 1762, declaring that in no country could the constitutions of the Jesuits conform to the law of the land. The Jesuits looked upon La Chalotais as their destroyer in France. After their suppression he developed his ideas on the re-construction of education in France in his *Essai d' Education nationale.* Voltaire wrote to La Chalotais praising his *Essai ;* and at a later period, Chénier, in a speech on the progress of education in Europe, approved La Chalotais's condemnation of the old colleges and his proposals for new schools. A quarrel with the duc d'Aiguillon, Governor of Brittany, led to the arrest of La Chalotais, who was accused of writing seditious letters, and condemned to imprisonment. While in prison he composed a justification of his conduct, which he says was " written with a pen made from a toothpick; with ink composed of soot, vinegar, and sugar; on paper wrappings for chocolate." Voltaire, on reading this memoir, exclaimed: " His toothpick writes *pour l'immortalité !* " The king recognized the innocence of La Chalotais, released him, and stopped proceedings against him; but the influence of d'Aiguillon kept him in exile from Brittany till after the death of Louis XV. The most important work of La Chalotais was his *Essai d' Education Nationale,* which dealt with the reform of secondary education, and proposed a scheme designed to fit the pupil for life as a citizen. He condemned the existing schools as inadequate, insisted on the teaching of modern languages, and the training of lay teachers in place of ecclesiastics, and advocated attention to physical education.

LACROSSE.—This was developed from a game played by the American Indians, in which whole tribes competed with one another, a match sometimes lasting for two or three days. The Canadian settlers adopted and modified it by fixing the number of players, limiting the size of the field, and framing a few rules. It soon became the national ball-game of the Dominion, and in 1867 the National Lacrosse Association of Canada was founded. An Indian team introduced the game to England about the same time, and a number of clubs were formed, chiefly in Lancashire and Yorkshire and in the North of London. It was adopted as an organized school game by certain schools, particularly by the Leys School at Cambridge, and half-blues were given for it at the two older universities.

It is now one of the leading winter games for girls, its great attraction being that, as the ball is chiefly in the air, the body is generally maintained in an upright position. It is a very pretty game, combining speed with skill and grace of movement.

A lacrosse team consists of twelve players. The competing teams are arranged on the field in pairs, each player standing with one of the opposing side, and the game is really a series of small duels. There is endless scope for enterprise and initiative, but success depends upon combination and not upon individual effort.



The Game. When the whistle is blown for the game to begin, the two centres "face" (which is the equivalent of "bully" in hockey). The centre combines the duties of both an attack and a defence player, varying his tactics according as he is playing a winning or a losing game. The chief object of every defence player is to mark his own man, and to do this thoroughly it is best for him to keep between his opponent and his own goal. With this main idea clearly in mind, he will find it necessary to elaborate his scheme. He must be prepared to take a free man (*i.e.* one who has freed himself from his opponent) and leave his own man to be marked by the defence player behind him. This interchanging of defences is only learned by experience and practice, and is the keynote of all good lacrosse play. The centre, though helping the attacks, must, at the same time, do a considerable amount of defence work, as all attack players must when occasion requires. The main object of an *attack* is to get free, and, if his opponent is a persevering player, it will need much ingenuity and resource to evade him. An attack must, however, regard himself as in some measure responsible for his opposing defence, and not allow him a free run up the field and thus start a "free man movement." This is done when a *defence* draws off one of the opposing defence players, and consequently leaves an attack player free to draw off the next defence, whose opponent is, in turn, free to draw off the next defence, and so on to the goal. Should an attack find it impossible to free himself, he may yet be of value to his side by drawing his opponent away from the player who has the ball, and thus making space for another attack to work his way in. An attack player has no respite; he must always be on the alert to form openings for a fresh plan of attack; by this means he will at least bewilder his defence and keep him employed watching these new moves.

Before joining in a game of lacrosse, it is essential to gain some degree of proficiency in the art of handling the crosse. The player must learn how to throw, directing the ball with the right hand at the collar of the crosse and throwing force into the stroke by pulling down smartly the left, which is at the end of the stick. The ball is caught by letting the crosse "give" in the direction in which the ball is travelling.

A good lacrosse player needs quickness of perception and good co-ordination of thought and movement. These qualities will develop as the player becomes more proficient in his use of the crosse and grasps the science of the game.

Lacrosse is, therefore, an excellent training for both mind and body, and a most enjoyable game either to watch or to play. P. L.

LADY MARGARET HALL.—This, the first College for Women to be opened in Oxford, was founded in 1879, the year in which women students were first admitted to University lectures. A small house was taken overlooking the parks and the Cherwell, and here Miss Elizabeth Wordsworth, the first Principal, and nine students established themselves. From this small beginning there has been a steady advance year by year, until quite recently accommodation has been provided for a Principal, a Vice-Principal, several tutors, and some ninety students. There are a chapel, a library, an oak-panelled hall, and various common rooms. The buildings stand in several acres of ground, extending to the banks of the Cherwell, with a boat-house, a hockey ground, and several tennis courts. The Hall is conducted on the principles of the Church of England, with liberty for the members of other religious bodies. The fees have been fixed at £120 per annum, and cover all the necessary expenses of residence and tuition. Three or more open scholarships are offered annually for competition in March, varying in value from £70 to £40. The Hall is governed by a Council, and was incorporated in 1913. It was officially recognized by the University in 1910.

It is the rule of the Hall that students should read for the Honour Schools of the University, and many have obtained high academic distinctions. Since its foundation between 600 and 700 students have passed through the Hall, receiving a preparation for every walk of life and every kind of activity which is open to women. Many are teaching in schools or colleges, many are married; others are occupied in different branches of social service, such as inspecting under the Insurance Act and the Board of Trade; some have entered the profession of literature, some that of medicine; some have given themselves to missionary work in other lands.

In 1897 the Lady Margaret Hall Settlement was opened in Lambeth, under the wardenship of a former student, to provide a centre for work in co-operation with parochial and other organizations in North Lambeth and Vauxhall.

During the war many past students entered hospitals as nurses, while one was almost the first woman to receive a commission from the War Office as medical officer in a military hospital. Many worked as clerks in various Government offices, such as the War Office, the Admiralty, the Casualty, or the War Trade Department; another was in Russia as organizer of the National Union of

Women's Suffrage Societies' Polish Relief Unit, to mention only a few of the many ways in which the students of Lady Margaret Hall have met the claims and recent responsibilities of women.

H. J.-B.

LAGRANGE, JOSEPH LOUIS (1736–1813).—One of the greatest mathematical analysts, was of French extraction, and was Professor successively at Turin, Berlin, and Paris. At a very early age he distinguished himself by the purely analytical form which he gave to Euler's work on "isoperimetrical problems," and thereby founded what we now call the "calculus of variations." The development of this very important subject, together with its many applications to mechanics, formed a great part of Lagrange's life-work. It was essentially founded on infinitesimal ideas; yet, as he says in an early letter to Euler, he used in teaching the elements of the calculus a method which dispensed with infinitesimals; and the foundation of the differential calculus on Taylor's Series and "derived functions" was the great idea in his *Théorie des fonctions analytiques* (Paris, 1797). This and his other famous text-books, *Traité de la résolution des équations numériques* (Paris, 1798) and *Leçons sur le calcul des fonctions* (Paris, 1805), were the fruits of his teaching activity at the École Polytechnique at Paris. He also gave some extremely elegant and stimulating lectures on elementary mathematics at the École Normale in 1795 (English translation, Chicago and London, 1901); his additions to Euler's *Algebra* are referred to under Euler (*q.v.*). Lagrange was pre-eminently a pure mathematician, and his method of founding the calculus is even at the present day of great importance in the general theory of functions; but its immediate object was not successful, and it was replaced in logic and teaching by Cauchy's (*q.v.*) method of limits, which was popularized in Great Britain by De Morgan (*q.v.*). Lagrange also made valuable contributions to the theory of numbers, algebra, differential equations, the theory of sound, and mathematical astronomy. P. E. B. J.

"LAISSER FAIRE" IN EDUCATION.—Those who conceive of education as a vast constructive process, can accept *laisser faire* ("leave alone") only on the assumption of drastic changes in national organization, and must continue to maintain that, without those changes, the policy would be mischievous and absurd.

Laisser faire means good-bye to many things—to clergy in the school, to syllabuses of Biblical instruction, to time-tables and punishments, to schemes of work, and to school routine. Also—for, if *laisser faire* is to apply to the child, it must apply *a fortiori* to the adult (a fact rarely recognized)—good-bye to ranks and hierarchies in the teaching and other professions, to the raids of inspectors, to supervision by head-teachers, to secret reports, and all other devices by which liberty is at present held in check.

That we have to slough off many of our cherished methods of education and administration it is hardly possible to doubt after a study of the recent Holmes-Montessori-Shaw literature and of the Rousseau-Tolstoy literature that preceded it. But the question is: "Whither will this idea of liberty lead us?" Whither, for example, the following proposals, taken from Holmes's *What Is and What Might Be?*—

The school must not give "definite dogmatic instruction in theology." Nor in "patriotism," "citizenship," "altruism," or "morals." The teaching of such matters, if given at all, is to be "entirely informal and indirect." There must not be dogmatic instruction in "number." Nor in "literature," "history," or "chemistry." Nor, outside the usual school subjects, in "business." "navigation," or "driving vehicles." Nor in "any art, craft, sport, game, and pursuit." All these things are to come as matters of "growth."

Mr. Shaw, in *Parents and Children*, catalogued certain tasks which the school should systematically not avoid but attempt. The child, he tells us, must learn to walk, to use a knife and fork, to swim, to ride a bicycle, to acquire some power of self-defence, —not to waste other people's time; that is, it must know the rules of the road, be able to read placards and proclamations, fill voting papers, compose and send letters and telegrams, make purchases, count money and give and take change, and go simple errands and journeys. It must acquire some technical training and know "some law, were it only a simple set of commandments; some political economy; agriculture enough to shut the gates of fields with cattle in them, and not to trample on growing crops; sanitation enough not to defile its haunts; and religion enough to have some idea of why it is allowed its rights and why it must respect the rights of others." Again, he suggests that there is a criminal taboo not only on economics, but on sex knowledge, and that this taboo should be removed.

All this hardly conveys the impression that Mr. Shaw is an advocate of *laisser faire* in education; the extent of his kinship with Mr. Holmes cannot easily be indicated.

Madame Montessori has not yet discussed the senior child and the adult; provisionally we may regard her as a gifted practical teacher, with strong convictions on the value of direct sense-training and of individual liberty.

Arguments in Favour. *Laisser faire* is advocated for two chief reasons—

1. *The vileness of seeking to capture the child's mind before he has power to think for himself.*

2. *The impossibility that, in matters of appreciation (literary, musical, artistic), teachers, who are average people rarely inspired by any inward call to teach these subjects, can create any taste for them.*

There is sufficient truth in these charges to justify an impeachment of our elaborate educational system. Admitted, that the teacher performs a humbly useful function in purveying (see Mr. Shaw's list above) a few necessary habits and ideas which are neither controversial nor too subtle to be beyond the capacity of "bores"—a good *primâ facie* case can be made out for leaving all controversial matters of morals and theology, and all subtle matters of literature and art, to voluntary workers who obey an inner call to teach or create. The function of the State would then be to see that a rich repast of great controversy, great books, great drama, great music, and the like is freely accessible to all comers. Everything would be voluntary in such a system, though everything would also be copious, well organized and cheap; the youth would be allowed to read and see and hear what he liked; the preacher, artist, and author would say and do what they liked; no longer would the professions be money-bound and no longer would the child, youth, or adult be their victim.

It is conceivable that *laisser faire* amid such

possibly Utopian conditions would be an effective as well as a noble educational policy. Certainly the ideal of liberty would at last be nearly realized.

Suggestions. The present system is far from satisfactory. Efficient the teacher is in twenty ways, but he has not necessarily the soul of the artist, the poet, or the prophet. If here and there he awakens a living interest in non-utilitarian things, he is the exception that proves the rule of freedom; he is the inspired one who alone should be allowed to do prophetic or artistic work.

Can improvement come through administration, in view of the fact that administrators are as frequently unimaginative "bores" in their own domain as teachers are in theirs? It is possible that educational machinery might become living machinery; the teacher who "bored" his pupils would then be discovered and employed in less subtle tasks; while brilliance of class-teaching would be rewarded, not, absurdly, by head teacherships, but in sensible ways. Without some such revolution, there is little hope of extensive improvement; the voice of mediocrity, ever defending itself, is the only influential voice heard at teachers' unions and educational boards, and it is not through this voice that the problems here raised will be solved.

The problems, indeed, are serious ones. On moral matters, it is plain that the educationist cannot "stand aside" from the child, seeing that the forces of temptation do not stand aside.

Meanwhile, the proposal that everything is to be taught informally, indirectly, and incidentally must be regarded as an educational joke. The thing is impossible. There must be some central subjects, or, at least, some central training processes. The abolition of time-table "subjects" is conceivable and, perhaps, desirable; but the proposal as it stands is in flagrant conflict with the investigations of the Columbia University psychologists, with their stress on specific training and clear purpose.

The value of the *laisser faire* propaganda must thus remain at present chiefly negative. It is a protest against the lust for authority that lurks in reputable as well as disreputable hearts.

F. H. H.

LAKANAL, JOSEPH.—A deputy in the Convention of 1793, who achieved fame in connection with the organization of public instruction in France. He was not a great man, but we deal gently with the shortcomings of those who accomplish great tasks. For Lakanal, at a tragic time, possessed clear ideas about national education, and persuaded the Convention to adopt them. Declaring education to be necessary for a free nation, he urged the establishment of a primary school for every thousand of the population. So just was his conception of the elementary school that the broad lines of his scheme have never since been modified. Reading, writing, French, arithmetic and mensuration, elementary science, moral instruction, and citizenship formed the foundation as they do to-day. Lakanal would have added swimming, gymnastics, and visits to hospitals, manufactories, and workshops. Moreover, attention was to be given to "handwork"; indeed, the educational reformers of 1880 had less definite aims than Lakanal. They failed to grasp the importance in education of manual training; they did not know how to make science teaching follow manual work easily and naturally as the flower comes out of the plant. Lakanal himself, mentally warped by a purely intellectual education, was influenced by Jean Jacques Rousseau; but, in *Emile*, manual training is a mere episode, without organic attachments to scientific instruction. In Lakanal's scheme it was much the same, nor did he organize it in his great normal school—his seminary for the cultivation of schoolmasters. Notwithstanding this deficiency, Lakanal erected the "vestibule of the great edifice" of public instruction. On 18th December, 1794, he brought forward a draft proposal to establish "Central Schools," creating secondary education. In his scheme an important place was assigned to the ancient literatures, "which breathe a holy patriotism, an enthusiasm for liberty, and that pious hatred which every sentient creature must feel for tyrants." He insisted on the teaching of mathematics, which give the mind "a set towards truth," and on drawing, which he regarded as a means of cultivating the higher faculties. But the crown of his achievement was the foundation of the Normal Schools (25th October, 1794).

Educational Principles. In his very elaborate report to the Convention, Lakanal's guiding principles with regard to education may be discerned. "For the first time since the world began," said he, "Nature, Truth, Reason, and Philosophy are to be endowed with a seminary." The 1,400 or 1,500 pupils, selected in every department of France, were to be taught at the Normal School in Paris by men of genius—who were to be the "first schoolmasters of a nation." Later, the pupils were to go into the provinces to found normal schools there. The pure stream that flowed from the leading minds of the Republic would spread "from reservoir to reservoir." "Peasants' children shall have instructors even better skilled than those whom it used to be possible to gather, at great expense, around children born to wealth. . . . Never again shall there be found in the intelligence of this great nation tiny plots cultivated with minute care and vast wildernesses left waste." The professors were Bernardin de St. Pierre, Lagrange, Daubenton, Volney, Monge, Haüz, etc. Lakanal thought it a good idea for these great intellects to write elementary text-books for the teachers of the future. Unfortunately, the preparation of a primer demands a great deal of thought, for the art of teaching the elements of a subject requires infinite simplicity and lucidity. So it is no wonder we do not now possess the *Moral Instruction* of Bernardin de St. Pierre, the *Elements of Arithmetic and Geometry* of Lagrange, the *Civic Instruction* of Volney, or the *Elements of Natural Science* of Daubenton. Lakanal called these books "the columns on which the educational edifice is stayed." Instruction was to be extended to the whole nation. Every teacher, by means of a weekly lecture to his fellow-citizens, was to stimulate civic enthusiasm. Lakanal hoped that the sentiment of equality and the "need for sovereign law" would thus become "as strong a passion as the love of life and the fear of death." He had a firm faith in the supreme efficacy of education to mould the minds of the citizens into the same national shape, and render immutable the "principles of social order," the "new dogmas . . . the best, the only good dogmas, the everlasting foundations of education." How could this dogmatism co-exist in his mind with the clear views he had of the inductive method? "After centuries of wandering," said he, "the mind has discovered the road it must take: Bacon and Locke

and their disciples have found out for it all possible means of determining direction." Unhappily, experimental methods were foreign to Lakanal's mentality, and he thought he could found a system of dogmatic instruction in liberty. Like most of the revolutionaries, he invoked Reason, yet belief did not colour his mind in its depths. The chief characteristic of the French genius is the belief that the Power behind the universe is intelligent, orderly, and harmonious. Thinkers like Descartes and Malebranche, and writers of the front rank, from Rabelais and Montaigne to Voltaire and Anatole France, believe that a healthy-minded child, allowed to develop freely, will discover of himself the profound laws of reason. Lakanal believed it, but his belief was rather nebulous. So, having to mould a new France, he failed to realize that, educationally, knowledge is of little value—that the essential thing is method. Living in an extraordinary time of wholesale demolition and unrestricted reconstruction, what might he not have done for posterity had he directed education into the channels of experimental and historical method? If only he had realized that, during the years when the mind is forming, attention should be given solely to the means of developing aptitudes, in response to "the soul's prayer for truth!" But men of action seldom enjoy the years of meditation required to bring their guiding ideas to a focus. Such as it is, the work of Lakanal is full of strength, and he could with justice say to the Convention: "Amid unparalleled tempests you rear an everlasting fane, a temple without an archetype." J. P.

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LAKE, C. H.—Founder of the Education Society (*q.v.*); was born in London in 1837. At the age of 16 he began his work as a teacher at Oxford House, Chelsea, under the late John Paxton Hall.

Mr. Hall died in 1861, and at the age of 24, Lake found himself head of a school of 120 boys and ten masters. During his headship of Oxford House, he gained his diploma at the College of Preceptors; and took a First Class in the Theory and Practice of Education, and afterwards graduated with Honours in Moral Science at the University of London. He became a member of the Council of the College of Preceptors; and, in conjunction with Joseph Payne, to whose friendship and sympathy he owed much, he carried out many reforms, which led to the starting of training lectures and the appointment of Joseph Payne as Professor of Education. He was also actively associated with Mrs. William Grey's scheme for training teachers.

Early in the seventies he moved to Caterham, where he established a preparatory school, in which he worked out many of his ideas on the training and teaching of boys. In May, 1875, he convened a meeting, which resulted in the formation of the Education Society, of which he was appointed honorary secretary. Under his care, the Society gradually laid down principles upon which education should be based. Most unhappily for the cause which he had so much at heart, his career of usefulness came to an abrupt end in 1879, when a breakdown in health forced him to give up all work. E. B.

LAMPETER, ST. DAVID'S COLLEGE.—St. David's College, Lampeter, was founded in 1822, on the initiative of the then Bishop of St. David's, Dr. Burgess, who was afterwards translated to Salisbury. In those days the preparation of candidates for the Sacred Ministry was miserably inadequate, and the Bishop, recognizing how difficult it was for poor Welshmen to go to Oxford and Cambridge, conceived the plan of providing them with a college where they could obtain a liberal education in arts and divinity. The place chosen for the site of the new college was the little Cardiganshire town of Lampeter. In response to the Bishop's appeal, generous benefactors came forward with gifts of money, and Parliamentary grants were also received. In 1852 a new Royal Charter conferred on the college the power to grant the degree of B.D., and, in 1865, another charter added the power to grant the degree of B.A., declaring that "the course of education at St. David's College, Lampeter, ought to be extended so as to be equivalent to the ordinary course for a Bachelor's degree in the universities of Oxford and Cambridge." This latter privilege had the effect that Oxford in 1880 and Cambridge in 1883 admitted St. David's to the status of an affiliated college, exempting from some examinations and excusing for a portion of their residence students who have taken the honours course at Lampeter and desire to finish their course at the university. In addition to the Lampeter degrees, the status of Licentiate in Divinity (L.D.) is conferred on students in that faculty who have resided for three years.

Lampeter is entirely a residential college, run on extremely economical lines. It is well provided with scholarships, which give valuable help to the poorer students. These are awarded in theology, classics, mathematics, natural science, history, Welsh, and Hellenistic Greek. The examinations are conducted by examiners appointed by the universities of Oxford and Cambridge. It is worthy of remark that, since 1902, there has existed here a department for the study of architecture, which is now a part of the educational system, and should be of immense value to the parish clergy, the custodians often of beautiful and ancient churches. Lampeter furnishes another illustration of the fact that the Church has always been in the forefront in the matter of education, for it was the pioneer of the movement which has resulted in the establishment of the University of Wales.

LANCASHIRE AND CHESHIRE UNION OF INSTITUTES, THE.—The foundation of the Union was suggested, in 1837, by Sir Edward Baines, in order to improve the plans and management of mechanics' institutions. It came into existence in 1839, its chief aim being to organize systematic courses of lectures for the institutes. In 1847, an effort was made to secure greater interest in the Union by extending the scope of its operations. Progress was favourable until 1851, when the Union declined, and was supported mainly by the then chairman and secretary. In 1863, several prominent people revised the management, and a new life began. H.R.H. the Prince of Wales, K.G. (afterwards King Edward VII), accepted the office of patron of the Union. In 1901, the Union was registered under the Scientific Societies Act. In its early days the Union had a travelling village library, but it proved unsuccessful. The scheme, however, was revived in 1892 to provide suitable books for

But, within the limits of each language, variations of form proceed according to general laws. In English, for instance, it is a general law that the third singular of the present tense is formed by adding "s" to the stem. And such general laws are assumed by scientific grammarians to be universal in their application at some given time or within some given limits. The complexity of grammatical forms is due to the fact that language gathers up into its tradition the effects of general laws of many times and places. We thus reach the important conclusion that, although the association of meaning and grammatical form seems to be arbitrary, grammatical forms present the same supremacy of law which we have learned to find in other sciences.

The student of language, therefore, finds in the grammar an assemblage of principles which give him a sure ground from which to draw conclusions. Hence we must not be content with the mere accumulation of interesting remarks, such as we are accustomed to find in works on syntax. We shall now attempt very briefly to indicate the lines along which we can bring grammar into relation with meaning.

Spoken language is a function of a dialect group: that is, of a society of persons who understand each other in conversation. The term "dialect" is well adapted to denote the human area within which a given form of "dialogue" is possible. The distinctions between the persons of the verb, turn upon the persons of a dialogue: the person or persons speaking, the person or persons spoken to, and the person or persons gossiped about. In the Semitic languages, personal endings are attached to noun forms in the same way as to verb forms. And, generally speaking, the sentence is penetrated through and through with the reference to persons. In other words, language turns upon the repetition of similar states of mind within a given dialect group. Language is thus the expression of a social consciousness.

Language is also the expression of the individual consciousness. When this expression reaches its most perfect form, we have the style of a great writer or speaker. It is a curious fact, however, that in the main language has been studied in its written form only. Shorthand itself has not yet been used enough to transcribe the actual utterance of human beings, as distinguished from their formal and supposed style of speech.

A New Order of Language Study. Language has thus been confined within the limits of a logical grammar. But language has to express emotion and impulse as well. We ought, indeed, to turn our method quite round, and begin with the interjection, the vocative, and the imperative, before we go on to the impersonal statement of fact in the logical sentence. The terms "subject" and "predicate" are taken from the Aristotelian philosophy, and should be replaced by the corresponding phrases "person" and "verb." For example, the Lord's Prayer and the National Anthem cannot be analysed into subjects and predicates in the ordinary way, for they consist wholly of imperative or precative sentences introduced by vocatives.

If we classified sentences as actually uttered, and not merely as written, we should probably begin with ejaculations and imperatives, and refer them to the active attitude of consciousness. Next there would come the declaration of our own feelings, our preferences or dislikes; and along with these the appeal to the feelings of others. Only in the last place do we meet with the unemotional statement of logical relations. Hence we reach the classification of sentences into *active, emotional,* and *logical.*

We are thus enabled to lay down a principle of very wide application. Language comes easily to the lips of human beings in its active and emotional forms; but the case is different with logical statements. The logical attitude of mind involves an effort of a special character, and demands a special training, which, indeed, is part (but only a part) of the business of education. Written speech consists largely of logical statements (I use this phrase in a technical sense), which, by being read or repeated, produce in the mind of the speaker, hearer, or reader, a reflection of the process of thought which characterized the author or authors of such statements. We may extend, therefore, the principle laid down by William James for emotional expression. If it is true, within certain limits, that we are sorry because we cry, it is also true within certain limits that we think because we talk or read. And here we may profitably leave the question whether language is necessary for thought. Language is not necessary for thought, but it is sometimes a substitute for it. F. G.

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LANGUAGES, THE TEACHING OF FOREIGN. —The Greeks, as we know, learnt no foreign language as part of their education. Theirs was music (in the ancient sense) and gymnastic, with military service on the frontier to wind up. Since their own language and literature was so rich, they felt the loss less than others would do, but they did lose something; they never realized the relation of words to things or ideas, and it is this want which made them easy victims to the sophists, until Socrates brought his keen intellect to bear on the matter. When the Romans learnt Greek, their aim was practical; they wanted to be able to enjoy the treasures of Greek learning and literature, and to have the advantage of teachers better than their own. The same may be said of those who learnt Latin down to the seventeenth century at least. They learnt it to use it, as some people now learn Esperanto; they learnt Latin because Latin was the language used all over Europe by every one of importance. The literature was secondary, and it does not seem that other by-products of learning a foreign language were generally understood, although occasionally a pioneer like William Bathe could see them. In our own day, also, business men learn French, German, Spanish, or Russian in order to do business with those countries.

Purpose in Learning Languages. But there are other good ends to be served by learning languages, which it is important to understand in order that we may so set about the work as not to miss them. Even the practical aim, the ability to use a language in business, is not attained, if it be the only aim; for the student who confines his study to the vocabulary of business can write business letters, no doubt, and state prices, but he is quite at a loss to meet an emergency; he is quite easy to cheat, and, if it comes to an interview, he cannot make himself agreeable. He must know a great deal more than he expects to use; and the more he

knows, the better he can do his business. To get the most out of such a study, it should be pursued as if the language and literature themselves were the main object of learning it.

In order to get the most out of a foreign language, we must make it our aim to understand it, to enjoy its literature, and to use it as a means of expressing our own thoughts. If this has been properly done, we come to understand also the people who speak the language; and to feel friendly towards them, if they are a friendly people. There is so much in common between human beings, that the study of a language usually creates sympathy; the differences between ourselves and others often add a spice of pleasure, or they may serve to correct faults in ourselves. Since those who live in a foreign country mostly come to like those they live amongst, it seems to follow that this sympathy is due to knowledge; and that the more languages we know, the wider our sympathies will become.

The easiest part of the task is to learn how to understand, if we are content with a rather vague and incomplete understanding; for complete understanding can be had only by learning also to use. If we do not use, and use by speaking as well as by writing, we miss much without knowing it. Probably all scholars who have not learned to speak Greek and Latin think that the pronoun ἔγωγε is emphatic; and in the sentence *Mene incepto desistere victam*, the commentators try to show emphasis in *me* by very odd contortions. The evidence to the contrary is in the books, but readers all miss it unless they have accustomed themselves to speak. If they do not write, they miss points everywhere. But a general understanding of the subject of a book can be got without learning the use; in scientific works, or history, we may often get all we need in that way, but it will not do at all for poetry; and, in general, the more art there is in a work, the more full and exact knowledge is needed to understand it.

Pleasure, Power, and Expression. Enjoyment of literature can come only when we fully understand, in a flash, without delay or explanation, what we read or hear. But there is another enjoyment that comes from a sense of power, which may be felt when our knowledge is quite small. This also can only be felt when we use our knowledge, however small, to express our own thoughts, however simple. If we so arrange our method as to allow the use of the language from the very first, we ensure an enjoyment, which increases with every step, until we are able to read, understand, and enjoy the great works of literature: this is to enter into the minds of the writers. From this kind of language study comes more than knowledge: thence comes wisdom; a chastening and uplifting of the spirit, a sense of kinship with the great dead.

But use, besides the advantages here set forth, that it helps understanding and enjoyment, includes another, in that it increases the power of self-expression. I wish to direct special attention to this, because it has been so neglected, to our incalculable loss. Expression has been cultivated, but only the expressing of other men's thoughts: a thing quite necessary, but not enough even when those thoughts are worth expression, and when (as in most exercise books) the thoughts are dull, stupid, unreasonable, or sheer nonsense, it does harm instead of good. It does the learner no harm to express a dull thought, if it be his own; but no one has patience for other men's dull thoughts. We are slowly coming to see that education is really the art of helping the young to express themselves in every possible way; the teacher's part being to draw out, to guide, to check or encourage, to supply knowledge as the raw material of expression, but beyond this to leave the learner alone. Recent experience has shown that there is a wealth of ideas and observations in the minds of children which can be led to express itself, even in poetry: lyrics, plays, and descriptions of things seen which have the true ring, such as to give pleasure to grown-up and critical readers—but that is nothing to the pleasure they give to the authors. To a less degree, the same may be done in a foreign language, as soon as the speakers are perfectly familiar with its elements, and no longer need boggle for simple words.

Style. Self-expression in a foreign language, although less complete than it is in one's own, has the merit that it clarifies thought. A boy who has been brought up to say *Qu'est-ce que c'est que ça?* will gain something, when he finds that he can express the same thought so briefly and forcibly as *What's that?* An English boy, and, indeed, any modern boy, used to the roundabout ways of modern speech, with its abstractions and dead metaphors, gains enormously when he must put his thoughts into the concrete and lucid form of Latin or Greek. He may get a new standard for elegance and point by using French, a new standard of sonorousness by using Italian, a new standard of logic from Latin, and from Greek a new standard of grace and truthfulness. For of all languages, Greek comes nearest to truth, and has least of sentimentality or pretence. Contrast, for example, *I cannot explain his absence* with οὐκ οἶδα διὰ τί ἄπεστιν; break up a *Times* Leader and see how indistinct and how blurred is the mental image presented by the separate phrases; do the same for a piece of Demosthenes or Plato, and see how clear and how complete each fragment is. Analysis will show that this is because Greek uses finite verbs where the *Times* Leader uses abstract nouns; and the student has the means, if he wishes, to clarify his own English style.

The same is true when the question is not of separate phrases and sentences, but of a whole period, a narrative, a piece of reasoning. The writer or speaker is forced to conform to the stuff he works in; he expresses his thoughts bluntly in English, elegantly in French, logically in Latin, and in Greek as if he were speaking to an infinitely intelligent child, who knows little, but can understand anything. And he comes to understand that under all these differences a thought may be one; he becomes able to separate the essential from its accidents, and he gains a sense of power which otherwise only very few possess.

These considerations imply that the methods of teaching must be carefully criticized. Unless understanding, enjoyment, and the power to use be kept before us as our aims, we shall be apt to fall into pedantry on the one hand or slovenliness on the other. Pedantry is the curse of modern schoolwork, which kills enjoyment (the infallible test of good teaching), and also kills understanding of the soul of literature; use is almost entirely neglected in the ancient languages, for it is nothing if it be not quick and instinctive. With modern languages, the case is better, but only in a few schools, most of them being still in the bonds of pedantry even here. But

when we know what we want, we can get it if we take the proper means. W. H. D. R.

LANTERN SLIDES AS ILLUSTRATIONS.—(See CAMERA AS AN INSTRUMENT FOR TEACHING PURPOSES, THE.)

LAPLACE, PIERRE SIMON (1749–1827).—He is by far the best known of mathematical astronomers since Newton. He was early Professor of Mathematics at the École Militaire of Paris, and was occupied with teaching mathematics during the greater part of his life. His influence was most strongly exerted through the admirably written popular expositions of his great and very technical works on celestial mechanics and the mathematical theory of probability. He produced much good original work in pure mathematics, as well as in theoretical physics; but he tended more and more to the subordination of mathematics to astronomy and physics. In this respect, it is easy to see the traces of his influence in the work of Jean Baptiste Joseph Fourier (1768–1830), who, however, was not a pupil of his; it was principally through Fourier's work on mathematical physics that Laplace exercised a very important influence on the creation of the theory of functions. Laplace seems to have been appreciative of the work of his pupils, although he was not usually generous to the work of others.
P. E. B. J.

LARYNGITIS.—(See VOICE AND THROAT, THE HYGIENE OF THE.)

LA SALLE, JOHN BAPTIST DE (1651–1719).—Educational reformer and founder of the Institute of the Brothers of the Christian Schools; was born at Reims; and educated for the church at Reims and the Sorbonne, Paris. He distinguished himself by his intellectual progress, and became priest at Reims in 1678 and Doctor of Theology in 1680. He was a man of commanding presence, dignified, modest, and graceful. Under the will of Nicolas Roland, he became charged with the management of the newly-established congregation of Sisters of the Child Jesus, and thus early came into contact with poor school teachers. In 1679 he assisted Adrien Nyel to open a free school in Reims, and shortly after opened another in his parish of St. Jacques. He devoted himself to the encouragement and practical assistance of the teachers, helping them financially and in their work, and providing them with a home in his own house. Thus he formed an intimate fellowship with teachers of the poor, and little by little collected round himself a community of brothers. But, as the band was continually weakened by death and defections, he introduced a rule that no brother should allow himself to be diverted from his work as a teacher by devoting himself to the work of the ministry. After much ecclesiastical persecution (1702–1717), he finally established his brotherhood on a firm basis, and left it in able hands. He may be regarded as one of the greatest thinkers and educational reformers of all time, and is especially identified with the "Simultaneous Method" of teaching. His genius is shown in the creation of a teaching body, devoted to the specific work of popular education; and thus he became the author of a system of psychological pedagogy, of which the essentials were adopted by later writers, notably by Pestalozzi, Froebel, and Herbart. His courses of studies for schools of all grades are evidence of a wide grasp of educational problems, and a response to the needs of the times and the conditions of the locality. Of his handbook, Matthew Arnold said: "Later works on this subject have little improved the precepts, while they entirely lack the unction." (See also CHRISTIAN BROTHERS.)

LASCARIS, CONSTANTINE.—He was one of the Greek scholars who, in 1453, fled from Constantinople to Italy, where he took part in the revival of the study of Greek. He taught Greek and rhetoric in Rome, Naples, and Messina; and died in the last-named town in 1493. The earliest Greek book published in Italy was the Greek Grammar of Lascaris, which appeared in 1476. His library has been preserved in the Escurial.

LASCARIS, JANUS.—(See RENAISSANCE, THE.)

LATIN, HISTORY OF THE TEACHING OF.—Quintilian (*q.v.*) sums up in his *de Institutione Oratoria* (*c.* A.D. 95) the essence of the Roman contribution to educational aims; in the teaching of Latin, whilst Latin was the vernacular of the Romans, and whilst the Romans looked for inspiration in the higher education to the study also of Greek. Quintilian was one of the first schoolmasters at Rome paid from the public treasury, in the first Roman school under the Emperor Vespasian (A.D. 71–79). Of the development of these schools, Gibbon says: "In all the cities of the Roman world the education of youth was entrusted to masters of grammar and rhetoric, who were elected by the magistrates, maintained at the public expense, and distinguished by many lucrative and honourable privileges." The aim was the preparation of the youth for civic life, and was based on eloquence in public speaking. Hence, we see one reason for the persistence of the tradition of not only Latin-speaking, but also for the recollection from time to time of the standards of correct pronunciation and accent, and emphasis on the oral side of Latin-study, in the school drama and school oration in post-Renaissance times. A typical instance of the schoolmaster, under Roman influence, was the Bordeaux master, Ausonius (*c.* 310–*c.* 393), who took great pride in the study of the old Roman authors. Although with the triumphant progress of the barbarians the old Roman grammar schools in the provinces were destroyed, the tradition remained, and strengthened the secular aims of the schools established by ecclesiastical authority in the sixth and later centuries A.D., under rulers like Theodoric the Ostrogoth. In Italy, in the fifth and sixth centuries, the old Latin as a vernacular died out; and the provinces of Italy, France, and Spain developed dialects founded on the old Latin, but a Latin which had no literary standard, amid the hurrying currents of isolated provincial dialects. Hence came the periods when Italians, French, and Spanish, who had previously used classical authors as their vernacular, came to regard them as if they were foreign authors, and had to study them as such. In the sixth century A.D., bishops of the Roman Church became active in the propagation and organization of Christianity (as, *e.g.* St. Augustine, who came on his mission to Kent in 596 A.D.).

Latin in the Middle Ages. The ecclesiastical influences were entirely on the side of the development of Latin as the universal language of the

Church, and ecclesiastics retained the direction of the schools throughout the Middle Ages, between the sixth century and the Renaissance. (See LICENSING OF TEACHERS.) The Latin thus cultivated was not primarily concerned with the reading of the old classical authors, not even of Latin classical writers. But the amount and kind of Latin literature read varied.

Professor Comparetti shows in his *Virgil in the Middle Ages* that Virgil exercised a magical influence throughout the Middle Ages, though, educationally, the effect is not easy to evaluate at every stage. Perhaps this is best typified by the fact that Donatus (*q.v.*) and Priscian (*q.v.*) drew their grammatical illustrations so largely from Virgil, less frequently from Cicero, Plautus, Horace, Lucian, Juvenal, Sallust, Statius, Ovid, Lucretius, Persius, etc. (Comparetti, English translation, p. 70 *n.*). It is probable, moreover, that the reading of classical authors was due only to special circumstances and in special places. There are two A.S. school-books which date back to A.D. 995, the *Colloquy* and the *Grammar* of Aelfric, abbot of Evesham. The Colloquy is in Latin, and with an interlinear translation into Anglo-Saxon. Like the *Colloquia* of later times, it deals with topics of contemporary interest to schoolboys, so as to provide appropriate subject-matter for conversation, and correct Latin for conversing, and is of the first importance in considering the education of the times. Aelfric's *Grammar* is the earliest English Latin grammar extant. The two recognized grammars for all countries and for all the thousand years between the Fall of Rome and the Renaissance (roughly A.D. 410 to A.D. 1450) were those of Donatus and of Priscian.

The Teaching of Oral Latin. The rise and growth of universities in the Middle Ages were largely dependent on the speaking of Latin. The value of the *jus ubique docendi* (*i.e.* the general recognition everywhere of a degree conferred in any mediaeval university) was operative only through the fact that Latin-speaking was universal throughout the educated classes of all European countries. When we remember that there were fourteen universities before the end of the thirteenth century, and about seventy-seven by the year A.D. 1501, it is clear that the demands on higher teaching through Latin-speaking were constantly increasing for a period long before the Renaissance. In the Statutes for Merton College, Oxford (*c.* 1270), it is laid down that, when scholars speak to one another, even in their chambers, "they must use the Latin language," and the master of grammar is to correct any blunders made in his hearing. In 1338, the Statutes of Peterhouse, Cambridge, required scholars to use Latin, though for a reasonable cause they might use French, but "very rarely." The teaching of Latin grammar, therefore, was forbidden in the Elizabethan statutes, to prevent the universities providing school instruction. All the oral exercises of Disputation (*q.v.*) were performed in Latin. Anstey points out that the old statutes are couched in language which implies oral teaching, thus *audire* means "to study." With Latin as the universal language of scholars, it was easy for a doctor or master or a student to pass, say, from Oxford to Paris, or to Bologne; and the idea of wandering students is at once intelligible. In the schools, similarly, the boy lived in a Latin atmosphere. He heard Latin in all the Church services, and in the school. In learned centres, the sermons were often in Latin. But outside of the ecclesiastical domain—in diplomacy, in medicine, in law, and in trade and commerce—Latin was the language used. Félix Nève says that a Spaniard, Calvete de Estrella, notes at Louvain, in 1549, Latin was spoken in artisans' shops and by women; and it is said that at Lille young beggars used to cry out at street-corners: "Date bonis pueris panem pro Deo." In each country there arose a corrupt Latin dialect. As Vives puts it: "The Spanish *barbarissans* (*i.e.* speaker of corrupt Latin) is not understood by the German *barbarissans*, and *vice versâ*." Latin is an international language broken down through these various corruptions. In England, Horman (head master of Eton) says, in 1519: "A man can scant believe how great a let is wronge and fylthy lattin or other shocke to yonge children's wyttis." The Renaissance, therefore, not only confirmed the mediaeval general practice amongst scholars of Latin-speaking; but it endeavoured to bring about the reform of all barbarisms, and corruptions, by a return to the old classical authors, and by imitation to induce the scholar to frame his vocabulary and his style on Terence for conversation, and on Cicero for written composition. This led to the excess of Ciceronianism (*q.v.*), the very extreme of which may be regarded as a measure of the reaction against the corrupt Latin which scholars were attempting to suppress. The text-books to improve Latin-speaking after the Renaissance almost constitute a literature in themselves—the countless editions of "Flowers-of-Speech"; of excerpts from Terence; of editions of Cicero's *Epistolae*; and the interesting scholars' dialogues, called *Colloquia* (*q.v.*) (especially those of Erasmus, J. L. Vives, and Maturin Corderius), show the earnest concentration upon the teaching of Latin-speaking; and these books were only supplementary to the labours of the humanist schoolmasters, who conducted their s hool work in the Latin language, more or less effectively, according to the individual's own efficiency. The use of Latin in public and private life made the school teaching of Latin-speaking necessary. The large number of Latin plays at colleges and schools, the Latin speeches at the reception of royalty, and the replies of sovereigns in Latin, orations in Latin (*e.g.* at receptions of judges on assize, in the market-place at Whitchurch; to James Whitlocke, 1621; or Dr. John Preston's journey to the Netherlands, when he speaks of "having much occasion of speaking Latin") show an atmosphere of the requirement of Latin-speaking.

As late as 1658, John Bunyan says: "Some men despise the Lazaruses of Our Lord Jesus Christ because they are not gentlemen, because they cannot with Pontius Pilate speak Hebrew, Greek, and Latin."

After the Restoration of 1660, the introduction of French as an international and diplomatic language led to the decline of Latin-speaking. However, there have never been wanting those who advocated the learning of Latin and Greek, as nearly as possible, by the same methods as we learn any foreign language. Thus Eilhard Lubinus, in 1614, proposed the formation of a community in which teachers, pupils, domestic servants, etc., should speak Latin alone. The English Thomas Horne, in 1652, advocated a similar colony for training Latin-speakers, but also urged the planting out of Greek-speaking and Hebrew-speaking

colonies. These projects recall the earlier and better-known suggestions of Montaigne (*q.v.*).

Latin at the Renaissance as a Written and Literary and a Spoken Language. The printing of books began about A.D. 1450, and one of its efforts was to make a revolution in teaching methods. Before the time of printing, teaching methods were almost entirely oral. J. A. Symonds says that, even after the Renaissance had set in, "very few of the students whom the master saw before him possessed more than meagre portions of the text of Virgil or of Cicero; they had no notes, grammars, lexicons, or dictionaries of antiquities and mythology to help them. . . . The professor of rhetoric had to be a grammarian, a philosopher, an historian, a stylist, and a sage in one. He was obliged to pretend, at least, to an encyclopaedic knowledge of the classics, and to retain whole volumes in his memory." The demands on both teachers and pupils before the invention of printing were very heavy. The Renaissance period, say from 1450 to 1600, synchronous with the early Press, was the great age of the preparation of texts of text-books for all kinds of classical equipment of grammars, dictionaries, and aids to knowledge of antiquity. As soon as research had developed advancement of classical knowledge, text-books quickly disseminated the new knowledge. The presses of the Aldi, of the Stephens, of the Martens, the Plantins, and the Elzevirs contributed to the possibility of the change from the oral teaching of Latin to the written and literary methods.

The Construction of Dictionaries. The oral method of mediaeval education led to the orally-transmitted vocabularies. For the purposes of memorizing, these were not alphabetical, but lists of words grouped round subjects. Thus, Alexander Neckam's treatise *de Utensilibus* (12th century A.D.) gives the words necessary for the objects in a kitchen, the subjects connected with the owner of a house, and his occupations at home; the poultry yard, etc.; and abroad, in war, and so on. Interlinear glosses to the Latin give the corresponding English and French. John de Garlande, in the thirteenth century, in his *Dictionaries*, similarly describes the house of a citizen and its furniture, and goes on to the church. Teachers with such written vocabularies in their possession probably taught Latin words in a more or less direct method. The words learned were for speaking. Text-books in the seventeenth century, such as the *Janua Linguarum* of Comenius (*q.v.*), were in a line of continuity with these older vocabularies in their arrangement of words according to subjects.

In his *Plan for Boys' Studies*, 1523, J. L. Vives requires the pupil to jot down in a paper-book all the new words he learns, and to put them in "nests," according to the topics, for which they will furnish words; in other words, to construct their own dictionaries from their lessons from the teacher and, of course, from their own reading. It is upon this constant exercise of self-activity in compiling their own dictionaries that so much of the old discipline in classical studies consisted.

The first dictionary in the modern sense, naturally, of the Latin language, was published in 1502, (the work of Ambrose Calepin), at Reggio, in Italy. This gave Latin and Italian words alphabetically, and was soon enlarged to include other languages, at last including eleven languages. Calepin was the basis of the Latin-French Dictionary compiled by Robert Estienne (*q.v.*) 1531, which developed into the *Thesaurus Linguae Latinae*, which is the direct source whence all later Latin dictionaries were derived. It begins the custom of tracing systematically the different shades of meanings of words, and giving the idioms of Latin. In 1538, Sir Thomas Elyot compiled the first great Latin dictionary produced in England. In 1565, Thomas Cooper, bishop of Lincoln, augmented this work. The best known boys' short dictionary in the sixteenth century was that of John Withals, with words arranged in groups of subjects, not alphabetically.

As Robert Stephen is the great pioneer of Latin dictionaries, his son Henry compiled the *Thesaurus Graecae Linguae*, 1572. The main Latin dictionaries of English editors are those of Thomas Thomas (Cambridge), 1587; of Bishop Rider, 1589; of the Holyokes (completed 1676–1677); of Ainsworth, 1736; of Riddle (founded on Scheller), Oxford, 1835; of Dr. William Smith, 1855; and that of the Americans, Lewis and Short, published at Oxford, 1879.

Latin Grammar. For a thousand years, the Grammar, for elementary pupils, of Donatus (*q.v.*) reigned supreme; whilst the more advanced grammar of Priscian (*q.v.*) was still current in Laud's Statutes for the University of Oxford, 1636. The systematic study of grammar of the Middle Ages was converted into a form of metaphysical gymnastic divorced from the reading of classical authors. The survival of the mediaeval type of mystified grammar after the Renaissance period led to the acceptance of elaborate grammars in classical teaching. But, both in mediaeval and post-Renaissance times, the importance of the teaching of Latin-speaking, no doubt, made the earlier stages of Latin far less dependent on the printed grammars; but, owing to the survival of printed grammars, we are apt to suppose the general teaching was founded on the close following of the books we happen to find. Thus, tradition governed the method of teaching grammar. In the same way that in the Liturgy there was a use, say, of Sarum, there was the prescription in Statutes of Schools of teaching grammar "after the manner of Banbury School." It was as easy to Henry VIII to prescribe by royal decree uniformity of a grammar text-book as of the Primer, or religious text-book. The Tudor monarchs so far absorbed the mediaeval ecclesiastic authority that it was simple to substitute the grammar of William Lily (*q.v.*) for that of Aelius Donatus. In *c.* 1542, the definitive form of Lily's grammar (founded on the work of a number of contributors, but bearing Lily's name) became authorized by Royal Proclamation under the title *Brevissima Institutio seu Ratio Grammatices;* or, by its later English name, of *A Short Introduction of Grammar*. In spite of numerous emendations, abridgements, and enlargements, Lily's grammar as text-book, supported by diocesan institutions, held the field in the sixteenth, seventeenth, and eighteenth centuries. In 1758, it took a new lease of life as the *Eton Latin Grammar*, and its use in Eton College continued till 1868. The treatment of grammar as a fetish has always received the protest of the humanist scholars, who endeavoured to preserve Latin as a living language. It has always been argued that we learn our mother-speech without first learning English grammar, and that this should be the analogy for the method of learning all other languages. Even if we regard Latin as not a spoken but a written language, then

the standard Renaissance view was that grammar was contained in, and to be obtained by judicious analysis from, literature.

Joseph Webbe, in 1623, incisively argued for teaching Latin-Latin (*i.e.* learning Latin by reading it) and not grammar-Latin (*i.e.* the teaching of systematic and elaborate grammar) as a condition precedent to the study of Latin authors. Letter-writing on the model of Cicero's Epistles was an early method for Latin-teaching throughout the sixteenth, seventeenth, eighteenth, and early nineteenth centuries. Full details will be found of the methods of teaching letter-writing in John Brinsley's *Ludus Literarius* (1612) and Charles Hoole's *New Discovery of the Old Art of Teaching School* (1660). The process of translation from Latin into English, and of re-translation from the English book to the Latin author, is best described in Ascham's *Schoolmaster* (*q.v.*). It is quite as important to bear in mind the use of the old rhetoric text-books as the old grammars. For rhetoric was an art which supplied rules for adequate and effective expression in language, both orally and in writing. The development of the text-book apparatus for the writing of *themes* can best be illustrated by reference to Charles Hoole's *New Discovery* (1660). By that date, it was possible to direct pupils to text-books which would enable them to collect for themselves the subject-matter of the topics on which they were to write. Thus each boy was to keep his own Common-place Book, in which he entered Latin material which was likely to be useful for composition. Hoole names authors of books from which such matter could be readily gathered of Apologues and Fables, Adages, Hieroglyphics, Emblems and Symbols, Ancient Laws and Customs, Witty Sentences, Rhetorical Exornations, Topical Places, and Descriptions of Natural and Artificial Objects and Places. But, besides matter, method had to be considered; and, for this, aid was to be sought from Aphthonius, an authority who dated back to the fourth century. The collection of available phrases and elegant expressions developed in an extraordinary degree in the sixteenth and seventeenth centuries. William Robertson's *Phraseologia Generalis* (1686) is a typical monument of patient collection of phrases. The expectation of minute scholarship became greater and greater, until books of the great scholars who had written on philological questions filtered into the schoolroom in works like that of Walker's *Particles* in 1663.

School Oration. But up to the end of the first half of the seventeenth century, the great pride of the school was the Oration. Probably the last text-book extant on this school-work is the *Formulae Orationis* of John Clarke, of Lincoln Grammar School (4th ed., 1632); though the most learned text-book was that of Thomas Formby (1633). The Oration naturally declined after the aim of *speaking* Latin became subsidiary.

Latin Verses. Verse-writing was a mediaeval exercise, as might be expected in a memorizing age. In the sixteenth century, Latin verse-writing was a recognized part of school work. Christopher Johnson is supposed to have been a boy at Winchester College when (*c.* 1550) he wrote his well-known Latin hexameters describing the school. At Eton (*c.* 1560), Latin verse-writing was done twice a week. But not only at the greater, but also at the smaller, schools the exercise was required. The chief merit of the old methods of classical teaching consisted in the amount of observation, collecting of material, and exercise of judgment in writing in prose and in verse, and of care in pronunciation (see DRAMA, SCHOOL) involved; in short, in the exercise of the boys' own activity. The enormous increase in school-apparatus of text-books after the middle of the seventeenth century, especially the elaborate phrase-books, tended to relieve the pupils from the exercise of their own industry in collecting their own phrases, which had been so characteristic a feature of the sixteenth century. F. W.

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LETTER-WRITING, THEME-WRITING, SCHOOL ORATION VERSE-MAKING:

The two great authorities for all subjects of seventeenth century Latin methods are—

BRINSLEY, JOHN. *Ludus Literarius, or The Grammar School* (1612 and 1627). [Not as yet edited by a modern editor.]

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LATIN, THE PRONUNCIATION OF.—The recognized system for the pronunciation of Latin in England and Wales is that adopted by the Classical Association at Manchester in October, 1907. (See "Report of the Committee on the Pronunciation of Latin and Greek" in the *Proceedings* for 1906.) The same system, with one slight alteration, has also been adopted for Scotland, and is generally known as the "Restored Pronunciation." It is based upon the actual pronunciation of Latin in the first century B.C., so far as that can be determined by investigation; but in a few details this is simplified or modified to meet the practical requirements of oral teaching.

The evidence for the pronunciation of Latin in the classical period is mainly of the following kinds: (i) the Latin script, still in use over the greater part of Europe and in the New World; (ii) the transliteration of Latin into Greek and other alphabets; (iii) allusions to pronunciation in Latin authors; (iv) statements of grammarians. An accurate analysis of sounds according to the positions of the vocal organs is not to be found in ancient authorities.

From the grammarians we have exact evidence as to the position of the Latin accent, which has

been correctly preserved by tradition in all European countries; but, in their account of the nature of the accent, the grammarians appear to have been unduly influenced by the analogy of Greek, and it is now generally held that the Latin accent represented stress rather than pitch. The grammarians also teach that each of the vowels A, E, I, O, V, Y has two values, differing mainly, but not entirely, in length; and, further, that the symbols I, V have each a third value, which is consonantal, but closely allied to the vowel value. [The distinctive symbols, J for the consonantal and U for the vowel sound, date from the Middle Ages.] All these symbols represent a great variety of sounds in modern languages; but, as far as the vowels are concerned, there is no reason to doubt that modern French or Italian is a better guide than English or Dutch. We adopt, therefore, the French or Italian sounds generally, with the proviso that *ĕ* and *ŏ* must be treated as open vowels, and *ē* and *ō* as *close*, that is, as nearer to *ī* and *ū* respectively. That the consonantal I, V correspond to English *y*, *w*, rather than to *j*, *v*, follows from the statements already made, and from their easy passage into vowel sounds (as in the words *reice* of two syllables and *siluae* of three).

Of the consonantal symbols, B, F, K, M, N, P, Q, S, X have uniform normal values wherever they are still in use, and for practical purposes the English pronunciation of D, H, L, T may rightly be adopted in this country. [The values given to *s* in English *wise*, and to *ti* in English *nation*, should, however, be avoided.] As regards C and G, we are guided by the regular transliteration of these symbols by the Greek K and Γ, and also by their uniform value in modern Celtic languages, to attribute to them in all cases the same sounds as in English *can*, *get*; and to reject as post-classical all such "softenings" as appear in Italian *civita*, *giorno*, or English *city*, *gentle*. R was certainly not a "silent letter," and seems fairly represented by the French trilled *r*. The symbols Y, Z, and the digraphs CH, PH, TH, and RH, being little used in Latin except in foreign words, may here be passed over as well as the diphthongs.

Teaching the Restored Pronunciation. Having thus outlined the scheme of pronunciation, we pass to the question of its teaching. Young pupils are so imitative that little more is needed than that teachers should set a good example. It is a mistake to suppose that English spelling creates any real difficulty: nowhere do schoolboys display any tendency to pronounce the Latin words *bone*, *cave*, *mire* like the English words spelt in the same way. On the other hand, it is a matter of some difficulty for adult teachers to change any system of pronunciation to which they have once been accustomed, merely to comply with written instructions. To overcome this obstacle is one of the chief objects of the various summer schools now held in connection with Latin; and the promoters of the annual Westminster Play have a great opportunity of using that institution to set the standard of Latin pronunciation for the whole country.

It is not, however, desirable that the pronunciation of Latin should be altogether imitative, in which case the process of degeneration would again begin. It should be supported by the study of phonetics, which should commence with the first foreign language acquired, whether Latin or any other. Thus, in many cases the previous study of French will have acquainted the English student with most of the sounds required for the "restored pronunciation" of Latin, but not familiar to him in English: for instance, *ā* (in *pater*), final open *ē* (in *regere*), close *ē* without accompanying *y*, close *ō* without accompanying *w*, and a clearly-pronounced *r*; and the regular practice of these sounds, accompanied by phonetic explanation, will be from all points of view an excellent discipline.

The most important advantages of a standard pronunciation are ideal, in that it gives effect to the striving after historical truth and musical beauty. Its advocates also claim that it provides a scientific basis which will assist Latin scholars of every nation to converse in Latin, and contribute towards the establishment of a phonetic alphabet and the reform of English spelling.

E. V. A.

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LATIN, THE TEACHING OF.—The methods adopted in teaching a foreign language depend, to a certain extent, upon the reasons for learning it. If it be necessary merely to master the content of certain written works, the quickest means of doing so will naturally be used; a modern language like French lends itself to conversational methods; Anglo-Saxon, as the ancestor of English, is studied mainly from the standpoint of philology. Now, the object of learning Latin is twofold. It is desired to cultivate an appreciation of literature by the study of a few masterpieces written in a language characterized by clearness, precision, and dignity, and also to provide a sort of focus for linguistic studies in general. The learner has not only to read a literature, but also to master a medium of expression, the latter for its own sake as well as affording the key to the former. As language is the expression of thought by means of articulate sounds, it follows that Latin will be studied as a *tongue*, that is, the learner will be taught to understand Latin when it is spoken, and to express his thoughts orally in it. This, indeed, is not the whole of his task, but it is an essential part thereof.

Several incidental advantages result from this method of procedure. In the first place, the vocal training afforded is not to be despised, as it makes the organs of speech more elastic and efficient. Secondly, oral work is more rapid than written work, and saves much valuable time. Finally, if mistakes are corrected in the oral stage of instruction, they are not so likely to develop into bad habits. Once written down, they are apt to become stereotyped for *littera scripta manet*.

It would be unwise to ignore the experience gained during the last twenty years by the pioneers of the direct method, who have obtained such

wonderful results in the case of modern languages. The essential feature of this method is that it tries to associate the new language directly with reality without the intervention of the mother-tongue. Grammar is not neglected, but it is learned as required; the pupils feel the need for a grammatical rule before that rule is given. Nor is translation abandoned, but its use is restricted; and translation as a test of knowledge already learned is carefully distinguished from translation as a fine art, the latter being practised only in the last stages of the course. The important point is that first impressions of new words, idioms, and constructions ought to be associated with material things, actions, or ideas. If a young child is told that *miles* means "a soldier," he at once thinks of a khaki uniform and a rifle, and this erroneous association has to be destroyed before the meaning of *miles* can be fully grasped. No such mistake can occur when *miles* is associated with a picture of a Roman legionary. This simple example well illustrates the fundamental principles of the direct method.

The Ideal Beginner. The beginner must not come to his work unprepared. Latin is not now a suitable subject for a child of nine. The curriculum is so crowded, and the time that can be devoted to any single subject is so small, that there must be no waste, and new subjects must be begun at the age when the pupil is prepared for rapid and immediate progress. It will thus be well to describe, at least in broad outline, the "ideal beginner."

The beginner should have already mastered the principles of general or "pure" grammar, that is, those principles of sentence-structure which are common to all languages usually learned in schools. This grammatical course will include analysis of sentences into subject, direct object, indirect object, and so on; the functions of the parts of speech and of the main types of complex sentences. No elaborate detail is required; the knowledge is meant for use, not to be paraded as theory. But within the limits laid down it should be thorough.

Another essential is familiarity with the difference between an analytic and an inflected language. The pupil should know how meaning can be expressed by inflections. This knowledge is best secured if Latin be postponed until French has been learned for two years. Even then, it is well to devote a few lessons (two or three) to the few inflected forms which still survive in English, and to the possibility of using endings to express function. For example, the class may be asked to consider the sentence—

"Tom struck John."

What is the subject? How do we know that "Tom" is the subject? The pupils soon see that, in English, the order of words gives us this information. But if we agreed to mark the subject by the suffix *-us*, and the direct object by the suffix *-um*, we might have—

"Tom-*us* struck John-*um*,"

or,

"John-*um* struck Tom-*us*,"

or,

"John-*um* Tom-*us* struck";

and so on, the meaning being independent of word-order, which may now be employed to mark emphasis.

Thirdly, the beginner should have gone through a course of practical phonetics, that is, he should have learned how to recognize and produce the various vowel and consonantal sounds. A good deal of the work will be oral, and the spelling of words must be obvious from their pronunciation. As the "reformed" pronunciation of Latin is practically phonetic, this pronunciation will be the one adopted.

The First Year's Work. Our "ideal beginner," then, should have a knowledge of pure grammar, of the force of inflection, and of practical phonetics. He will probably be about 12 years of age. The first lesson in Latin will be taken up with a short description of the ancient Romans and their place in the world's civilization. The second lesson will contain an account of the Latin alphabet and the main points of Latin pronunciation. Special stress must be laid upon the quantity of vowel sounds and upon stress accent, Latin words being written upon the blackboard and marked for both quantity and stress. If the class has been learning French by the direct method, it is now prepared for Latin lessons along the same lines. The teacher will probably need the assistance of an advanced pupil for a few lessons, but his help can soon be dispensed with. The lesson will proceed somewhat as follows—

Master (to Assistant): *Surge.*
Assistant (rising): *Surgō.*
Master (to Assistant): *Surgis.*
Master (to the Class): *Surgit.*

This is repeated until the class understands the meaning of it, and then the assistant's place is taken by the members of the class in turn. Then the brightest boy is asked to work with the assistant, who, at first, speaks for both of them. The lesson goes on thus—

Master (to the two boys): *Surgite.*
Assistant (answering for both): *Surgimus.*
Master (to the pair): *Surgitis.*
Master (to the class, perhaps indicating the pair): *Surgunt.*

When this is repeated, *both* boys answer, and afterwards the remainder of the class is drilled as before.

Two paradigms are now written out by the master on the blackboard. These are—

Modus Imperātivus.	Modus Indicātivus.	
Singulāriter: *Surge*	Singulāriter	*Surgō*
		Surgis
		Surgit
Plūrāliter: *Surgite*	Plūrāliter	*Surgimus*
		Surgitis
		Surgunt

These are learned by heart, and repeated both in chorus and by individual boys.

The next lesson consists of revision with a new verb of the same conjugation (*e.g. cōnsīdere*), and then the other conjugations are taken in turn, with (say) *ambulāre, sedēre, audīre.* A full scheme of the present infinitive, imperative, and present indicative is now written on the board and learned by heart. In this way, some three lessons are taken up. The class is now ready for an explanation, in English, of what has been already learned, and it is pointed out that the four classes, or conjugations, are distinguished by certain characteristic vowels, *ā, ē, e(i), ī,* which generally appear before the endings. The next lessons introduce the class to the subject case, or nominative, and the direct-object case, or accusative. After that will come the agreement of noun and adjective, first with the *-us* declension, then with the *-a* declension.

Throughout these lessons, occupying in all about

a fortnight, great stress is laid upon strict adherence to the principles of the direct method—

1. Grammar is learned as it is required for use.

2. The class first *hears*, then *speaks*, then *sees*, then *writes*, the new Latin forms.

3. Latin is associated with things and actions; the mother-tongue is used only to test knowledge already gained or to explain fully points which may have been missed.

After a few lessons, the teacher will require a text-book. Among those already published may be mentioned *Primus Annus*, by Paine and Mainwaring (Clarendon Press); and *First Latin Book*, by W. H. S. Jones (Macmillan). The latter does not follow the direct method strictly in that translation is admitted, but it may be modified in use, and the translation can be omitted if the teacher wish.

For a few weeks the drill-exercises are almost entirely imitative, but after a time the boys are encouraged to express their own thoughts in Latin (*e.g.* to state their difficulties if any points in the lesson are not understood). The direct method cannot be successful unless there is a thorough understanding on this question between teacher and taught. When a boy does not follow the lesson, he must say so; and the sooner he can say so in Latin, the better. No progress in the middle and later stages is possible unless the pupil cordially acquiesces in this necessity and "plays the game." Incidentally, practice is afforded in speaking Latin; and, of course, it is essential that the boys should speak and not be hearers only. The teacher is on the spot to crush all attempts at "dog-Latin."

During the year the four regular conjugations (at least in the active but without the subjunctive mood) the five regular declensions and the simple syntax of the cases should be mastered. This will require one lesson a day and about three home-lessons in the week. It is more important to secure a thorough familiarity with a few forms and constructions than to cover much ground; but it is wise to make an effort to finish the regular accidence so as to enable the class in the second year to attack with success the complex sentence. The vocabulary should be wide—600–1,000 of the most common words. Boys readily learn new words at this stage, and the knowledge is very useful later on.

Experience shows the great value of acting (in class, and, of course, without stage properties) simple Latin plays and dramatic scenes. Not only are they thoroughly enjoyed, but they also help to banish shyness and encourage readiness of expression. Such plays may easily be composed by the teacher to suit the tastes and attainments of his scholars, but several useful volumes of plays for the first year have been published.

Two other points must be noticed before passing to the second year. Clearness of pronunciation and careful observance of quantity are essential. It must also be remembered that written exercises ought, during the first year at least, to be done orally first, in order to prevent mistakes becoming stereotyped by being written down.

Second Year's Work. The work of the second year is, roughly, the simpler forms of the complex sentence, with completion and revision of the regular accidence. The complex sentence is best approached by the method of "litanies," whereby the common constructions are associated with incidents in the boys' experience, and the string of sentences thus obtained is repeated (with variations) at the beginning of each lesson.

A simple Latin story (*Pons Tironum*, by Appleton and Jones: Bell) has been written to assist and supplement this method. Each chapter contains a new construction repeated again and again, so that the points cannot fail to be driven home, while the old constructions are carefully revised. The book contains grammar, exercises, and vocabulary, all in Latin without a word of English.

After all this, the pupil will pass on to some real Latin literature. But as any single work would be much too difficult in parts, while "snippets" from various authors do not appeal to boys, it is as well to choose some text-book in which specimens of the best Latin have been welded into a continuous story by means of a specially written setting. This "reader" should be the basis of all the Latin teaching. It should supply material for reading, for translation, for composition, and for grammar-drill. Of the six weekly lessons, four may profitably be set aside for reading (with translation occasionally), one may be given to special grammar lessons, and one must be devoted to composition. In some cases, two composition lessons are advisable, when only three lessons can be devoted to reading.

The "reader" is prepared, not by translation, but by paraphrasing. The teacher prepares the way for a fresh section by explaining any constructions which seem to present such difficulty that too much attention would be taken from the context if they were left until the passages in which they occur were read, and he also explains new words. This is done either in a special lesson or during the first part of the reading lesson. After this, a boy is asked to read, and he pauses at the end of one sentence, or perhaps two sentences. Then the class ask for explanations of anything that has not been understood. Perhaps a boy brighter than the others can give the answer; if not, the teacher must dictate it. All this is done in Latin, and the answers are written in a special note-book, the master walking up and down the rows of boys to see that everything is copied carefully and accurately. An example will explain the method. Suppose the passage is—

O miseri, quae tanta insania, cives?
Creditis avectos hostes, aut ulla putatis
Dona carere dolis Danaum?

BOY: *Nescio quid significet "avectos."*

MASTER: *Participium est verbi "avehere," quod significat "portare ab aliquo loco." Scribite partes principales: aveho, avexi, avectum, avehere.*

ANOTHER BOY: *Sed non intellego sensum.*

MASTER: *Omissum est "esse." Creditisne hostes avectos esse, vel abiisse navibus. Scribite.*

BOY: *Quid significat "carere?"*

ANOTHER BOY: *Non habere.*

MASTER: *Recte respondes. Usurpatur cum ablativo casu. Careo re si rem non habeo. Partes sunt: Careo, carui, carēre. Scribite.*

Then another section is read and explained in the same way. Finally, the whole passage is read without any interruptions.

Composition Lessons. The composition lessons will be of three kinds—

1. Passages of the "reader" are summarized in Latin. This exercise is one of the most useful kinds of composition for the third and subsequent years. Its only drawback is the extra labour it imposes upon the teacher in the way of corrections.

2. Detached sentences, or, better still, short stories, may be dictated in English for translation into Latin. This exercise is chiefly valuable as a

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test. The vocabulary and the necessary constructions should be those which have occurred in the reader.

3. Short Latin stories may be read to the class sentence by sentence. Each sentence is explained in Latin if it presents any difficulty. It is then repeated, first by several boys in turn, and then in chorus. Then the whole is repeated by one or two boys, and finally is written out as homework.

4. Themes on set subjects may be set to the best boys at the end of the second year, and to all boys during the third and subsequent years. For the first few terms they should be first prepared orally, the teacher assisting. It is wise always to give a rough idea of the vocabulary and constructions which may be employed with advantage.

The Third and Fourth Years. The third and fourth years can be discussed together. During this period, easy Latin books (*e.g.* Caesar, certain odes of Horace, books of Virgil, speeches or dialogues of Cicero) are being read, and the composition is based upon the reading, as before. Gaps in grammatical knowledge are filled up; the vocabulary is increased, and a serious effort is made to improve the boys' literary style both in Latin and in translation into English. Learning by heart, after careful preparation, of striking passages from both verse and prose authors is a prominent feature of the work at this stage.

The Work of a Specialist. After four years, most boys give up their classical studies, but it still remains to review, in outline, the work of the specialists, who continue their studies in order to compete for classical scholarships at the universities. The general training is on the same lines, but much more attention is paid to artistic translation, both from and into Latin. Considerable pains must be taken to increase the boys' command of words and constructions, and here should be applied a principle of great importance, but often forgotten by modern teachers. Power comes only with use; and pupils should be encouraged to use phrases and constructions, both Latin and English, which do not immediately suggest themselves. Learners should be told to employ, say, in a given theme, certain words and certain types of sentence. Once used, they will tend to recur to the mind on future occasions. When employed twice or three times, they become a permanent possession.

Early in this stage should be given a few lessons on comparative idiom, that is the main types of sentence-structure in Latin and English should be analysed, compared, and contested. After four years' learning of Latin a pupil has sufficient material unconsciously stored away in his mind to make this course of lessons both interesting and instructive.

Verses will probably be begun in the sixth form. The old method of verse-making has nothing to recommend it, and it is very wasteful of time. But if a boy has read Latin for four or five years with scrupulous attention to quantity, and if during that period he has learned by heart, say, 1,000 verses of Virgil and Ovid, he is quite ready for a few lessons on the structure of hexameters and elegiaes, and after a few weeks he will be composing verses at least as good as those laboriously turned by those brought up on the old lines. Taught thus, versification is not a labour but a pleasure, and vastly increases one's appreciation of the formal side of Latin poetry.

W. H. S. J.

LATIN VERSIFICATION.—(See VERSIFICATION (LATIN AND GREEK), THE TEACHING OF.)

LAUD, ARCHBISHOP (1573–1645).—He was born at Reading, where he was educated under a very severe schoolmaster, and at St. John's College, Oxford, where his industry, capacity, and great knowledge gained him friends and patrons. In 1611 he became President of St. John's, which was then under Puritan influence. He introduced a milder and more liberal tone, and a revival of learning, founding professorships and accumulating MSS. of Oriental languages. He became the strongest power in Oxford, and through Oxford influenced learning throughout England. From 1630 to 1641 he was Chancellor of Oxford, and the leader of those who fought for the advance of learning. He maintained neutrality between Puritan and Anglican, and made Oxford the chief home of learning in England; reformed lax discipline; and made degrees a real distinction, excusing none from a rigid examination. He accumulated manuscripts and established a press. He increased the number of students from 2,000 to 4,000, founded a grammar school at Reading, and assisted Westminster School in order to keep up the supply of undergraduates. On Laud's downfall, Parliament "reformed" Oxford, and for a time undid all Laud's work.

LAUNDRYWORK, THE TEACHING OF.—The method must be essentially of a practical nature, or the teaching of laundrywork spells failure. No one should start on the actual washing and ironing until the very important matters connected with the care of the laundry and its equipment have been thoroughly grasped, if the issue of this singularly strenuous work is to have the result the labour deserves. In speaking of the laundry and its equipment, I mean the place where the work is done—be it cottage laundry, school centre, or back kitchen—the same rules must apply. The very nature of the work lends itself to some of the most destructive conditions, which should be well understood by the teacher, who must, in turn, thoroughly impress her pupils with the danger that neglect or ignorance in these matters may produce. She should teach the untold harm that can accrue from rust, wear and tear, and general damage to utensils that may be the result of a badly kept laundry. No fabric can be properly treated in the laundry unless these conditions are properly understood and guarded against. Even a slight rusty condition of a utensil or the "copper" can do untold harm in the matter of iron-mould to house linen or body linen with great disfigurement, and there is also the danger that iron-mould on garments may affect other clothes coming in contact. Wear and tear can be considerably lessened by periodical inspection of utensils: splinters of wood on the rollers of the wringing machine, the washing tubs and boards, or the "poss" stick ("dolly"), can do infinite harm to fine or coarse materials; broken chips of cane on the washing baskets can also be very damaging. Perhaps only the initiated can appreciate the danger of these apparently small things, but all can realize the fact when the damage is done. The care of irons and ironing blankets and sheets must be thoroughly impressed. Which of us does not know only too well the miserable condition these can sink to if the users of the laundry take no interest in them? And, on the other hand, the delight they can be if well kept and attended to.

Experimental Work. The next step should be to experiment upon fabrics such as print, cotton, muslin, linen, flannel, and wool, taking white and various coloured samples of each material, teaching the proper and improper treatment of all these textures, encouraging the use of note-books and the collection of the samples that have been used for the experiments, which should be carefully preserved for future reference.

The removal of stains is the next and a very important matter requiring the greatest care, and should not be taught in a superficial manner, owing to the great risk of injury to the fabric. Much damage may be wrought by an inexperienced person using dangerous chemicals to remove stains, while the same ingredients can be applied with perfect safety by the expert. Teach carefully which substance is most advisable to use and which to avoid. Teach the great evil of mildew, which in most cases cannot be removed without spoiling the material. Mildew is nearly always the result of carelessness.

The pupils should next be taught the use and abuse of ingredients used for laundry purposes. The economy of using soft water in the country whenever possible, and the best method of storage; the disadvantage of using soft water in towns, because of its discolouration and consequent effect on white clothes; the use of soda and borax, and other means of softening hard water. Simple experiments should be made on materials washed in the different samples of water. The danger of using softeners in wrong proportion should be demonstrated in a practical manner, showing that materials may be in no way harmed by judicious use of soda and other recognized water softeners, and also how the material may be utterly spoilt. Simple scientific experiments may very usefully be introduced at this stage to even the youngest pupil, and it will thoroughly impress the use and abuse of the right and wrong ingredients upon the memory of the student. Following water and water softeners, all the other ingredients used in laundrywork should be explained thoroughly in an interesting manner, and, whenever possible, with simple experiments—the advantage and disadvantage of soap, blue, bleaching agents, starch and other stiffening substitutes; and when permissible to use, and the great danger to fabrics if improperly applied. In the same manner, teach something about all the ingredients used in laundrywork.

The Washing and Ironing of Garments. When the treatment of material has been thoroughly explained by the teacher and grasped by the pupil, it is an easy matter to proceed to the washing of the garments. The teacher should teach by practical demonstration the processes of sorting, steeping, washing, boiling, rinsing and drying, starching and folding, in each case before the pupil attempts her practical work; this has the advantage of training the eye of the pupil to the right method of handling, for she insensibly copies the manipulation of the experienced person. Following this, the pupil requires plenty of practice in doing the actual work herself. The elementary stage should be chiefly upon simple garments and household linen, to enable her to become deft in washing and folding before she passes on to the far more difficult art of ironing and finishing off fine garments.

Ironing and "getting up" is next to be learnt. This has to be very thoroughly taught, and a high standard must be expected from the beginning. The pupil can practise the use of irons upon such things as aprons, pillow slips, towels, etc.; and gradually work up her standard and manipulation until she can with comparative ease and speed, but always with great patience, turn out perfect work on all classes of fine material and garments.

Subsidiary Branches of the Work. Having arrived at this stage, what is chiefly needed is practice and experience; but the pupil is also ready to enlarge her mind upon many other vital points. She must study order and method, the economy of labour; the price of the ingredients used and the best method of storage, which stores should be purchased in large and which in small quantities; as well as the prevention of waste in the matter of fuel, hot water, soap, starch, and other materials used in laundrywork. The preparation and carrying out of a family wash, the advantage of country laundries, the sweetness of country air on the drying clothes, and the gain in keeping them a good colour are to be considered. The teacher should not omit to point out the best methods of counting, checking, and packing the finished work; the futile waste of time and labour if the finished work is carelessly and badly packed and put away; the danger of insufficiently-aired body linen and household linen, the danger to health and the risk of mildew.

Whenever possible, the care of the linen cupboard should be practically taught. The pupil's responsibility should not necessarily cease with the ironing of the garment. The convenience and the economy of the hot air cupboard should be touched upon. Water supply, the hygiene of drains and sinks, and the use of disinfectants are also worthy of study.

It is an education in itself to be familiar with laundrywork, and a most interesting study of the making of garments may be encouraged. There is much to be learned, for the student soon discovers how much more easy it is to "get up" well-made underlinen than to struggle with thick, ill-made seams, and badly-cut garments with cheap elaborate trimmings—which also teaches another valuable lesson.

The ideal place to work in is the cottage laundry, which is generally in some delightful corner of a garden with good wash-house, ironing-room and drying green at hand. Such spots can make laundrywork a delight. The school laundry centre, built for the teaching of the subject to children and others, can also be a very attractive place, furnished with appliances to hand for making everything as easy as possible considering that laundering is hard work. The least ideal place is the back kitchen laundry. Work here is always more or less a difficulty. Generally this is very inconvenient, with little more equipment than the copper, mangle, a wash-tub, and a few irons. It is in this make-shift laundry that the work is hard to carry out with any particular excellence, and where an extra vigilance has to be kept for the mischief of rust and mildew, wear and tear. A. B. R.

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LAUNDRYWORK, TEACHER OF. — (See DOMESTIC SUBJECTS, TEACHER OF.)

LAURIE, SIMON SOMERVILLE (1829–1909).—The most distinguished Scotch educationist of last century; and the first holder of the Bell Chair of Education, Edinburgh (1876–1903). His most important works are those on Comenius, Training of Teachers, History of Pre-Christian Education, and particularly *Institutes of Education*, which sets forth the philosophic basis of his system. From 1856 to 1907 he was visitor and examiner of the Dick Bequest (*q.v.*), his reports on the Scottish parish schools being standard authorities. He was secretary and visitor to the Church of Scotland's Education Committee (1855–1905); reported on the Edinburgh Merchant Company's schools; was secretary to the Royal Commission on Endowed Schools (Scotland); Gifford Lecturer (Edinburgh), 1905–1906; etc., etc. J. CLARKE.

LAUSANNE UNIVERSITY.—The original foundation of this university was an academy founded in 1537 for the training of Protestant clergymen; and it remained a school of theology until 1838, when faculties of law, science, and literature were added. The faculty of medicine was founded in 1888, and in 1890 the institution became a cantonal university. The French language is used in teaching, except in certain courses for German students. Women are admitted on the same conditions as men. Candidates are admitted as matriculated students from other universities. Degrees of *licence* and *doctorat* are conferred, and in engineering the *diplôme d'ingénieur*. The courses are four years in theology, three in law, and two in science and arts. The public lectures (*cours publics*) are free; weekly fees are paid for the *cours universitaires*, and special courses may be taken by arrangement. Holiday courses are provided in language and literature. The library contains 300,000 volumes.

LAVAL UNIVERSITY, QUEBEC.—This was founded by the Seminary of Quebec, and received a royal charter in 1852. Pius IX completed the University by a Papal Bull in 1876, and the control is in the hands of the Archbishop and bishops of the Province of Quebec. The University has the four faculties of theology, law, medicine, and arts; and the professors of theology are named by the visitor, the Catholic Archbishop of Quebec. The degrees conferred are bachelor, master, licentiate, and doctor. All the classical and secondary schools in the province of Quebec, except the Jesuits' College at Montreal, are affiliated to the University, as are also a number of scientific and technical institutions. In 1876 an extension of the faculties of the University was made in favour of Montreal, and a branch university was established there under the Archbishop of Montreal. The constitution of the Montreal branch was modified in 1889, so that it became nearly independent of the mother university. Instruction in these universities is given by titular professors, associate professors, and instructors. All degrees are conferred by the Quebec University. The library at Quebec contains 150,000 volumes.

LAW, METHODS OF TEACHING AND LECTURING UPON.—No maxim is more familiar, in whatever guise it is put forward, than that which predicates a knowledge of the law on the part of every person. No human being, however, can possibly know the law; it is far too vast and complex a subject for the limited mental capacity of mankind. The correct enunciation of the principle involved in the maxim is contained in the statement that ignorance of the law avails no one as an excuse in a court of law— *Ignorantia juris neminem excusat.* Without doubt, the rule was established through necessity. No one ever put the matter more clearly than Lord Ellenborough, in the case of *Bilbie* v. *Lumley* (1802, 2 East, 469), when he said: "Every man must be taken to be cognizant of the law; otherwise there is no saying to what extent the excuse of ignorance might not be carried. It would be urged in almost every case." It is obvious, therefore, that legal knowledge must have an excellent claim to be included in any scheme of liberal education, even from a merely utilitarian point of view; and when its value as an instrument of culture and discipline is thoroughly appreciated, law must necessarily occupy a very high position amongst those studies which are essential for the well-informed man of the world.

Preliminary Studies. The greatest drawback connected with the study and the teaching of law is the neglect of proper preliminary preparation. Apart altogether from wide general knowledge—and no one has greater need of it than the lawyer—any attempt to master the different branches of law without having first obtained a thorough acquaintance with its fundamental principles is bound to be attended with tremendous difficulties. It is essential, therefore, that a lawyer, truly so-called, should first of all apply himself to Roman Law and Jurisprudence. It is often fallaciously urged against the former that it is not of sufficient practical importance in this country to make its value commensurate with the time necessary for its mastery. It is not to be forgotten, however, that no matter how essentially national our Common Law may be, our Equity system is, in fact, largely indebted to Roman Law and has a close connection with it. In the same way, the study of Jurisprudence is not to be measured by its immediate utility. Systems of law vary in different countries; but amongst civilized communities the fundamental principles are the same and immutable, and no finer mental superstructure can be erected than that founded upon so solid a base as the study of Roman Law and jurisprudence.

History. Owing to the peculiar development of our Common Law and to the absence of anything approaching a complete codification, no teaching of law, in England at any rate, can be considered otherwise than imperfect which does not take full account of the history of the subject. The Common Law of England became fixed about the time of Henry III; but in order that its growth and its final settlement may be appreciated at their proper value, the history of the period between the Norman Conquest and the middle of the thirteenth century demands the most careful study. The text-books dealing with the subject are of an excellent character, and the law student has every opportunity of mastering the same without the slightest difficulty.

Practical Law. So far, the study and the teaching of law have been considered from the theoretical side. It is now important to take into account the practical side, that is, the study of English law as a living thing, to be applied whenever necessity arises. However complete a mastery may be obtained of Roman Law, Jurisprudence, and Legal History by mere study, it is doubtful whether the same thing can often be truly asserted as to the acquisition of a working knowledge of living law. Text-books abound upon almost every conceivable

branch of the law. They are, as it were, tools of exceptional value; but it is essential that their use should be taught, and this teaching can generally be supplied only by those who have a practical acquaintance with their utility. All the theoretical knowledge in the world will be valueless unless it can be quickly and accurately applied. And for this reason it is essential that the teacher should be a person who is actually engaged in legal work as his primary occupation. The problem, then, which is presented is how to effect the best results in the most satisfactory manner.

Law of Contract. At the risk of being accused of being at variance with the opinion of eminent authorities, it is submitted that the law of contract is that part of English law which should be mastered in the first instance. The sacredness of contract is the foundation of national existence, and the law of contract naturally affects every part of our legal system. In teaching or in lecturing upon it, the preceptor must take care to present the law in every possible phase: from the formation of the contract to its discharge, and through all its historical developments. No point should be considered too trivial for discussion. The labour will no doubt be tiresome and tedious in certain cases; but it is quite certain that when once the principles of the law of contract have been thoroughly apprehended, the path of the student will be materially lightened.

Illustrations. Whenever the particular subject under discussion lends itself to illustration, forms should be utilized. If it is a deed that is being considered, a deed should be produced. If it is a question of a note or memorandum, such as is required by the Statute of Frauds, no possible variation of the same should be overlooked. And the same thing is applicable to other documents. Take, for example, a bill of exchange. The chances are that few students have ever seen a bill. Familiarity alone will make them acquainted with the legal liabilities imposed upon persons who are parties to such a negotiable instrument. They must handle the thing. An excellent method for a teacher to adopt in connection with a bill is to take a blank stamped paper and gradually to complete it, until every point connected with a bill, from its birth to its discharge, has been demonstrated. Other examples might be adduced, but the point is quite clear, namely, that whenever it is essential in law that a document should be made use of, a mere verbal explanation of its nature and legal effect should be considered inadequate, and a facsimile should be shown and handled.

Real Property and Equity. When the principles of the law of contract have been thoroughly mastered, the student can turn quite easily to the law of Real Property and Equity. Here history plays a most important part, and no person can understand either of these branches of our law without a competent knowledge of the manner in which it has developed since the time of the Norman Conquest. The historical point of view must be constantly kept in sight, and the changes effected by generations of legislation carefully noted and appreciated. But here, again, it must be recollected that illustration is all important. Whether it is a conveyance, a lease, a mortgage, or any similar transaction where a written document is essential, which is under consideration, the teaching or the lecturing will be valueless unless it is accompanied by the production of facsimiles.

Case Law. An important element in the teaching of law is the method of taking well-known cases which have been decided in the courts and applying the principles of law involved to the particular facts. If properly followed up, there is no doubt that this can be made extremely effective. The study of case law is both stimulating and interesting. Its danger, however, consists in the fact that a student may be led into the belief that a knowledge of cases alone will supply him adequately with legal principles. Such an idea would be fatal to real progress. The happy medium will be found in combining the two, and the expert teacher should find no difficulty in arriving at a satisfactory solution of this part of his work.

Torts. In most schemes of legal study, the law relating to Torts would follow close upon the law relating to Contracts. This forms a very important branch of English law and lends itself to a wealth of illustration. It is in this domain that case law can enjoy its fullest play, and the teacher have the best opportunity of inculcating principles of law. It is immaterial, however, in which order the law relating to Torts is taken, though it is submitted that it can be more easily acquired at a late stage than at an early stage in a course of education. Much of the law has been affected by statutory enactments, and it tends to become more and more detailed with the progress of time.

Other Branches of Law. Little need be added as to the teaching of other branches of law, since, after the foundations are well laid, everything must depend upon the special requirements of the student. Much of it simply means an exercise of the powers of memory. For example, the law relating to Probate, Divorce, and Admiralty is almost exclusively statutory. Nevertheless, a practitioner in the courts who has to deal with these matters will be all the better qualified for his work if he has gone through the preliminary stages already indicated. The same may be said as to the Criminal Law. As to the law dealing with Evidence and Procedure, practical experience alone can supply the knowledge that is essential.

International Law. The last branch of law to be referred to is International Law, which may be regarded as a kind of legal luxury. It is here that the highly-trained intellect finds its greatest scope, and its place must undoubtedly be the latest in a course of legal study, as in one way or another every other branch of law may be called upon for assistance in the solution of the various problems which may arise. But in International Law, as in every other division of law, the fundamental rule for teaching already laid down—principle, illustration, case—holds good; and, if this is followed judiciously by the practising lawyer, success cannot fail to reward his teaching efforts.

J. A. S.

LAW, WILLIAM (1686-1761).—Became Fellow of Emmanuel College, Cambridge, in 1711; but forfeited his fellowship in 1714 in consequence of his refusal to take the oath of allegiance. In 1727 he became tutor to the father of the historian Gibbon, and for the next ten years was the spiritual director of the Gibbon family. The historian describes him as "a pious man who believed all that he professed, and practised all that he enjoined." After the death of the elder Gibbon in 1737, Law passed his life in seclusion, given up to study and devotion. He was a strong thinker and a skilful controversialist, and

most of his writings are connected with controversies of the day. His best work *A Serious Call to a Devout Life* is still popular. Gibbon praised it highly both for its religious and its literary qualities; and Dr. Johnson said it was the first cause of his thinking in earnest of religion, and described it as the "finest piece of hortatory theology in any language."

LAWN TENNIS.—It is much easier to play lawn tennis than to write about it. One learns from textbooks that it sprang into existence in the early '70's, but its actual birth is wrapt in mystery. To-day it takes its place as the game played in more places and by more people than any other game in the world. It is no longer a mere pastime for ladies and children, but a game that lends itself splendidly to intimate trials of strength, skill, and endurance. Most of the leading players of the day have distinguished themselves in other realms of sport. For instance, the late Captain Anthony Wilding was a first-class cricketer; H. Roper Barrett, a member of the Corinthians Football Club; J. C. Parke captained Ireland in many famous Rugby International matches; and there are many others. Nevertheless, however poor a player may be, he can derive an endless amount of amusement and enjoyment out of the game; nor need he ever despair so long as he is keen, for constant practice is certain to bring improvement. Now, in England, every child of 10 or 11, generally armed with a fish-handled racquet, starts acting as "ball boy" to grown-up sisters and brothers. At the end of an afternoon's play, the ball-boy and ball-girl may usually be found having a "knock-up on their own." This is sufficient to whet their appetites, and after a while an opportunity falls to them to take their places in a real game. Nothing less will satisfy them in the future.

Lawn Tennis at School. Unfortunately, they find when they go to school that lawn tennis is not one of the recognized school games, nor is it in any way encouraged by the masters. They are told that cricket produces discipline, and that lawn tennis is played only by "slackers." Granted that cricket is the national game, and a very fine game too, there is no reason to put lawn tennis completely out of court. If boys are left to themselves to play lawn tennis, they may become slack; but, if their games are properly organized, it is entirely different. Numbers of boys find cricket a bore (I loved it, and played an immense amount of it until 1908, when I took up lawn tennis), and yet are "sportsmen" in the best sense of the word and would welcome an alternative game. If a boy looks like turning out a complete failure at the one game, it seems a great pity that such a splendid game as lawn tennis should not be offered him as a substitute. I quite recognize the value of cricket in teaching a boy to play for the good of his side rather than for himself, but the same thing holds good in doubles play at lawn tennis.

Style. In England, most players start the game by doing their utmost to hit the ball over the net as often as they possibly can, quite oblivious of the style of the stroke. Often, after losing much breath in dashing after impossible shots, they find their feeble returns simply picked off at the net by their opponent. The Continental player, on the other hand, is taught at an early age to hit as hard as he can with plenty of swing, caring nothing where the ball goes. The consequence is that the play of the average foreigner is stylish and hard-hitting, but distinctly erratic; whereas the Englishman is apt to be rather ponderous and his strokes lack style, though they may be very effective. Which pays better in the long run it is hard to say; but it is certainly more delightful for the spectator to watch players with stylish methods than those whose one and only object is to get the ball over the net. I am afraid I must confess that I belonged to the latter school of players; but I felt that, when once you could make yourself absolutely safe and certain with your ground shots, then you could introduce style into your game.

Temperament must play, and does play, a large part in the game; there is no doubt that a player with a sunny disposition holds a great advantage. Furthermore, a cheery soul gets far more enjoyment out of his game.

I have often been asked for hints on how to improve one's game. I have found the following suggestions useful, and I offer them for what they are worth—

1. To have plenty of keenness and enthusiasm.
2. To have confidence.
3. To play with players a good deal better than you are (if you can find them willing).
4. To watch good players when you get a chance.
5. To get out of the bad habit of "cutting" every ball. It does not pay, and it cramps one's style.
6. To play on hard courts whenever you can. The surface of a good hard court lends itself to a uniformity of bounce, and you are given longer to consider where you are going to place the ball.
7. To divide the court into squares, and make accurate aims into the various squares at will. (This is the method by which Mdlle. Lenglen has become so splendid a player.)

Tournaments. Before the war, every week of the summer was taken up by tennis tournaments held throughout the length and breadth of the country. They afforded young players wonderful chances of improving their game. Nothing is more delightful than a week spent in this way. The chance of meeting some of the very best players leads people to enter for the open events in the hope of picking up some valuable hint from their play. The handicap events provide many thrilling moments for all competitors, and there is great fun and plenty of amusement. Now that the war is over the voice of the referee shouting through his megaphone is again heard in the land. HOPE CRISP.

LAWS AFFECTING CHILDREN, THE.—Modern times have produced a considerable amount of legislation tending to the amelioration of the lot of children. The chief of the Acts of Parliament dealing with the care of infants and the protection of children generally is the Children Act, 1908. This Act makes provision both for the moral and physical welfare of children, and embodies in itself most of the provisions of the former Prevention of Cruelty to Children Acts, which aimed at the protection of infant life. The child's well-being has, during the last fifteen years, been most carefully considered, and greater daring has not been shown in any branch of social reform. The provisions of the Children Act provide for the protection of the child, both morally and bodily, not only against wilful neglect, but in circumstances forming a possible source of danger to child life, and in which precautionary measures should be taken. From the moral point of view, the child is protected in a variety of ways; and in order that children, who

are naturally imitative, shall be restrained from a too early indulgence in adult habits, steps towards the eradication of these evils are taken in the Children Act, 1908, in relation to smoking and drinking. The sale of tobacco and smoking materials to persons under the age of 16 is prohibited, and the seizure of such smoking materials from a person apparently under the age of 16 is authorized as a police measure. The Children Act, 1908, in conjunction with Section 68 of the Licensing Act, 1910, sets out protective provisions regarding the child in its relation to licensed premises. The Children Act prohibits the presence of children under 14 in the bar of licensed premises, with certain exceptions; whilst the Licensing Act, 1910, prohibits the sale of spirits to persons under the age of 16, and of any intoxicating liquors to persons under the age of 14, except where the sale is for consumption off the premises, and the liquors are sold in corked and sealed vessels in quantities of not less than a reputed pint. The Children Act goes further by providing that any person giving intoxicating liquor to a child under the age of 5, except on medical advice or in case of necessity, becomes liable to a penalty not exceeding £3.

Other provisions affecting the moral well-being of children, and aimed at preventing vagrancy and thieving, are contained in the Children Act, 1908, and the Employment of Children Act, 1903, in relation to begging and street trading, two phases of lower class life which tend to lead children into a life of vagabondage. Of a similar nature are the rules laid down in the Pawnbrokers' Act, prohibiting pawnbrokers from taking in pawn any article from a person apparently under the age of 14 years, similar rules being laid down regarding marine store dealers and old metal dealers, who may not purchase scrap or broken metal from any person apparently under 16. In order to prevent children and young persons from drifting into low class and dangerous engagements abroad, the Children (Employment Abroad) Act, 1913, restricts children and young persons being taken out of the United Kingdom with a view to singing, playing, performing, or being exhibited for profit abroad, without licence from a Metropolitan police magistrate. Such a licence is granted for a period of not more than three months, and during the time the child performer is abroad it is practically a ward of the British Consul. These provisions are very similar to those of the Italian law, mention of which is made in the article on CHILDREN'S EMPLOYMENT ACTS.

Protection and Physical Welfare. The physical welfare of children received attention in the Prevention of Cruelty to Children Act, 1894. This was repealed in 1904 by the Prevention of Cruelty to Children Act, 1904, which greatly enlarged the scope of the former Act. The latter has now been repealed, but, in substance, re-enacted and amended by the Children Act, 1908. Under this Act, if any person over the age of 16 years who has the custody, charge, or care of any child or young person, "wilfully assaults, ill-treats, neglects, abandons, or exposes such child or young person, or causes or procures such child or young person to be assaulted, ill-treated, neglected, abandoned, or exposed in a manner likely to cause such child or young person unnecessary suffering or injury to his health, including injury to or loss of sight, or hearing, or limb or organ of the body, or any mental derangement, that person shall be guilty of a misdemeanour." The person having the custody, charge, or care is *primâ facie* the parent of the child, although the Children Act goes into detail as to the distinction between custody, charge, and care. In this connection, we should mention that wilful cruelty is the offence aimed at, and the provision of the Children Act is not to be construed so as to take away or affect the right of the parent, teacher, or any other person having the lawful control or charge of a child or young person to administer punishment in a proper case. The right of the parent to punish his child moderately and with propriety is a common law right, and the teacher's right is vested in him by express or implied delegation from the parent. The common law implies that the parent has delegated his right to the teacher if no mention is made of the matter when the child enters the school. This right extends to an assistant teacher, and it is legally impossible for an education authority or a principal teacher to delegate to an assistant a right which he already has. An assistant teacher, fully qualified and in charge of a class, has this right direct from the parent in a proper case to punish; and where punishment is properly administered, no assault is committed, despite the regulations of a local authority to the contrary. The assistant teacher may, however, have transgressed the regulations of the authority by such punishment, and he is liable to that authority for so acting.

Certain specific examples of neglect or cruelty are laid down in the Children Act, which in former legislation were not deemed to come within the definition of cruelty. Thus, the overlaying of a child under 3 years of age by a person who has gone to bed under the influence of drink is deemed to amount to neglect likely to cause injury to health, and where death ensues the person responsible may be liable as for manslaughter.

Provision is also made in this Act to guard against involuntary negligence by requiring that any open fire grate in a room to which a child under 7 has access shall be sufficiently protected to guard the child against the risk of being burned or scalded. A further Act, called the Fabrics (Misdescription) Act, 1913, aims at the physical safety of children by providing that it is not lawful for a person to sell or expose any textile fabric, made up or in the piece, to which is attributed, either expressly or inferentially, the quality of non-inflammability, unless the fabric conforms to such a standard as may be prescribed by regulation to be made by the Home Secretary. Miscellaneous provisions in the Children Act provide for the avoidance of policies of life assurance of infants kept for reward, the safety of children in places of entertainment, and the protection of children who are put out for nursing and maintenance. This Act also contains all the provisions of the law relative to industrial and reformatory schools, the conditions under which children and young persons can be sent to such schools, and the powers of the local authorities to maintain and educate and afterwards apprentice such young persons.

Education Acts. A large part of the legislation in relation to children is to be found in the various Education Acts, the first of which was passed in 1870. The important sections of these Acts would occupy too great a space for complete discussion, but it may be noted that Section 74 of the Act of 1870 is the basis of the law in relation to school attendance. Section 7 is also a most important

section, as it provides what is generally known as the "Conscience Clause" (*q.v.*).

The Elementary Education Act of 1870 did not go quite as far as that of 1876, which creates a statutory duty that a parent shall cause his children, between the ages of 5 and 14, to receive efficient elementary instruction in reading, writing, and arithmetic; and lays down rules for the enforcement of such statutory duty, quite apart from any by-laws made by a local authority under Section 74 of the Act of 1870.

It is upon Sections 11 and 12 of the amending Act of 1876 that the greatest amount of litigation in relation to school attendance has taken place, the main question in each of the cases having been: "What are reasonable excuses for non-attendance or non-compliance with attendance orders?" In general, it may be briefly stated as a result of the interpretation of the Education Acts, that where the parents are providing an efficient elementary education, it is not necessary that such education should be given in what is generally known as an elementary school. Mere attendance at a private school, however, will not be sufficient excuse for non-compliance with the law as to school attendance.

The Education Act, 1918, now provides that the ages of attendance shall be 5 to 14, and at the discretion of the local authority the upper limit may be raised to 15; where efficient nursery schools are provided the lower age may be raised to 6.

With regard to private schools, it is no defence to proceedings relating to school attendance that a child is attending a school providing efficient elementary instruction unless the school is open to inspection, either by the local education authority or the Board of Education, and unless proper attendance registers are kept.

Difficulties have been felt by head teachers of schools in respect of the summary leaving of pupils who arrive at the age of 14. Provision is now made in the Act of 1918 for the continuance of compulsory elementary school education until the end of the term in which the pupil attains the school leaving age, so that where a pupil attains his fourteenth birthday between Christmas and Easter he will be required to remain at school until the end of the term, say at Easter.

No branch of modern legislation has made such strides as that which provides for the education and well-being of defective children. The Elementary Education Act, 1876, did not make provision for the extraordinary circumstances of deafness and lack of sight. Under the Elementary Education (Blind and Deaf Children) Act, 1893, and under the Elementary Education (Defective and Epileptic Children) Act, 1899, as modified by the amending Act of 1914 (*q.v.*), provision is now made for the education of blind, deaf, defective, and epileptic children. Not only are physical defects to be taken into consideration, but, just as the matter of the protection of children tends to the promotion of mental and moral well-being, so in education the aim should be to promote physical well-being. This has been recognized by the Legislature in the provisions that have been made in the Education (Provision of Meals) Act, 1906, and the Education (Provision of Meals) Act, 1914 (*q.v.*).

For many years a considerable expenditure has been incurred by the State and by local education authorities in the provision of evening continuation schools, but much loss has been entailed by the leakage that has taken place between the elementary school and the evening school. An important provision has now been placed on the statute books under which all young persons are required to attend continuation schools for 320 hours in each year. The provision applies to all children who leave the elementary school and for the present extends to them until they reach the age of 16. The liability to attend continuation schools which are to be held in the day time, *i.e.* not before 8 in the morning nor after 7 in the evening is dependent on the fixing for each educational area of an appointed day. Seven years from the appointed day the regulations will apply to young persons between the ages of 16 and 18. Certain exceptions are made, among which is the rule that a young person who has attended a school supplying a secondary education up to the age of 16 will be excused attendance at a continuation school.

Attendance at day continuation schools is enforced by a penalty not exceeding 5s. at the first offence as against the young person himself, and as against a parent responsible for the offence, by a fine not exceeding £2. (See Education Act, 1918, Section 10 and following.)

Other Social Questions. Closely allied to the question of the education of children, and the provision of a sound mind in a sound body, is the question of employment. The chief legislative enactments relating to children's employment are the Education Act, 1876; the Factory and Workshop Act, 1901; the Employment of Children Act, 1903; the Coal Mines Act, 1911; and the two Children (Dangerous Performances) Acts, 1879 and 1897; the Children Act, 1908; and the Education Act, 1918.

One problem that has always interested the lawyers of Continental States is the problem of juvenile criminality. The history of legislation abroad in reference to this aspect of the law is generally the history of the whole law as to infancy, and this is particularly the case with France. In England, the reclaiming of the juvenile criminal is a matter of recent growth. Now, however, provisions are made, particularly in the Children Act, 1908, whereby children are treated differently from formerly. The courts of the land are not open to children, and in certain cases the courts may be cleared during the examination of children.

The guardianship of infants is a matter partly of common law right, partly of the Guardianship of Infants' Act, 1886. The common law may generally be said to recognize the father's right only. This is extended to give to the mother certain rights under the Act of 1886. The matter of custody of children is also provided for, where the parents show criminal tendencies, by the Children Act, 1908; and discretionary powers are given to the Courts under the Custody of Infants' Act, 1873.

R. W. H.

Reference—

HOLLAND, R. W. *The Child.*
The Education Acts, 1870–1918.

LEACH, ARTHUR FRANCIS (1851–1915).—The leading investigator of his generation into the history, especially the earlier history, of English schools. He was educated, first, at Winchester College, a foundation with the history of which he was intimately acquainted. From Winchester he passed to New College, Oxford, where he took a First Class

in *literis humanioribus*, and was elected Fellow of All Souls. In 1884 he was appointed Assistant Charity Commissioner, and in 1906 became Commissioner. In these posts, he was able to give full scope to educational research by consulting original documents. Mr. Leach contributed articles, marked by the thoroughness of research, on schools to a considerable number of the volumes of the *Victoria County History of England* (Hants, Surrey, Lincs, Northants, Berks, Derbyshire, Durham, Gloucestershire, Sussex, Yorks, Suffolk (part), Beds, Bucks, Herts, Warwickshire). The historical accounts are all based on documentary evidence; and in each county thus dealt with Mr. Leach was able to include, exhaustively, all the old grammar schools at any time endowed and under public trusts. In addition, his summaries of county school history at the head of each of his articles are of uncommon interest and value. He had much insight into the significance of value of different schools in different neighbourhoods and the types of pupils attracted to each institution.

Mr. Leach was always desirous of turning his researches to use. He was also very quick in forming his opinions. The result is that sometimes he has been regarded as too hasty. But, if so, he supplied his own corrective. For any critic of his views found, ready to hand, the material industriously gathered by Mr. Leach with which to contend against the collector. Mr. Leach wrote many articles in many periodicals. He contributed articles to the *Encyclopaedia Britannica*, and was one of the sub-editors for Dr. Paul Monroe's *Cyclopaedia of Education*, in the U.S.A. He was a most highly-valued contributor to this Cyclopaedia. Altogether, it may be said that Mr. Leach, by his own single efforts, placed the subject of the history of English education on the level of the research-work, which was so highly developed in the nineteenth century in the other departments of English historical institutions.

He wrote the following books, all marked by conscientious labour, freshness of thought, and vigour of presentation: *Southwell Minster*—Visitations and Memorials (Camden Society, 1891); *English Schools at the Reformation*, 1546–1548 (1896); *History of Winchester College* (1899); *History of Bradfield College* (1900); *Memorials of Beverley Minster*, 1898, 1903 (Surtees Society); *Early Yorkshire Schools*, 1899, 1903 (Yorks Archaeological Society); *Beverley Town Documents*, 1900 (Selden Society); *History of Warwick School*, 1904; *Educational Charters and Documents* (Cambridge University Press, 1911); *Documents on Early Education in Worcestershire*, 1913 (Worcestershire Historical Society). F. W.

LEAGUE OF THE EMPIRE.—A non-political and non-sectarian organization founded in 1901. It aims at promoting co-operation between the different countries and colonies of the Empire, mainly in affairs connected with education, endeavouring to provide full and correct information regarding them. Conferences have been held at intervals and lectures and exhibitions have been held in public halls and schools. Each year it holds a public celebration of Empire Day. Many thousands of children are influenced through the affiliated schools.

Membership is open to all subjects of the British Empire. The organ of the League is the *Federal Magazine*.

LEAGUE OF NATIONS, THE EDUCATIONAL ASPECTS OF A.—How many people are there who have even a slight conception of the wonderful story of the rise of man, his early struggles in the slow dawn of time, his gradual assertion of dominance over all other kinds of planetary life, his increasing control of natural forces and his triumphant entry into the vast unexplored and wondrous spheres of art, music and science? How many people are there who realize the enormous potentialities of the latent forces that hover around us to-day, waiting, as it were, to be harnessed to the service of mankind? Steam was at the disposal of man for thousands of years, but the steam engine only came a hundred years ago. The means for the production of electricity were always available, but only of recent years has electrical power been put to human service. And so, too, to-day we are surrounded by forces and matter whose real functions have yet to be discovered. For when we think of the inventions of the past century, the steam engine, the ocean-liner, the aeroplane, the telephone and wireless telegraphy, we obtain a mere flash of the marvellous gifts that science has in store for man. It is for man to use these gifts for constructive and not destructive effort.

The Power of Education. Just as we have made and are still making insufficient and even perverted use of the material resources of the world, so also we are neglecting and perverting the means at our disposal for moulding a loftier and nobler race. The press, the platform, churches and schools are far from being used in the best interests of mankind. Especially must we look to the schools of all countries for any real and decisive effort to create and sustain a better world. We are only slowly beginning to perceive the ever increasing power of education to mould the will of the individual and even of a whole nation. The experiences of Japan and Germany during the latter half of the nineteenth century are outstanding examples of the effect of a sustained educational campaign. Japan, by her unique educational effort, assumed a place in the forefront of nations. The dreamy Germans of the days of Goethe and Schiller and Kant, in a few decades were transformed into a nation of practical scientists, unreasoning soldiers and very commercial travellers. When Mr. Arthur Henderson, the Secretary to the Labour Party, stated that Labour had to capture the schools he gave utterance to an opinion that present day school instruction in this country is not without its political bias. In Russia now we know that communistic ideas permeate school instruction. Everywhere we see signs of the educational bias used to create a certain political outlook. But true education is without bias. It is a continuous revelation of the truth. It must therefore be a potent factor for good.

"The Educability of Man," as Mr. H. G. Wells terms it, is probably the one hopeful factor in the world to-day. The rapidity of the growth of educational systems in all civilized countries encourages us in that hope and belief. How rapid that growth has been will be speedily seen from a report of an inspector of schools in 1843. It states that in an area of eight miles by four, in one of the most populous and enterprising districts around Oldham and Ashton, with a population of 105,000, there was not one public day school for the children of the worker; and this was the condition less than seventy years ago.

It is not, however, the improvement in the educational machinery alone which inspires this new hope; it is the actual teaching itself which must be the real and vital factor. It will avail very little if the country be filled with schools, colleges and universities, and if at the same time the actual instruction which is given in schools is on the wrong lines. That such has been and still is the case may very readily be demonstrated.

We need to revise the whole subject of school instruction so that all knowledge, especially history, geography and science should be presented in the light of the ideals of a League of Nations and from a world stand-point. Education has to be directed internationally, and this can only be accomplished through an organization such as is foreshadowed by an International Bureau of Education.

The Lessons of History. Let us consider, first of all, the subject of History, which probably more than any other has hitherto been inadequately or even falsely presented to children. Children at school have been taught to regard history as exclusively the record of their own country's development and even that as exclusively a record of dynasties, battles and intriguing politicians. Nowhere has the great underlying truth which emerges from the proper study of history, namely, the Unity of Mankind, been brought home to the people. Each country has its typical national twist in its conceptions of history. The great lessons of the history of man, " with all his early struggles and triumphs, his spread over the globe, his conquests of Nature, his creations of art and his building up of science," all that knowledge which teaches the moral of the common purpose of mankind, have not been brought home. But this great truth is now coming to light and the nations are beginning to realize their interdependence, that they are all engaged in a common work, that they have sprung from common origins, and that they have a common destiny. Slowly and surely we are beginning to see that every epoch of history has its outstanding examples of the advantages that have accrued from co-operation between different peoples and nations, that these facts have been obscured in the past and prominence given to those that really have contributed very little to the progress of mankind.

Almost each country has in the record of its own development examples of internal co-operation such as foreshadow a larger and more general co-operation between the peoples of the world. In the case of France it is only necessary to quote Victor Hugo who, in 1849, wrote " If 400 years ago Frenchmen had been told that Normandy and Picardy, Provence and Lorraine would no longer be likely or willing to attack each other, the answer would have been—what dreams ! " That dream has become real; to-day we say that of all Europe. A great sovereign Senate can be for Europe what Parliament can be for England. Consider also the case of Switzerland in whose capital, Geneva, the first Assembly of the present League of Nations has been held. There we have a striking instance of the harmonious working of people who differ in race as well as in language. In Switzerland we have people who speak four different languages, French, German, Italian, Romansch, differing in race as in language, yet the twenty-two cantons of Switzerland live together in friendship. In the past they regarded each other as separate nations, continuously waging war with each other, but gradually force and violence gave way to right and reason. And similarly almost every other nation can from its own history show analogous examples of internal co-operation of formerly warring sections just as in the cases of France and Switzerland. Also the British Empire, which is mainly held together by consent, is in itself a striking example of co-operation. But a real League of Nations, when it grows to its full strength, will be something wider and grander than any Empire, for it will be founded upon humanity itself.

It is clear, then, that the world needs a revision of the whole subject of the teaching of history. We need in this country to emphasize the lessons of co-operation between nations to be learned from the ordinary English History as now written, and secondly, and more important, we need to alter the whole teaching of history in all countries, so as to make it international in outlook and to deal with the history of mankind. In our schools we need historical text-books embodying the international idea, and for our teachers we need comprehensive surveys of history such as has been given us by Mr. H. G. Wells in his *Outline of History*, and by Mr. Marvin in his *Living Past*. I have tried to emphasize a view of history which must help in promoting the great purpose of world unity. Almost all other subjects, geography, science, literature, religious teaching, and all knowledge can be presented from this broad and human aspect. In geography, for example, we have unceasing examples of the interdependence and interaction of different peoples, and of the bounteous gifts of the earth which are meant for the benefit of all mankind and not for any isolated unit. We need to bring out the vital civic bearing of geographical knowledge. While as for science, there is probably no branch of the activities of the human mind which is less dependent upon any national or local characteristic, for in science the community of the human mind is most strikingly shown.

An International Bureau of Education. By a broader and more human outlook we shall help to create the will for an effective League of Nations which can only be sustained by the organized opinion of mankind. The main task is therefore an educational one. Teaching has to be influenced so that it will promote the international outlook, so that children, when they grow up, will accept the League of Nations as the final arbiter of international disputes and the guardian of international right, just in the same way as they accept the existing constitution of the land in which they live. It is for teachers and for those engaged in instructing the young to imbue them with the international spirit, through the proper presentation of all school subjects on the lines briefly indicated above. This educational task will only begin to be effectively carried out when we get some co-ordination between the very many and different national educational systems. Fortunately there is hope that the organization essential to this purpose may shortly be brought into existence. Persistent attempts are being made to establish an education department as a definite part of the organization of the League of Nations.

When the League of Nations Commission at the Peace Conference was hopefully drawing up the text of the Covenant of the League of Nations

in Paris, the meeting of delegates of Allied Associations for a Society of Nations submitted the following resolution to the Commission—

"That an international Bureau of Education should be an active organ in a League of Free Nations. Education is the principal means by which a responsible world democracy may be evolved and a League of Nations maintained."

The Commission, while in sympathy with the resolution, thought it wise to defer the establishment of the educational section of the League. But it will not be delayed for long. It will be hastened by the further resolution passed at the Conference of the Federation of League of Nation Societies held in Milan, June, 1920, which "requests the League of Nations to establish as soon as possible an International Bureau of Education on the same basis as the International Labour Bureau."

Meanwhile the voluntary organizations in all countries, such as the League of Nations Union in Great Britain, L'Association pour un Societé des Nations in France, Die Liga für Völkerbund in Germany, the League to Enforce Peace in America, etc., are undertaking the necessary educational work with success. This is easy to understand for the people of the world yearn for peace and look to some means of preventing any recurrence of war. They want to be led out of the wilderness of fears, distrust and wars, into the promised land of hope, co-operation and peace. We have now achieved peace. Is it to be merely a transient phase? Certainly the memories of the long nightmare which the war has been, will be a sufficient deterrent from war at least for the present generation. The tragic picture of Europe will probably be with us till the end of our days, as a constant testimony to the insanity of war.

But unless we teach the world the truth about war there is no reason why succeeding generations should get a different impression of a war in our time than we have of wars occurring in bygone generations. Future generations will perhaps read long narratives of wonderful strategy, of undying valour and superhuman prowess, but hardly a word of the real and more sordid side of war, with its indescribable savagery, loathsome brutality and darkest tragedy. We need all the more to create an effective League of Nations which will maintain the peace of the world, while helping mankind to progress towards the goal of a World League of Men. S. S.

LEAVING AGE IN RURAL AREAS.—(See RURAL POPULATION, EDUCATION OF THE.)

LEAVING CERTIFICATES.—The Report of the Consultative Committee on Examinations in Secondary Schools (Board of Education, 1911) gives a review of the principles which should underlie the system of external examinations, and describes how the Secondary School Certificate Examination ought to be conducted. The certificate should be awarded on the results of (*a*) inspection; (*b*) written work produced by candidates in the year previous to the examination; (*c*) an examination, mainly written, but partly oral and practical. The examination papers should be appropriate to the approved syllabus of the school, the practical part consisting of inspection of classes during instruction, and of the pupil's work during the previous year; in science there should be a practical test, and an opportunity for the examiner to see the pupils at work in the laboratory. The whole class should be examined.

At present there is a remarkable multiplicity of examinations in secondary schools. For instance, out of a group of twenty-seven schools in Lancashire, the total number of examinations taken by the pupils was twenty-six. Appendix "C" of the Report gives a list of more than ninety examinations for which boys and girls of secondary school age may be entered.

In the Board's Circular (No. 849), it is proposed (*a*) to establish in every secondary school recognized for grants two new external annual examinations suitable for the sixth and fifth forms respectively, to be conducted by a university, standardized by the Board of Education, and to be substantially equivalent throughout the country; (*b*) to reserve the right of prohibiting every such secondary school from preparing pupils for other external examinations, except with the special permission of the Board of Education. The Secondary Schools Association issued a memorandum (*Schoolmaster*, 22nd Jan., 1916) pointing out the momentous changes that would be wrought, and urging that "excessive uniformity is alien to English genius." The Association asked for freedom in the choice of examinations. It was shown that the list in Appendix "C" can be grouped in three classes (excepting examinations in Drawing and Music)—

(*a*) University Local Examinations and similar tests by such bodies as the Central Welsh Board, College of Preceptors, etc.

(*b*) University Matriculation and qualifying examinations for Government Departments.

(*c*) Competitive Examinations for University Entrance Scholarships and for Army and Civil Service.

There is already a disposition on the part of examining bodies to meet the requirements of the Board of Education. Thus, the Local Examination and Lectures Syndicate (Cambridge) have established (*a*) the Higher School Certificate Examination; and (*b*) the Senior Examination, to replace the old Senior Examination, discontinued after December, 1916: the former designed for students (of about the age of 18) who have given some two years' study to a definite group of subjects; the latter for pupils, of the average age of 16–16½, before beginning to specialize in any particular branch of study. Certificate "A" for the Senior Examination can be granted only to successful candidates from "approved" schools; to others, "B" certificate is awarded.

The present examination system is irksome to pupil and teacher alike, and is responsible for serious waste of time. Schools, however, would probably not be desirous of committing themselves completely to the mercy of the Board of Education unless they could be perfectly assured of the thorough competency, the practical experience, and earnest sympathy of inspectors and of the individuals described as "interview-examiners," who, owing to the present method of appointment, are not infrequently lacking in these obviously requisite essentials. At the present juncture it seems reasonable to remark that neither teacher nor pupil is deeply enamoured of such functionaries.

While it is doubtful whether Government departmentalism exerts a healthy effect in any direction, it is certain that its undue influence in the world of education would be extremely pernicious; and

one may hope fervently that the practical teacher rather than the educational theorist will be fully consulted before any wide-reaching scheme is finally adopted. B. L. K. H.

LECTURE METHOD.—This is a method of imparting information to a body of listeners by a speech, sermon, or extended discourse on the selected subject. As a means of teaching, it is suitable only for elder students and in certain subjects only. It may be used where the teacher is under no obligation to establish each point in his lecture as he proceeds. But it is not suitable for young pupils, as in teaching them the instructor must know that each point is understood before proceeding to the next. In the University Extension Courses, the lecture is usually followed by a class, and questions are set to be answered by the students, thus combining lecture with oral instruction and with tests of progress.

LECTURER (TRAINING COLLEGE).—In a training college for teachers, the members of the staff, in addition to lecturing and tutorial work, are expected to assist in demonstrating the art of teaching and in supervising the teaching practice of the students. The ideal training college lecturer has the good qualities of a university lecturer and tutor, together with skill of a high order in the teaching of children.

The head of a training college is usually called the principal. He discharges the functions of a head master, and receives a salary of about £800 per annum. In Church training colleges for men, the principal is usually in holy orders. Some principals of women's colleges are also clerks in holy orders, but in most cases now the principal of a women's college is a woman.

In colleges for men and women, the principal is usually a man, and in that case the vice-principal must be a woman, who takes charge of the discipline of the women students. The vice-principal assists the principal in the general organization and discipline. It is becoming more common for the vice-principal to discharge the organizing functions of the master or mistress of method, since the old-fashioned lecturer in school method has lost part of his (her) functions now that the lecturers in the academic subjects of the curriculum also lecture on the methods of teaching them. The master or mistress of method is left with the lectures on the general theory of education and the organizing work, and, being thus in a position of authority toward the other members of the staff, he (she) tends to become vice-principal; or, better still, the vice-principal takes over the organizing work and the general supervision of teaching practice, and the lecturer in education ranks with the other lecturers.

Training college lecturers are engaged by the governing body of the college, subject to the approval of the Board of Education. They are expected to be graduates and trained teachers as a rule.

Salaries range from about £200 a year for a young lecturer to about £700 for the vice-principal of a large college. A. C. C.

LECTURERS (UNIVERSITY).—In the older universities the appointment of lecturers is for five years only, with possibility of re-appointment. The stipend is small. The post is attractive more by reason of the *kudos* attaching to it than from its financial importance.

There are two groups of lecturers, viz., the regular teachers in the university or in one of its constituent colleges, and those who have attained eminence in a branch of knowledge.

The second group of lecturers contains men of professorial rank and men who, by accepting a professorship, would add to the glory of the university.

Lectureships, such as the Bampton, Gifford, Hulsean, and Romanes, have been made famous by being held by the greatest men of the English-speaking world. The tenure is for one year in most of these cases; the duties are to deliver lectures dealing with a certain branch of knowledge, and the salary is derived from an endowment fund, which may yield an income of about £25 per lecture.

Recognized Lecturer. A man who desires to become a recognized lecturer must apply to the Special Board of Studies concerned with the subject in which he proposes to lecture. If his application is successful, he will be recognized for five years; and will be required to deliver one course of lectures during each academical year, to which members of the university must be admitted either free of charge or at a fee approved by the Special Board of Studies. The Board is empowered to announce the lectures. After the term of recognition is completed, a fresh application must be made.

College Lecturer. At Oxford and Cambridge, a great deal of the actual teaching of the undergraduates is the work of lecturers and tutors appointed by the colleges. The larger and richer colleges can afford to provide lectures and tuition for their undergraduate members in all subjects. Other colleges unite, so that their combined resources put them into a similar position as regards the number of undergraduates, finance, and number of lecturers to that of a single large and rich college.

Attendance at a college lecture is not in the same category, as a rule, as attendance at a university lecture. If an undergraduate is told to attend a college lecture as part of his course, his absence is reported to the tutor, who inquires into the cause of absence. It is unusual for an undergraduate to attend a college lecture unless it is part of his course, and it is still more unusual for a graduate to make a voluntary appearance at a college lecture. University professors, readers, and other teachers are much more likely to have hearers who are attending voluntarily: they are not so usually responsible for recording attendances; their work is much less tutorial in character, and does not usually bear so directly upon examination syllabuses.

A college lecturer is appointed by college authorities, and his appointment does not need to be approved by the university authorities. Salaries are so variable that it is not possible to give even typical figures.

University Extension Lecturer. A candidate for appointment as a university extension lecturer must not only have a good knowledge of his subjects, but must satisfy the Board of Control that he can lecture upon them in a way which will appeal to an audience.

Once on the list of University Extension lecturers, the candidate has to undergo a continual test of his powers. He lectures once a week, for a series of six or twelve weeks, in a given town or centre.

Usually the first lecture is open to the public without charge, and many possible members of the audience decide, according to their impressions, whether or not they will take tickets. The difficulty for the lecturer is that some of his audience will be ignorant of the subject, and they will need and desire a popular lecture; while others will already have some knowledge, and will desire a lecture of university standard. To satisfy both the groups is the most difficult course and the supreme aim of the lecturer.

Then the lecturer has to face a different audience each evening. He may have still further audiences in the afternoons. It is no uncommon thing for a lecturer to find himself with an audience of leisured people in the afternoon and an audience of "workers" in the evening. The same topic is usually chosen by the Committee of the University Extension Society in the town, so that the lecturer may have to deliver his lecture twice in one day.

The life of a University Extension lecturer contains a great deal of travelling between August and the following Easter. The summer is usually free. (See also UNIVERSITY EXTENSION MOVEMENT, THE.)

A. C. C.

LEEDS UNIVERSITY.—Originally Yorkshire College (1884) and consisting of Leeds School of Medicine (1831) and a College of Science (1874), it was a constituent part of Victoria University during the period 1887–1903, obtained a charter and became the University of Leeds in 1904, pledged to devote its main energies to arts, science and learning.

The governing body consists of the Chancellor, Pro-Chancellor, Vice-Chancellor, Pro-Vice-Chancellor, representatives of schools and universities, of local councils and others. The executive body is the council and the senate controls the academic work. The University is supported mainly by endowments, donations, grants from city and county councils in the Ridings of Yorkshire, and by fees. The Skinners' Company finance a department providing instruction in the leather industry; the Clothworkers' Company of Leeds gives an annual subsidy and has supplied buildings fitted for study and research in the chemistry of dyeing and in the manufacture of textiles. Courses are offered in art (including economics and law), science, technology and medicine (including dental surgery). Agricultural courses have been established and experiments are performed with the assistance of the North, East and West Ridings; lecturers and dairying instructors are sent to local centres.

The degrees are: in arts, B.A., M.A., Ph.D., Litt.D.; in science, B.Sc., M.Sc., Ph.D., D.Sc; in commerce, B.Com.; in law: LL.B., LL.M., Ph.D., LL.D.; in medicine: M.B., Ch.B., Ch.M., Ph.D., M.D.; in dentistry: B.Ch.D., M.Ch.D. The minimum period of study required for the first degree in arts, science, law and commerce is three years. In medicine, surgery and dental surgery it is five. The University offers special facilities for the study of applied science. Students can obtain a complete training in civil, mechanical, electrical, gas and mining engineering, fuel and metallurgy, analytical chemistry, cloth manufacture, colour chemistry and dyeing, leather manufacture and agriculture, and diplomas are awarded in any of these subjects after a three years' course. There are also diplomas in dental surgery, psychological medicine, public health, education, commerce, social organization and public service, and for teachers of French and German.

Fees are graduated according to the subjects. The yearly fees for a full course are: B.A., £19 11s.; B.Sc., £27 11s.; commerce, £19 11s.; engineering, textile industries, dyeing and leather, £31 11s.; agriculture, £15; diploma in education, £15.

All students attending the University regularly who are not living with parents or friends are required to enter a Hall of Residence approved by the University. There are four hostels for women students.

In co-operation with the County Councils of the Yorkshire Ridings and the Leeds City Council the University receives scholars. There are also eight entrance scholarships awarded on the result of the higher certificate of the Joint Matriculation Board, and various scholarships and fellowships open to students of the University only.

There is a Students' Union, membership of which is compulsory and carries with it membership of the various athletic clubs and of the debating society. Numerous other societies and clubs have been instituted for special purposes.

The Bradford Education Committee have under discussion a proposal that the Leeds University should be widened into a joint university for Leeds and Bradford.

LEGAL RESEARCH.—(See RESEARCH AT THE BRITISH MUSEUM AND PUBLIC RECORD OFFICE, THE APPARATUS OF.)

LEGENDRE, ADRIEN MARIE (1752–1833).—He was Professor of Mathematics successively at the École Militaire and the École Normale at Paris. Legendre's original work was strongly influenced by Euler's (*q.v.*); this is especially shown in his systematization and calculation of large classes of integrals; he also made important contributions to the theory of numbers, the theory of attractions, and the calculation of mathematical tables. His *Éléments de géométrie* (Paris, 1794) was a very successful attempt to supersede Euclid's *Elements*, then almost exclusively used as a text-book of geometry. In successive editions of this book, Legendre began to publish his profound investigations on the theory of parallels, which occupy a leading place in the early history of non-Euclidean geometry. It was principally through his text-book on geometry that his influence on education was felt. An English translation was published in 1823.

P. E. B. J.

LEIBNITZ IN HIS RELATION TO EDUCATION.—Education is one of the few subjects on which there is little to be found in the writings of Leibnitz. This is probably due to the fact, on which he often congratulates himself, that he was self-taught, and thus able to avoid acquiescence in superficial, ready-made knowledge, and to strike out paths of his own. His father died when he was 6 years old, and with the other boys of Leipzig he was brought up on "the picture-book of Comenius, and Luther's little Catechism." But, happening to find in the house an illustrated copy of Livy, of which he could not understand a single line, he managed to get a tolerable idea of its contents, supplementing his scanty Latin by a study of the pictures and some judicious guessing. Afterwards his father's library was thrown open to him, and at 14 years of age he was counted by his fellows a prodigy of learning. His curiosity was

insatiable, and he tells us that he was "ever eager to penetrate into all things more deeply than is usually done, and to find something new."

This self-education, instinctively begun, is in complete harmony with his monadist theory. The monads, which are the only real existences, are souls or principles of activity, each in continual evolution or involution, each mirroring or representing the whole universe from its own point of view, and each producing from within itself the whole of its experience. Monads cannot produce changes in one another; each is as independent as if there existed nothing but God and itself. Each monad is at a different stage of development from every other; but they develop in independent harmony, like the parts played by the various instruments in an orchestra. The material world is an appearance, a *phenomenon bene fundatum*. Just as the rainbow is merely a phenomenon, being only light and drops of mist or water in a special relation to one another, so the material world is a phenomenon, due to our obscure or confused perception; and it is in reality nothing but monads, which can be known only by our clearest and most distinct perception (*e.g.* in the way in which we know mathematical points, in contrast with our sense-knowledge).

The Mind and Its Objects. It follows from this that nothing can enter into our minds from anything external to them. The only possible objects of our minds are the monads (including ourselves) and God, all of which are, with various degrees of clearness or confusion, represented in each individual mind, on the analogy of geometrical projection, in which a mathematical figure, inscribed in a plane B, at an angle with another plane A, is represented in a different form in plane A by drawing lines perpendicular to plane A from every point in the figure inscribed in plane B. The whole of our possible knowledge, thought, and conduct being thus potentially (or, as Leibnitz says, "virtually") within the mind of each of us from the first, the supreme aim of education must be to develop this "virtual," subconscious, obscure, and confused knowledge and action into perfectly clear and distinct knowledge, and into action based on such knowledge. The motive power in this development is always and only the individual soul, whose nature it is to unfold itself spontaneously from within, its present state flowing entirely from its past and holding a prophecy of its future. The soul is never at rest, but is ever active against restraints and limitations within itself. It instinctively seeks its own pleasure, which is "a feeling of perfection" arising from its free activity; while its pain is "a feeling of imperfection," of hindrance or restraint. There are endless degrees of freedom in souls; but no soul is completely necessitated in its development. Freedom consists essentially in spontaneity and intelligence; but, as all monads have the same spontaneity, the degree of freedom in any monad depends on the degree of its intelligence. The end of conduct is the highest degree of freedom, which is at once the highest degree of pleasure or felicity and the highest degree of perception or knowledge.

We may, therefore, assume that, had Leibnitz formulated his views on education, he would have described its main factors as (*a*) the individual spontaneity of the pupil; (*b*) the co-operation between the pupil and his teachers (including men of all times and the whole world), a co-operation due to the "pre-established harmony" among all monads; and (*c*) the possibility of a knowledge or insight—both comprehensive and profound—which is made possible by the representation or expression of the whole universe in the mind of every human being, and which has as its end the clear and distinct knowledge of God. R. L.

LEIGHTON PARK SCHOOL, READING.—(See FRIENDS' SCHOOLS.)

LEIPZIG UNIVERSITY.—This was founded in 1409 by a secession from Prague, and was established by a Bull from Alexander V. It was the second university founded in Germany, and, rapidly becoming famous as a seat of higher learning, drew large numbers of students from all parts of Central Europe. The Reformation brought about a reorganization of the University, and after the Napoleonic wars it made great advances. The main building, called the Augusteum, is in the old town; but in other parts of the town are spacious medical and physical laboratories, forty-eight institutes, and a new library building. The library, founded in 1544, contains 550,000 volumes and 5,000 MSS., and is one of the best in Germany. The students number over 5,000, and there are 250 instructors. In size, Leipzig University is the third in Germany, being exceeded by Berlin and Munich only.

LEMBERG UNIVERSITY.—This was originally a Jesuit College, founded in 1661, and sanctioned by the Pope in 1758. In 1784 it became a State institution under the Austrian Government, and was reorganized in 1817 as a university, with faculties of theology, philosophy, and law. The medical faculty was added in 1891. The Latin language was employed as the medium of teaching until 1824, after which German was used, and in recent years Polish. Women are admitted as hearers to the lectures on philosophy, and may obtain diplomas in medicine.

LESPINASSE, MLLE. DE. — (See "BLUESTOCKINGS" AND EDUCATION, THE.)

LESSING, GOTTHOLD EPHRAIM (1729–1781). —A native of Saxony; entered Leipzig University as a theological student; but devoted his attention to general knowledge, to the cultivation of bodily and social accomplishments, and to the writing of plays. He developed at an early age an independence of character which was always a leading feature in his life and writings. He possessed great intellectual gifts and an earnest desire for knowledge and truth. After leaving Leipzig University, he earned a livelihood by literary work for the *Vossische Zeitung* and by writing plays. He subsequently continued his studies at Wittenberg University and took his Master's degree, and for a time his writings were aimed against ignorance and intolerance. He continued his dramatic work, and endeavoured to make the drama an agency for popular culture, basing his dramas on English models. He endeavoured to put an end to the influence of French literary taste upon German writers, and extolled Shakespeare as superior to Racine and Corneille. For this purpose he assisted in conducting a critical review called *Litteraturbriefe*. His two greatest works, *Laocoon* (1766) and *Minna Von Barnhelm* (1767), appeared at this time. The former is a critical treatise on poetry and art; the latter is the first great national German comedy, and shows no trace of imitation of foreign models. In 1769, Lessing became librarian

of the Wolfenbüttel Library in Brunswick, and at once began to publish some of the treasures of the library in volumes entitled *Zur Geschichte und Litteratur*. He wrote another great play *Emilia Galotti* and, during his last years, a number of works on theological controversies.

Ideas on Education. His *Die Erziehung des Menschengeschlechts* (The Education of the Human Race) was his last important work. In this short treatise of about twenty pages he discusses the proper course of the education of the individual in the light of the history of the human race as shown in the sacred narrative. He opens with the dictum that " What Education is to the individual, Revelation is to the whole human race "; and declares that the individual receives from education nothing which he could not obtain by his own efforts. Education only renders the process of learning more speedy and less difficult: so also Revelation assists in the attainment of a higher spiritual life which man ought to have reached without it. Tracing the history of the Jews, he concludes that they were chosen by God that he might teach them divine unity, and that they were trained by him through the medium of rewards and punishments in this life. And as some nations remained backward while others surpassed the Jews, so it is with children who are allowed to grow without training: many remain quite rude, while others educate themselves to an astonishing degree The captivity in Persia showed the Jews a nation with larger knowledge, and henceforth the Old Testament became inadequate—an elementary book suitable to a certain age, which would injure the nation which continued to use it after having outgrown it, which promoted superstition and mystery. Hence Christ came to carry the nation forward, and to supply a more advanced book and a higher training, with the doctrine of immortality to take the place of earthly rewards and punishments as a motive of conduct. He was the first teacher who employed the idea of a future life to influence outward action and inward purity. Lessing concludes that " the path by which the race reaches its perfection every individual must sooner or later traverse "; and, though his conclusion may be open to objection, there is no doubt that a study of the process by which mankind has been educated may become a fruitful source of ideas with respect to the proper education of the individual.

LETTER METHOD.—In teaching reading, two distinct kinds of method are used in the earliest stages: the method of teaching words and afterwards analysing them, and the method of teaching letters and how to combine them into words. This second method is sometimes called the " Letter Method," wherein the letter is taken as the unit either by name, or by its sound, and words are constructed before being sounded. (See READING, THE TEACHING OF.)

LEYDEN UNIVERSITY.—(See NETHERLANDS, THE UNIVERSITIES OF THE.)

LEYS SCHOOL, CAMBRIDGE.—Among Non-conformist (or rather, non-sectarian) public schools, the Leys School takes a high place. It was founded in 1874 and incorporated in 1878. It owes its establishment and success largely to the increased prosperity of members of the Wesleyan body, and the direction of two great head masters, Dr. Moulton and Dr. Barber. The President of the Wesleyan Conference is *ex-officio* chairman of governors, and the Board includes leading Wesleyans and other Free Churchmen. There are upwards of 220 boys in residence in four hostels, and the staff consists of about twenty masters. The school has two sides, and in the Upper Fifth and Sixth Forms there are specialized courses in Classics, Mathematics, Science, History, and Modern Languages. Athletics are cultivated assiduously, and hockey, lacrosse, and Rugby football have long had distinguished Leysian and Old Leysian players. The school conducts a highly successful and useful mission in City Road, E.C.

There are three entrance scholarships (£40–60) awarded annually, and one of £75 every other year. A leaving scholarship of £60 is also offered annually.

L'HOSPITAL, DE.—(See BERNOULLIS, THE.)

LIBANIUS (314–393).—A famous teacher of rhetoric at Athens, afterwards at Constantinople, and finally at Athens. St. Chrysostom and St. Basil were among his pupils and friends. His lectures were so popular as to attract pupils from other teachers, and in consequence he was at Constantinople accused of practising magic. Many of his works, including orations, declamations, and letters are still extant.

LIBERAL EDUCATION, A.—The meaning of the word " education " is the drawing out of the good powers of a pupil, chiefly of the mind, and particularly his powers of reaching truth and admiring beauty. Those who educate do so, after a certain amount of grounding, by bringing to a pupil's mind, with comments, the thoughts of illustrious men, and the facts of nature and history. The word " liberal " has its origin in such Latin phrases as " *Liberalia studia*," " *Liberalis doctrina*," and these are themselves translations of Greek phrases referring to education, which contain the word ἐλεύθεριος. The idea they all contain is that of an education suitable for a man who was ἐλεύθερος (*liber*, " free "), as opposed to one who was a slave. Slaves were supposed to need only such knowledge as would make them useful to their masters; that which a freeman needed was settled by various States according to their several ideals. In Sparta, a military State, training was chiefly of the body, and education as modern nations understand the word was little known. In Athens, education was of two parts: γυμναστική and μουσική (education of the body and of the soul). The former dealt with bodily exercise, and rhythmical and graceful movements; the latter with the reading or hearing of good literature of all kinds—historical, lyrical, dramatic, and oratorical—together with music and the science of number, and, further, with the speculations, generally oral, of philosophers on physical and metaphysical subjects. This education was called μουσική, because of its connection with the Muses. It had to do not with the earning of a living, or the increase of bodily comfort, but with making men capable of serving the State. Much of the literature read and heard was concerned with the gods, their behaviour, and the duties of men to them; and this part of education was viewed, at least from about 460 B.C., with considerable misgiving by thoughtful men. Μουσική implied, as a grounding, a knowledge of γράμματα, which amounted to not much more than the power to read.

The early Romans were somewhat like the Spartans; but, as their empire grew, education, as the Athenians understood the word, was gradually introduced. In the later days of the Republic, Romans, liberally educated, knew Greek and Greek literature, but their bent was always towards that which was material and practical. Chemistry and physics, and even mathematics, had in those days but little bearing on actual life; and the Romans comparatively disregarded them, thinking most of education in oratory, both forensic and political, and of literature which had a visible outcome—namely, the drama, chiefly comedy: though even this struggled without much success against spectacles which consisted of fights between wild beasts, and between wild beasts and men, and between men.

Modern Views. In modern times, in many ways, ideas about liberal education remain as they were in Greece. Education is still considered in relation to character; schools as providing social qualities; and advanced education is still, in the main, the prize of the few. And there is the same hesitation on the part of educational authorities to identify their objects with those of religious teachers.

But, since classical times, many centuries have passed, in which always some men have been working in the ways of peace. The Christian religion, which, in theory, favours these, has long been dominant in Europe. The printing-press has greatly extended man's knowledge, and made it more accurate and permanent. The power of locomotion has greatly increased and quickened man's intelligence. All this has tended to change men's ideas about "liberal education." First, since in theory there are no slaves in Europe, the beginnings of it are given to every one, and "liberal education" itself may be had by any one, male or female, who can pay for it; secondly, there is so much wealth in the world, and life has become so settled, that the time of study for pupils is somewhat prolonged; thirdly, on almost all branches of learning so much subject-matter has been accumulated, that they have grown in dignity, and seem fitter than once they seemed to be included in the education of a liberally-educated man. Commerce is no longer blind and for individuals, but it is a bond of nations, and proceeds on principles on which depends the welfare of mankind. Chemistry and physics are great sciences, resting on an immense number of facts; and they have brought so many inventions into the world—many of them beneficial and all of them striking—that they have become popular and even seem to some to provide an explanation of the universe; and have, in fact, so much arrested popular attention, that they often appropriate to themselves the title of science, and by the expression "men of science" people often mean simply chemists and physicists.

Thus, constantly, the old hierarchy of the sciences, described above as the main subjects of liberal education in Greece, has admitted, and is still admitting, other sciences into its company; and not only mathematics, chemistry, and physics—which have always been there, though somewhat insecurely—but also botany, political economy, geography, and mechanics are there also, and at least in the newer English universities are held in equal honour with the more ancient philosophies. Each nation in Europe has changed its educational ideals in the ways indicated above; but each assigns to the various sciences their value according to the bearing which they have on the nation's characteristics. For instance, Frenchmen probably think more than others about the graces of behaviour, Englishmen about facts and commerce, Germans about discipline and research; and these instincts tend to advance certain sciences in popular estimation, and also influence teachers in their treatment of them. It is also the case that, in all countries in which there is much wealth, the arrangements made by schools and universities for the bestowal of a liberal education, however excellent, are likely to fail; and boys and men are likely to become indifferent towards all parts of it that do not minister to their vanity or their enjoyment.

A. H. G.

References—

PLATO. *Republic*, III, IV, VI, VII.
ARISTOTLE. *Politics*, II, V.
Libri Pandectarum.
CICERO. *De Oratore*, III.

LIBERIA, EDUCATION IN.—The ruling race in Liberia are the descendants of liberated negroes brought from America before the abolition of slavery, as well as emigrant negroes from America. Though few in number, they rule over a million native negroes. Independence was proclaimed in 1847, and education organized by law in 1869, previous to which date the chief teaching bodies in the republic were the American missionary societies. In 1869 a contribution was appropriated from the taxes to the support of existing schools, and in 1900 a Superintendent of Public Instruction was appointed. The Methodist Episcopal Church maintains schools in all parts of the republic and the College of West Africa at Monrovia. The Protestant Episcopal Church has a number of schools, including four chief institutions under a resident bishop. The Government has over a hundred schools, and also supports the Liberia College at Monrovia. Industrial education receives special attention in regard to both boys and girls.

LIBRARIANS, THE EDUCATION OF.—Till comparatively recent times, the office of librarian was too often looked upon as a place of emolument and seclusion to which a mediocre but deserving person might be mercifully retired, or in which a needy scholar might find an easy livelihood while he produced unremunerative works. It was under this *régime* that the great Bentley and David Hume, Henry Bradshaw, and the American historian, Justin Winsor, acquired fame, but chiefly for other than bibliothecal achievements. With the immense modern growth of large libraries, however, a multitude of urgent problems now confront the administrators of libraries. These may be grouped, from the point of view of personal qualifications, under four heads: (*a*) the classification and organization of very large masses of books; (*b*) practical bibliography, embracing the investigation and description of the available sources of knowledge, and the provision of guides to books and other aids; (*c*) technical problems relating to buildings, fittings, appliances, materials of books, binding, secretarial routine, accounts, the management of large staffs, etc.; and (*d*) the special problems of the free public library, work with large bodies of readers, the wide circulation of books among all classes—in a word, the function of the library as part of the national educational machine. The later ideal has produced, on the one hand, a living encyclopaedia like

Dr. Garnett, and another, that wonderful combination of bibliographer and administrator, Dr. Billings, not to mention many brilliant living exponents of both mechanical efficiency and library scholarship.

England, the United States, and Germany have taken the lead in formulating schemes for the training of librarians on lines adapted to these new problems. In England, the Library Association began the work of educating the young librarian in 1883; and, after several years of effort and experiment, in 1902, with the co-operation of the London School of Economics, which undertook to provide lectures, the Council drew up a syllabus which is still, with amendments, the standard of training and examination. The Association is authorized under Royal Charter to grant certificates of competence, and now grants the fellowship on the results of its examinations.

This syllabus takes as the basis of qualification a fair standard of general education. Before a candidate can sit for any examination, he must pass a Preliminary Test. Before he can be awarded the diploma, he must have had practical training for three years in an approved library; must pass in two languages, one of them Latin; and must have passed separate examinations in Literary History, Bibliography, Classification, Cataloguing, Library Organization, and Library Routine. These subjects, it will be noticed, correspond to the problems enumerated above. Scholarship is demanded, a knowledge of the insides of books as well as of books as material objects. The mechanical side is duly balanced with the scientific side: the idea of the library as a vast and thoroughly organized storehouse of human knowledge, a bureau of information for the business man, and a workshop for the student and the progressive craftsman being the guiding principle.

University of London School of Librarianship. A regular Day School has now been established at University College, London, for the training of librarians, a grant of £1,500 a year being supplied by the Carnegie United Kingdom Trust towards the upkeep. Its curriculum embraces the subjects circumscribed above, with such additions as palaeography and archives; and the training is partly theoretical and partly practical, the libraries of the College being used for laboratory purposes or visits continually made to the chief London libraries to study their methods of working. A sound liberal education is regarded as the proper basis of the young librarian's personal outfit, the students accordingly taking a full part in the general intellectual and social life of the College, and studying whatever general subjects are recognized as conducive to their future efficiency as administrators of a great intellectual institution. Besides the full-time students, the classes are attended by a large number of library assistants and others actually engaged in work in the Metropolitan area.

The Americans have already a number of such library schools at Albany, in connection with the State library, at the Pratt Institute at Brooklyn, at the University of Illinois, at the Simmons College (Boston), and elsewhere; not to omit the admirable Pittsburg School for Children's Librarians. The courses cover two years, as a rule, but are very exacting, a college education equivalent to a degree being usually required before admission. A degree of Bachelor of Library Science is conferred by the New York State School, those taking it being eligible for the higher posts in the great libraries, students content with a single year's course supplying the lower grades.

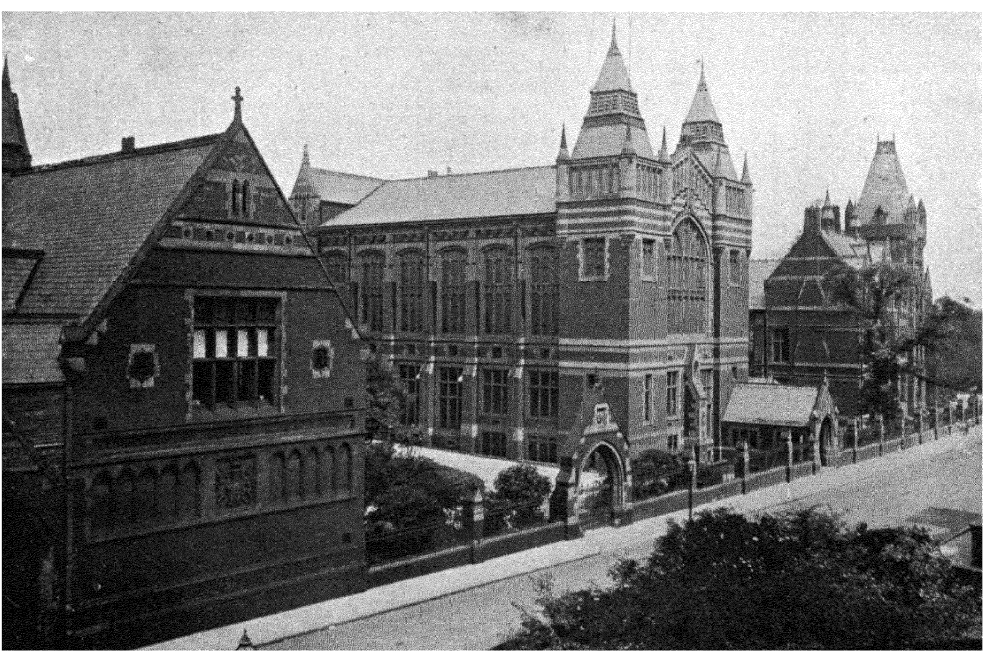
In Germany, librarianship has been, since 1861, a department of university teaching, Ritschl having made the library at the University of Bonn a training school. When Karl Dziatzko became librarian at Göttingen, he had library economy and bibliography added to the curriculum, and the professorship of these subjects conjoined with the office of librarian. The qualifications officially required of librarians in the Royal Library of Berlin are much on a par with the unwritten standard in force at our own British Museum. E. A. B.

LIBRARIES AND CHILDREN, PUBLIC.—The problem of children's reading has engaged the attention of teachers and librarians for some years. Much has been written and done towards a better understanding of what is desirable and the best methods of achieving it; but, so far, no general agreement has been arrived at as to the relative functions of the school and of the public library on this important question. My own view is that the school library under the direction of the teachers should be the first stage, leading on to the public library when the habit of reading and of selecting the right books has been formed. At present, a large number of elementary schools have only small libraries or none, and the public libraries are struggling to meet the deficiency.

Most of the libraries established under the Public Libraries Act have a children's department, often with a special catalogue. Co-operation between the teachers and the librarians is desirable to secure good results. The teachers may, for instance, be entrusted with the recommendation of scholars as readers, such recommendation to be accepted by the library authority as a substitute for the more elaborate guarantee usually required. Some libraries give teachers a book of forms to be used in this way.

The Public Libraries Act, 1919, removes the limit on the rate which has hitherto restricted the development of a satisfactory library system. So long as the rate for public libraries was limited to one penny in the £ public libraries could not supply books to meet the needs of all the children in their areas. There is also another factor not to be overlooked. If the public libraries are overwhelmed with children, the adult readers will be neglected. The public library's main work is to carry on the work begun in school: to enable the children, as they grow up, to continue their development. School life is a few years more or less, but the public library has to provide for all the years that follow. The making of good citizens is begun at school; the public library can do much to bring the preparation to fruition. The Act of 1919 also extends the operation of the Libraries Acts. County councils become library authorities, and may provide libraries for those parts of a county not already supplied. The United Kingdom Carnegie Trust have made grants to several counties for experimental purposes. This effort to supply a library system which shall meet the needs of rural districts has in almost every instance adopted the schools as the centre for local distribution. At the end of the five years for which the grants from the Carnegie Trust are made, these county libraries will be maintained by the county councils under the 1919 Act.

Lausanne University



Leeds University

PLATE LVIII

Co-operation between School and Library. There are many ways in which the public library can help the school outside the provision of a special department for children. These can be only briefly enumerated—

I. The formation and classification of groups of pictures to be lent to the schools for the illustration of lessons—pictures cut from illustrated papers and magazines form a good nucleus. The subjects will embrace all branches of natural history; pictures of great towns and buildings, and places of historical interest; portraits of historical personages and celebrities; maps of areas which are of special interest (the war area and the Panama Canal are examples); local topography, antiquities, etc.; types of the Army and Navy; and many others. When the collection is large enough, a printed list of subjects may be sent to the schools.

II. Lending groups of books to the schools for use in lessons on such subjects as history and geography. The books may be for illustration, or for reading, or both. Valuable books cannot, of course, be lent out of the library; but, by arrangement between the teacher and the librarian, a class may be taken to the library occasionally to see the books on some subject. The widening and deepening of the children's interest will well repay the effort.

III. Children may be sent to the library to look up information on some subject before the class, or on which essays are to be written. At first, the aid of the librarian and staff should be invoked to help in showing how to use catalogues, indexes, and books of reference. Later the children will find their own way about without assistance, to their great advantage.

IV. Facilities may be given by the public library to head teachers and class teachers enabling them to borrow from the library up to four or five books (not volumes, but the number of volumes of one work to be lent at a time should be restricted to three) for study. This method is already in operation in a few libraries.

V. Some public libraries in the larger towns have "Children's Reading-rooms." This form of utility is still in the experimental stage; success depends largely upon right administration. American libraries have achieved excellent results in this direction by the aid of children's librarians, mainly women, who are specially trained for this section of library work. The limitation of income already referred to has hitherto prevented development on similar lines in Great Britain, save in a few instances. A children's reading-room may do much useful work in a variety of ways if the teachers co-operate. The lines of work indicated in I, II, and III above can best be organized in connection with a children's room, thus making it a half-way house between the school and the public library.

Much remains to be done in the way of co-ordinating the work of the school and of the public library so that each may perform its part in carrying out the great end of all education, the training of men and women to be worthy and useful citizens. Teachers and librarians will have a due place in a well-ordered scheme, not usurping each other's functions, but rather complementary to one another. The children will be moulded and guided, restrained by the teachers from the rapid reading of too many books, and passed on as readers to the public library.

J. BALLINGER.

LIBRARIES BEFORE THE SEVENTEENTH CENTURY.—The collection and preservation of documents has been practised for thousands of years; probably the earliest instances are the series of clay tablets found in the ruined temples of Nineveh. These early collections consist of religious or social records, which it was the custom to preserve in the precincts of religious houses. In Egypt, Greece, and Rome, the earliest collections were doubtless similar to those of Assyria, and were kept in the temples.

When literature as we now think of it began to be composed and preserved, clay tablets as means of record were superseded by papyrus and parchment in the form of rolls and books, and libraries in our acceptation of the word gradually grew up.

Aristotle and Plato possessed libraries; and, amongst rulers, the Byzantine Emperors were great collectors and founded the famous library of Alexandria. Thus grew up collections of classical works which, later, were destroyed or dispersed.

In the Christian Era. The Christian Era ushered in a new literature, which permeated Pagandom, spread through the West, and laid the foundations of our modern libraries.

The earliest libraries in the British Isles were of ecclesiastical origin; not only were books obtained by, and produced in, the monasteries, but the monks were their custodians. For long years the workers in the Scriptoria produced nothing but books of a theological nature, all the old classical works being banned. It was not until the Revival of Learning caused collectors to bring together works from many lands that classical literature began to find its place in collections in the British Isles.

Monastic Libraries. As the producers and custodians of books were ecclesiastics, so stores of books grew up in the religious houses. In Ireland, the early missionaries from the Continent possessed collections of books; and the foundations of the libraries of Canterbury and York were laid by Archbishops Theodore and Egbert respectively. Augustine, indeed, had brought to Canterbury a few MSS. given him by Gregory the Great, but Theodore of Tarsus brought many more volumes when he came from Rome to become archbishop. Famous monastic establishments, such as Malmesbury and Whitby, Abingdon and Wearmouth, grew up, where books were produced and preserved, and education diligently fostered.

Later, the various mendicant orders of monks, the Austin and Grey Friars, made and collected books; it was largely due to their appearance in England that book-collecting spread so rapidly in the thirteenth century. The Grey Friars, for instance, possessed libraries in London, Oxford, and Cambridge, besides various other centres in this country; the Friars were diligent teachers, and their activity and constant travelling fostered the production and use of books. Thus the monastic foundations, great and small, had their libraries, portions of many of them surviving to this day. The few catalogues that remain give us interesting details of the works then in vogue, and prove the collections to have been almost wholly religious.

With the rise of luxury and idleness amongst the monks and friars came carelessness as regards their books, and gradually the libraries were disposed of or allowed to decay. Then came the suppression of the monasteries, and their libraries were forcibly dispersed or destroyed; to-day it is possible to trace

only a few of the volumes, scattered amongst the collections of our largest libraries.

Meanwhile, cathedral foundations, which in many cases grew up beside, or as direct successors to, monasteries and abbeys, became possessed of libraries; even parish churches became the receptacles of small libraries, as books besides those necessary for services were presented to them. Notable among such cathedrals are Exeter, Worcester, Hereford, and Wells; among the churches may be mentioned York, Derby, and Warwick. Each of the cathedrals had a library building, but the books in the churches were kept either chained to desks or in chests.

Private Collections. Towards the end of the fourteenth century we hear of private collectors in England, who, as a rule, handed on or bequeathed their collections to a religious or educational foundation. Thus Guy of Warwick collected French romances, which Bordesley Abbey received at his death; and Richard de Bury gave a great number of volumes to his foundation at Oxford, Durham College, about 1350. Many of the volumes which were scattered at the dissolution of the monasteries and by Edward VI's commissioners found their way into the hands of private collectors. Others were sold to tradesmen, who used them for wrapping-papers and such base purposes.

University and College Libraries. The colleges of the two universities of Oxford and Cambridge were gradually being founded, and each one of them possessed some sort of library. Early libraries at both universities are known to have been housed in thatched buildings; some of the colleges possess library buildings almost contemporaneous with their foundation. For example, Merton College library at Oxford is much earlier than the portion of the Bodleian founded by Duke Humfrey of Gloucester in 1450.

While the colleges were being founded and their libraries begun, in both towns attempts were being made to form libraries for the general use of members of the university. Thus at Oxford the first general collection was housed in the university church of St. Mary the Virgin, the various MSS. being valued so that a bond might be taken from the graduate who borrowed a volume for use in his own rooms. Other volumes were chained to the shelves, to be read *in situ*. The same practice applied in the colleges, and a volume of equal value or some similar bond was required, to be forfeited should the borrowed volume not be returned.

A little later (1365), the university library at Oxford was housed in a building added to St. Mary's Church, from money bequeathed by Bishop Cobham. Oriel College claimed the bishop's library and also the building, but the university authorities became possessed of the books some years later, when they boldly fetched them away from the college and placed them in the university archives; and over half a century later the claim to the building was settled in favour of the university also. Next came rich donations from royalty downwards, the most munificent amongst the donors being Humfrey, Duke of Gloucester. First (1413) he gave books, then (1435) books and money, and, still later, other large and small collections of books, till the university library at Oxford was the largest in the country. Humfrey's efforts for the library were largely successful, but it was not till some years after his death that the building which to-day bears his name was in use (1488). This was one of Oxford's chief glories till the time of Edward VI, whose commissioners despoiled it, and it remained in ruin till Sir Thomas Bodley made its restoration his crowning life-work.

As mentioned above, the colleges also had their libraries, some of which were earlier than Duke Humfrey's. University College (*c.* 1290), Merton, Balliol, and Oriel may be mentioned amongst these earlier ones; while of later date were Magdalen, Lincoln, All Souls, and Jesus Colleges. To enumerate all the college libraries would pass beyond the limits of this article.

Most of the colleges suffered in the same way as the university library, and it was left to the sixteenth and seventeenth centuries to retrieve the sad losses.

At Cambridge, the colleges grew up much in the same way as those at Oxford, though generally at later dates. In the fourteenth century, several were in existence and, as college after college was founded, each had its library. Most of the colleges, both at Oxford and at Cambridge, provided a library building along one side of the quadrangle, which is a feature of nearly all the colleges.

The University Library at Cambridge grew up about the beginning of the fifteenth century, though books had been in the hands of the Chancellor as early as the latter part of the fourteenth century. We read of books being given to the Public Library in 1424, when the collection consisted of over seventy volumes. By 1438 a common library was in existence, and it continued to grow by gifts of books and money. In 1454, a new library was built, and additional rooms and buildings were put up in 1470–1475. In the sixteenth century, this library, which had grown to a considerable size, was ruined by sales of books and by neglect, so that in 1573 the number of volumes was less than 200.

From this short survey of British libraries up to the close of the sixteenth century, it appears that from the eleventh to the fifteenth centuries there was a steady growth of book-making and book-collecting, which went on side by side with the gradual spread of learning and education. Then came the Renaissance and the invention of printing, only to be followed by the upheavals of the Reformation, which caused the destruction or dispersal of many existing libraries.

(For later history, see LIBRARIES IN THE SEVENTEENTH CENTURY; and LIBRARIES IN THE EIGHTEENTH CENTURY.) J. HUTT.

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LIBRARIES IN THE SEVENTEENTH CENTURY.—In describing the libraries of England of the seventeenth century, pride of place will be given to those collections which, got together by private persons, became the nucleus of our national collection with its home in the British Museum.

The Royal Collection. The first royal collector was Henry VII, who purchased books from Paris. During Edward VI's reign, Bucer's MSS. were acquired; under Elizabeth, one or two attempts were made to establish a public library, but they failed. A valuable contribution was added through

the efforts of Henry, Prince of Wales, son of James I, consisting of books obtained by him from the Earl of Arundel and other eminent men. The royal library was saved from dissolution during the Commonwealth by Hugh Peters and Ireton; afterwards the Council of State nominated Whitelock as keeper, who appointed as his deputy John Durie, author of the earliest English essay on the art of librarianship. A subject-catalogue was one of the first necessaries to be provided. In 1694, Richard Bentley was keeper, and turned his attention to the enforcement of the agreement with the Stationers' Company.

The Cottonian, Harleian, and Sloane Libraries. Others merged later in the national collection were the Cottonian, the Harleian, and the Sloane collections. The first was begun about the year 1588 by Sir Robert Cotton, who spared no expense to acquire all kinds of historical documents. In 1629 this library was sealed up and its owner summoned before the Council, because a certain seditious tract was found in his possession. Sir Robert died broken-hearted in 1631, and his successor, Sir Thomas, having again obtained possession of the library, went on amassing books. His son, Sir John, was a worthy successor as regards purchases, and threw open the collection for the use of scholars, though with limitations. In 1700, an Act was passed preserving the Cottonian collection for the nation, and this was followed by an unsuccessful project for uniting other libraries to the royal collection.

The Harleian was begun as one large collection by Robert Harley, Earl of Oxford, in 1705, and consisted of smaller collections made by Foxe, the martyrologist; Stow, the historian; Charles, the herald; and the antiquary, Sir Simonds D'Ewes.

The collection amassed by Sir Hans Sloane, and enriched by the bequest to him of the collection of William Courten (an alien who had adopted the name of Charlton), was purchased, together with the Harleian collection, for the nation under an Act of 1753, and merged with the Cottonian, already acquired. In 1759, George II added the royal collection, and thus the National Library was started well on its way.

The University of Oxford. At Oxford, a library for the university was established in the fourteenth century; it occupied various buildings in turn, the chief and largest being that erected by Humfrey, Duke of Gloucester, in 1450. Most of the libraries in the university, including Duke Humfrey's, were despoiled by Edward VI's commissioners, and not till 1598 was the restoration by Sir Thomas Bodley begun. Bodley had spent much of his life as an ambassador, but in 1597 he settled down and decided to devote the rest of his days to refurnishing the empty library. At great cost he had the building re-shelved, put in a new painted roof, and began to obtain donations for his scheme. In 1601, he appointed Thomas James his first librarian; and in November, 1602, the library was opened with a stock of between 2,000 and 3,000 volumes. Collections of MSS. were given by the Earl of Essex (1600); the Dean and Chapter of Exeter (who gave eighty-one Latin MSS. from their Chapter Library, 1602); William Herbert, Earl of Pembroke (Greek MSS., 1629); Cromwell (1654); Sir Kenelm Digby (1634); Archbishop Laud (1635–1640); John Selden (MSS. and printed books, 1654); Casaubon (1671); and Bishop Barlow (1691).

The growth of the library was further accounted for by reason of an agreement made in 1610 by Bodley with the Stationers' Company, that a copy of all works published by members of that body should be given to the library. This was the precursor of the Copyright Act of 1662; it was a continual source of friction between the Library and the Company.

The University also made extensive purchases of MSS., such as the two collections of Oriental MSS. of Edward Pococke and Robert Huntington, for £600 and £700 respectively, in 1693.

Royalty always took an interest in the library, as is shown by a visit of Charles I and his Queen in 1629, and by the King being allowed to borrow £500 from Sir Thomas Bodley's chest in 1642, which sum was never repaid. When James II visited Oxford in 1687, he breakfasted in the Selden End of the Library at a cost of £160. Charles I and Cromwell each endeavoured to borrow books, but the authorities were obdurate.

The block of buildings played an important part in the times of the Civil War, and later. Various portions of the precincts were used as stables by the Cavaliers; but, when Oxford surrendered in 1646, Fairfax placed a special guard over the library. In 1681, when Parliament met at Oxford, the Lords sat in the Picture Gallery of the Library.

Bodley found the building left by Duke Humfrey despoiled, and re-stocked it. He began (1610) to build that portion to the east known as the Arts End; this was completed after his death, and by 1634 an extension to the west was found necessary, and completed in 1640. The books bequeathed by John Selden were placed in this in 1659, giving it the name of Selden End. By the end of the century the books had increased so much that the walls of Duke Humfrey's library were in danger of giving way under their weight; and, in 1700, Sir Christopher Wren was called in to advise; and, as an outcome, the huge buttresses, now so picturesque on the south side, were put up.

The first catalogue, compiled by Thomas James, appeared in 1605; the second in 1620, also by James, after his resignation of the librarianship. In the preface, James noted that foreigners might consult 16,000 volumes for six hours a day, thus showing the growth of the library and its use by others than members of the university. The third printed catalogue was published in 1674; and, in 1697, Edward Bernard's great catalogue appeared posthumously, containing lists of all the MSS. in this and many other collections.

The college libraries have not much to be recorded of them during this period. Queen's College benefited by the bequest of Bishop Barlow in 1691, and the present fine library building was commenced in the following year. Trinity, Christ Church, and Wadham libraries also received bequests of money and books, the library of Wadham being built in 1613. The library of Jesus College was built about 1621. At St. John's, not only was the inner library building entirely due to the efforts and zeal of Archbishop Laud, but also many choice gifts of books were made to the College by him.

The University of Cambridge. At Cambridge, where a library for the university is heard of as early as 1397, Thomas James, afterwards librarian of Sir Thomas Bodley's foundation at Oxford, catalogued the MSS. in 1600. It was not for many years that anything else of note happened, save that during the first half of the century all the MSS. were re-bound, in the process all trace of

their provenance being destroyed. In 1614 a scheme was set on foot for a new building, and for some years donations were constantly received for this purpose, in 1638 a sum of £600 coming as a gift from Thomas Morton, Bishop of Durham. In 1645–1646 the university, upon petitioning Parliament, obtained a grant of the library of Archbishop Bancroft from Lambeth, bequeathed by the Archbishop to the university. The books were not received till 1649, and were returned to Lambeth after the Restoration. In 1648 the Commons spent £500 on the Pragi collection of Hebrew books for the university, the purchase being entrusted to Selden and Lightfoot. This formed the nucleus of the Hebrew collection at Cambridge. In 1654, John Evelyn visited the library, as well as the Bodleian, and left on record an account anything but flattering to Cambridge. Fuller, in 1655, wrote in much the same strain, accusing the caretakers of being "librarie-*losers*." In 1659 an attempt was made to devise a scheme for procuring new books; and in 1662 the Copyright Act gave the library, together with the King's Library and the Bodleian, the right to a copy of every book published. In 1663 the library of Dr. Holdsworth, bequeathed in 1649, was received. The books came to Cambridge in the same chests in which the Bancroft library had been returned to Lambeth, and almost filled the cases which had held the latter. The Lucas collection of more than 4,000 volumes was bequeathed in 1664, and in 1666, £1,000 was given by Mr. Rustat. In 1670 Bishop Hackett bequeathed his collection of about 1,000 volumes to the library. In 1668 the new building was still being discussed, and ten years later plans were prepared by Wren. Towards the close of the century much trouble was caused by thefts, books being allowed to be taken out of the library by readers. In 1697, Bernard's catalogue furnished a list of the University MSS.

The library of St. John's College was built in 1624, largely from funds given by Bishop Williams; and the new building of Trinity College library, designed by Wren, was finished in 1695.

Scottish and Irish Libraries. Edinburgh University Library grew considerably during this period; in 1615 a new building was necessitated. It benefited, in 1627, by a donation from William Drummond, of Hawthornden, by which 500 books and several MSS. were received; and in 1678 the bequest of the Rev. James Nairne brought a further 2,000 volumes.

The university library at St. Andrews was established in 1612 by James VI.

At Trinity College, Dublin, the library is contemporary with the re-foundation of the university library at Oxford by Bodley, who, seeking books for his library, met Ussher and Chaloner on a similar quest. They had been sent to acquire books with money raised as a memorial of the British victory at Kinsale in 1601, whereby £1,800 had been collected. Cromwell frustrated a further attempt to benefit the library, by which it was intended to purchase for £22,000 the library of Archbishop Ussher. The books were not received till after the Restoration.

English Cathedral Libraries. Cathedral libraries as a class suffered much during the Civil War (Canterbury, Chichester, Peterborough, and Worcester being examples). Later they suffered from the neglect of their custodians, and it is only in comparatively recent years that efforts have been made to care for their contents and make them available for consultation.

CHESTER CATHEDRAL library grew considerably from a bequest made by Dean Arderne in 1691, "as a beginning of a public library for the clergy and city."

CHICHESTER CATHEDRAL library was destroyed in 1642, and re-founded in 1660.

DURHAM, famous for its cathedral library, was hard hit at the first Dissolution; its collections were liberally added to by John Cosin (Bishop, 1660–1672); and a restoration of the fabric was carried out by Dean Sudbury, and finished about 1685. Cosin also gave (1669) a library to Durham for the use of the clergy of the diocese, which still stands on Palace Green.

The archiepiscopal library at LAMBETH, though not a cathedral library, may be mentioned here. It was founded by Bancroft in 1610, and was increased by donations from Abbot, Laud, Sheldon, and others.

At LICHFIELD the cathedral library was destroyed by the Puritans, but was re-founded in 1672 by a bequest of nearly 1,000 volumes from Frances, Duchess of Somerset.

LINCOLN CATHEDRAL library was restored about the middle of the seventeenth century by Dean Honeywood, who also gave many rare books. A large number of these were afterwards sold by the Chapter in order that more modern books might be acquired.

The library at RIPON Minster was founded in 1624.

WESTMINSTER ABBEY library was the outcome of the efforts of Dean Williams (afterwards Archbishop), who, in 1620–1641, furnished a room as a library, and stocked it with books.

WINCHESTER gained considerably in 1684 by the bequest of his library by Bishop Morley.

YORK MINSTER library received a number of the books of Archbishop Tobias Matthew (1606–1628), presented by his widow.

London Libraries. In London, the progress of learning during this century is marked by the foundation of many libraries.

DULWICH COLLEGE (*q.v.*) was founded in 1619 by Edward Alleyn, the actor, whose MSS. remain such an interesting item in the present library.

In 1623, SION COLLEGE (*q.v.*) was founded as "a corporation of all the ministers and curates within London and suburbs." Its charter is dated 1630, and its library was begun about the same date. It is the richest theological library in London.

The MIDDLE TEMPLE Library was re-founded, in 1641, by a bequest of books from Robert Ashley.

In 1660, the ROYAL SOCIETY (*q.v.*) was instituted, and a library was soon formed. There is some discrepancy as to its date, the years assigned ranging from 1665 to 1687. Of the library of Thomas Howard, Earl of Arundel, given to the Society soon after its foundation, the MSS. went to the British Museum in 1831; but the printed books still remain in the possession of the Royal Society.

The library of ST. BARTHOLOMEW'S HOSPITAL was founded in 1667, and that of ST. PAUL'S SCHOOL dates from 1670.

The library in London founded latest in the century leads us on to speak of libraries of another kind, namely, public libraries. In 1684, Thomas Tenison, Vicar of St. Martin's-in-the-Fields (afterwards Archbishop of Canterbury), founded at his own cost a schoolhouse and library—the library to be public, but especially for the vicar of his own and adjacent parishes. This was the first public library in London. He gave it many books, and

£1,000 for the support of the school and library. TENISON'S LIBRARY was sold in 1861 to benefit the endowment of the school.

Public Libraries in the Provinces. Turning to provincial libraries similarly founded for public or semi-public use, we find the CHETHAM LIBRARY at Manchester, founded in 1653 by Humphrey Chetham, as part of his hospital for forty poor boys. The library and hospital still exist in their original quarters, the old "College," purchased by Chetham's executors from the Committee of Sequestration for Lancashire; and the library progresses to-day in the way in which its generous founder would have desired.

At NORWICH a city library was begun as far back as 1608, and was continued by successive donations. It acquired many books of rarity and great value. Later, it passed into the custody of a private society, and was recovered for the city only after great trouble.

At BRISTOL a library for the city was founded, in 1614, by Robert Redwood, Archbishop Matthew (a Bristol man) giving the books. This library later (1773) met the same fate as the Norwich library, by being granted to the Bristol Library Society by the Corporation, and it was not till after the Public Libraries Act of 1855 that the library was restored to the use of the citizens.

Through the efforts of Bishop Williams of Lincoln, who "sent his poor mite of £10, . . . and has written his letters to excite others to do the like," the town authorities at LEICESTER founded a free library in 1633, and it has existed ever since, though its fortunes have been varied. Many of its treasures were defaced or stolen; but, fortunately, its chief treasure, the *Codex Leicestrensis* (Greek Testament) still remains.

Other places founded church or parochial libraries (*e.g.* Langley Marish, Bucks (1632); Halifax Church; Boston, Lincs (1635); and many places in Lancashire (1653) through the liberality of Humphrey Chetham, above mentioned.

From the formation of these public town and church libraries arose a desire for popular libraries. This was, to a certain extent, satisfied by the subscription libraries of various kinds which arose in the next century; and a century and a half later an agitation for libraries for the people culminated in the various Free Libraries Acts, which have provided the many excellent institutions we have to-day.

J. HUTT.

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LIBRARIES IN THE EIGHTEENTH CENTURY.—An epoch is marked in the history of English libraries by the appearance, in 1697, of Edward Bernard's *Catalogi Librorum Manuscriptorum Angliae et Hiberniae.* Originally designed merely as a catalogue of the manuscripts in the Bodleian, its scheme was enlarged so as to include all the more important collections in England and Ireland, with the exception of the Cottonian Library, of which a catalogue was simultaneously undertaken by T. Smith. The Bodleian was at this time by far the greatest library in England. Its manuscripts, according to Bernard's numeration, amounted to 8,716, whereas the Cambridge University Library could show no more than 259; and all the collections in England, outside the two Universities, numbered less than 11,000 in all. The list of these collections furnishes a conspectus of the position of libraries in this country at the close of the seventeenth century. Besides the two University libraries, there were 17 College libraries at Oxford, and 10 at Cambridge; 11 cathedral libraries (York, Durham, Carlisle, Worcester, Salisbury, Winchester, Lichfield, Hereford, Exeter, Wells, and Canterbury); 14 other corporate libraries (Westminster, Winchester College, Eton College, Coventry School, Bristol, Gray's Inn, Lincoln's Inn, Gresham College, Sion College, the College of Arms, the Tower, Shrewsbury, Warwick Church, and Manchester); 55 private collections; and 5 Irish libraries. Of the private collections, the most noteworthy were the Royal Library at St. James', and the libraries of Sir Hans Sloane, Isaac Voss, Bishop John Moore of Norwich, Sir W. Glynne, Dr. F. Bernard, Dr. N. Johnson, Viscount de Longueville, Dr. T. Gale, Samuel Pepys, R. Burscough, Sir S. D'Ewes, and Edward Bernard himself. Of the collections of printed books, which were beginning to be made in various quarters, no similar survey exists; but, in general, it may be said that at the beginning of the eighteenth century, libraries in Great Britain were chiefly represented by the University, College, and Cathedral collections, together with the Royal Library of the kings of England. These were the chief successors of the monastic libraries which had served the needs of students in the Middle Ages, and which had been dispersed at the dissolution of the monasteries in the sixteenth century.

The special characteristic of the eighteenth century is the growth of private libraries, as that of the nineteenth is the formation of municipal and other public libraries. The nobility and gentry of England, following an example already set in France, made it a point of honour to furnish their country houses with good books. "They kept their book-shelves, all our island over, as well supplied as their cellars and their ice-houses; and they never hesitated about paying down their two guineas, or three guineas, for a bulky quarto fresh from the printing-presses of Millar, or Strahan, or Dodsley" (Trevelyan: *George III and Charles James Fox*, p. i).

Robert Harley began, in 1705, the collection of the wonderful library which (after being augmented by his son Edward) subsequently went to form the foundation of the British Museum; and his librarian and chief collector, Humfrey Wanley, deserves honourable mention among bibliophiles. Richard Rawlinson (*d.* 1755) during the first half of the century was collecting the printed books and manuscripts which he bequeathed at his death to the Bodleian. The theological library of Dr. Williams, now in Gordon Square, was, in the first instance, collected by Dr. Daniel Williams, who died in 1716. Later in the century came the formation of the library of the third Duke of Roxburghe (*d.* 1804), the sale of which, in 1812, caused an unequalled sensation among bibliophiles, and was commemorated by the foundation of the Roxburghe Club; the Sunderland Library, initiated by the third Earl of Sunderland (*d.* 1722) and extended by the second Earl Spencer (*d.* 1834), the acquisition of which, in 1892, made the fortune of the John Rylands Library at Manchester; the Lansdowne Library, formed by

the first Marquis (better known in politics as Lord Shelburne), and now in the British Museum; the libraries of Dr. Anthony Askew (*d.* 1774), of Topham Beauclerk (*d.* 1780), of James West (*d.* 1772), of William Hunter (*d.* 1783), and especially the colossal collections of Richard Heber (*d.* 1833), which carry on the tale well into the next century. To these must be added the new Royal library formed by King George III, which, after narrowly escaping exportation to Russia, became the property of the nation in the reign of his successor.

British Public Libraries. But the century which is especially marked, in this country, by the growth of private collections of books also witnessed the foundation of an institution destined to become the greatest public library in the world—the BRITISH MUSEUM. By an Act of 1753, a body of trustees was incorporated to acquire the collections of Sir Hans Sloane (*d.* 1753), the Cottonian Library (collected by Sir R. Cotton, 1571–1631, presented to the nation by his descendant, Sir John Cotton, in 1702), and the Harleian manuscripts; and to these was added, in 1759, the priceless Royal Library, presented by King George II. The latter gift carried with it the right to receive a copy of every book published in Great Britain, which right, extended and consolidated by subsequent Copyright Acts, is the foundation of the national character of the now colossal library. During the eighteenth century, however, the privilege was far from being universally enforced, and the growth of the library was slow.

The SIGNET LIBRARY in Edinburgh is nearly coeval with the British Museum, having been founded in 1755; but the ADVOCATES' LIBRARY, the premier library of Scotland, which shares "copyright privileges" with the University libraries of Oxford, Cambridge, and Dublin, was already in existence at the beginning of the eighteenth century, having been founded in 1684.

Foreign Libraries. The eighteenth century has no such definite characteristics in the history of foreign libraries as it has in England. The habit of collecting books—and of adorning them with handsome bindings—was well established in France in the previous century; indeed, one of the noteworthy features in the history of the Bibliothèque Royale during the reign of Louis XV is the number of fine collections, made during the reign of his predecessor, which passed into its possession. The Gaignières, de Mesmes, La Vallière, and especially the Colbert Library, may be quoted as instances. The number of printed books, estimated at 50,000 at the end of the seventeenth century, had risen to 200,000 on the eve of the Revolution; and the library shared with the Imperial Library (in Vienna) the distinction of being the finest collections in the world. The other great French libraries, such as the Bibliothèque Mazarine and the Bibliothèque de Ste. Geneviève, were mostly of seventeenth century origin; but the Bibliothèque de l'Arsenal owes its existence to an eighteenth century collector, the Marquis de Paulmy. Libraries—private and public, ecclesiastical and civil—flourished greatly in France throughout the century; it is said that there were 1,100 libraries in Paris alone at the time of the Revolution. Libraries, municipal and monastic, were also plentiful in the provinces; indeed, in municipal libraries, several of which were founded during this period, France was at this time considerably in advance of all other countries. Cathedral and monastic libraries were a feature which she shared in common with England, Germany, and Italy; but in this respect also the wealth of France was conspicuous.

The Revolution produced an immense upheaval in this department, as in all others. The libraries of monasteries and of *émigrés* were confiscated, and immense numbers of books were thereby secured (even after allowing for many losses by theft and destruction) for the public collections. The contents of the Bibliothèque Nationale (which was re-organized in 1795) were almost doubled; and 6,000,000 volumes were said to have been seized in the provinces and distributed among the provincial libraries. The history of the re-organization of the French library system belongs, however, rather to the Napoleonic period, and falls outside the scope of this article.

The remaining European countries have even less to record that is characteristic of the eighteenth century. In Italy and the German States, as in France and England, the main collections of books during the Middle Ages were in monastic and cathedral libraries. Alongside of these three grew up, especially in Germany, the libraries formed by the princes of the several States, many of which still survive as royal and ducal collections. Of private collections, there were fewer than in either France or England; but Germany could show a considerable number of municipal libraries, often of early date, and also of University libraries, for which the eighteenth century was a period of noticeable growth.

In Austria, the premier place must be given to the Imperial Library (at Vienna), founded in 1440. At the beginning of the eighteenth century, its contents were estimated at nearly 100,000 volumes, or twice the extent of the Bibliothèque Royale in Paris. During the reign of Charles VI, it was greatly increased, notably through the acquisition of the library of Prince Eugene of Savoy; while, later in the century, it profited by the expulsion of the Jesuits and the dissolution of certain monasteries. It was not, however, until after the beginning of the nineteenth century (at which time it was estimated to contain 250,000 volumes) that a law, such as had long been in force in England, France, and Prussia, was passed to secure for the library a copy of every book published within the kingdom.

The Royal Library of Berlin is younger than that of Vienna by more than 200 years, having been founded, in 1661, largely on the basis of spoils of war. In 1699, it acquired copyright privileges; but neither Frederick William I nor his greater son could spare much money from military requirements for the increase of the library; and at the latter's death in 1786 the number of volumes was not estimated to be higher than 150,000 volumes. A new building was, however, built by Frederick to contain them; and in the last years of the century the library had embarked on a period of growth which prepared the way for the greater developments of the century which followed.

The royal libraries of Bavaria and Saxony were of much earlier origin than that of Brandenburg. Both were founded about the middle of the sixteenth century; but, while the eighteenth century was a period of marked growth for the Dresden Library, the great development of the Munich Library did not come until the dissolution of the monasteries by Maximilian Joseph in the nineteenth century.

The important municipal libraries of Germany go back to the fifteenth and sixteenth centuries, and the eighteenth century has no particular features in respect of them. The University libraries are also, for the most part, of early origin; but the best of them all, that of Göttingen, was founded in 1736, and owes its size and good organization to Heyne, who became librarian there in 1763.

In Italy, as might be expected, the ancient libraries are largely of ecclesiastical origin, headed, of course, by that of the Vatican. This library made considerable growth in the eighteenth century; but the most noticeable incident in its history occurred at the very end of the period, in 1798, when Napoleon carried off its most notable treasures to Paris, where they sojourned until 1815. The most notable collection of books outside Rome at the beginning of the eighteenth century was no doubt that of the great Tuscan librarian, Magliabeechi (*d.* 1714), which was presented by him to the State, and now forms a portion of the Biblioteca Nazionale Centrale of Florence. The other great libraries of Italy are either of earlier date, like the Mediceo-Laurentiana at Florence (1571), or the Ambrosiana at Milan (1609), or belong to the period since 1870, when the modern kingdom of Italy absorbed the greater part of the ecclesiastical libraries.

Of the other countries of Europe, there is little to be said. The most important libraries of Holland and Belgium are of earlier origin than the eighteenth century; those of Russia are of later growth. Indeed, the special characteristic of the eighteenth century, as already indicated, is the growth of private libraries, followed by their eventual absorption, in many cases, in the national libraries of their own or, occasionally, of foreign countries; and this characteristic was possible only in countries where private wealth was increasing, simultaneously with an increased standard of intellectual interest on the part of the aristocracy. These conditions were best fulfilled in England and in France, and consequently it is only in these countries that the eighteenth century can be said to have a special character of its own with regard to the history of libraries.

F. G. K.

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LIBRARIES, MEDIAEVAL. — The mediaeval libraries of the West, with which alone this article is concerned, rose primarily out of the needs of the Christian Church, which needed a measure of education for its clergy; and their growth and scope were reinforced and enlarged by the human instinct for the acquisition of knowledge and for entertainment.

The Roman world had accumulated a vast store of literature in public and private libraries, but these were swept away almost entirely by the barbarian invasions of the fifth and later centuries. But for the influence of a very few individuals, it is probable enough that the whole of Latin literature might have perished. Cassiodorus (*d. cir.* 560), however, by his foundation of a library at his monastery of Squillace (Vivaria) in South Italy, and his careful prescription of studies of all kinds for his monks; and St. Benedict (*d.* 536), by his sanction of study in his Rule, made it possible for libraries to be formed in the many monasteries which sprang up all over Europe, and for a certain measure of secular education to be carried on. The schools attached to the non-monastic churches of Europe followed the same track. At first, Italy, Spain, and France were dotted with centres of culture and Christian learning; gradually, however, these were wiped out by pagan invaders, and the learning of Europe took refuge in Ireland. With the conversion of the English, this country became, during the seventh and part of the eighth century, the focus of intellectual life. Then came the Danish raids, and the libraries of England perished. But Charlemagne (*d.* 814) arose and collected about him the best teachers then living, notably Paul the Deacon and Alcuin of York. The latter organized learning in continental Europe, and the scholars and scribes of the Carlovingian Age—largely aided by scholars from Ireland—were the means of preserving and diffusing almost all the remains of classical Latin literature which we possess. After the Carlovingian Renaissance, the formation of libraries and the pursuit of education went on uninterruptedly; and, though ancient learning suffered an eclipse and needed to be revived by the Italian Humanists of the fourteenth and fifteenth centuries, its existence was not menaced again, as it had been in the beginning of the mediaeval period.

This brief survey of the course of events is a necessary preliminary to the consideration of mediaeval libraries. The libraries themselves fall into two main divisions: corporate and private. The corporate libraries (which it would be more convenient, but not correct, to call "public") were those of cathedral and collegiate churches, monasteries, academic institutions, royal houses, and some great dignitaries (such as the Pope). They naturally comprise the greater part of our subject.

Cathedral Libraries. Some of these attained their zenith early in the mediaeval period. The schools attached to them were of great importance. York, Chartres, and Verona may be named as typical instances. York sent forth Alcuin, the regenerator of learning on the Continent in the eighth century: the cathedral schools of Chartres were perhaps the leading ones in France in the eleventh and twelfth. Verona, never so important educationally, has by good fortune preserved to the present day as ancient a specimen of a chapter library as can be found.

In England, some of the most important cathedrals had monasteries attached to them (*e.g.* Canterbury and Durham). These two were centres of education. An early twelfth century catalogue of the Canterbury Library exemplifies this, for it shows that the church possessed the authors most commonly read in a profusion of copies. There are, for instance, 5 Terences, 8 Sallusts, 7 Horaces, 9 copies of Persius. No doubt the same was the case at other large schools of the time.

The course of events has left few cathedrals in possession of their ancient libraries. Besides Verona, already mentioned, Durham and Cologne furnish good examples of the survival of early collections.

Monastic Libraries. The premier order of monks, the Benedictine, which soon absorbed the sporadic communities living under earlier Rules in the West, naturally evolved the model for the organization of libraries over the greater part of Europe. The leading idea of St. Benedict in sanctioning study for his monks was not the preservation of literature, but the encouragement of theology. But it is plain that some amount of culture of a secular kind is indispensable to the understanding of the sacred

writings and to their proper transmission; and, when once this is admitted, the inclusion of the whole range of human intellectual activities inevitably follows, even if they be regarded (as they were) as merely ancillary to the study of the Scriptures: thus there were hardly any books which a monk was debarred by his profession from transcribing and preserving. Classical poetry was useful for the study of grammar; mathematics and astronomy were needed for the regulation of the Church calendars. Naturally, however, by far the greatest proportion of any monastic library consisted of directly theological books. The Bible, the "glosses," or *variorum* comments upon it, the writings of the four doctors (Ambrose, Augustine, Jerome, and Gregory) may be said to be the staple. It is clearly out of the question to enumerate the later Church writers. Besides these, there were the books needed for divine service (which were no part of the library proper), and almost any monastery would own a considerable number of psalters, which were primarily almost the only accessible manuals of private devotion. The list of ancient authors generally admitted was small and well-defined; and the works studied were usually not bulky. Histories on a large scale, such as those of Livy and Tacitus, and epics of secondary importance (Silius Italicus, Valerius Flaccus) have usually survived in but one or two ancient copies, transcribed in the Carlovingian period and re-discovered 600 years later by some Italian humanist.

The customs which prevailed in great English monasteries provided that each monk should have a volume out of the library to study during the year. There was a fixed day for the distribution and return of books. Study was carried on normally in the cloister of the monastery. In the later Middle Ages, at least, the cloisters of great abbeys were glazed, and studies (called "carrells") constructed for the monks to sit in. A fine specimen of these arrangements is still to be seen at Gloucester. The books were also kept, as a rule, in the cloister, in cupboards. When their number outgrew the space, a special room was built (usually off the cloister) for storing them; but we do not find that libraries—proper rooms in which books could be read or consulted at leisure—were built until the beginning of the fifteenth century in this country. At that time, it is noticeable that a good many important abbeys provided special library buildings, usually in the upper storey of the cloister. No one of these has survived in its integrity (that of Wells Cathedral—not monastic—is perhaps the best preserved)—but from records, remains, and later imitations, we are able to form an accurate idea of them. They were long and narrow rooms, containing a line of desks at right angles to the walls, lighted by small windows. These desks had sloping tops and one or two shelves for books. The books not in use stood in the shelves or lay on the sloping desk-top (where they were meant to be opened and read): each was attached by a chain to a bar running along the top of the shelf. The idea, so familiar to us, of book-cases lining the walls, was unknown to the Middle Ages; nor, had it been suggested, would it have been welcomed, for it was incompatible with the requirement that the books should be incapable of removal from their place in the library, which was a primary consideration in view of the costliness and comparative rarity of these possessions.

Among the monastic libraries—now scattered—which were the means of preserving the greatest number of ancient writings may be mentioned those of Bobbio (probably the relics of Cassiodorus's library) in North Italy, Fleury (near Orleans), Laon, Corbie, Fulda, Lorsch; and—still in great part, extant—Monte Cassino and St. Gall. In England, there were very ancient collections at Glastonbury, Malmesbury, Worcester, Durham, Canterbury, St. Albans. Worcester may be specially named as having preserved a large quantity of Anglo-Saxon literature.

The various monastic Orders which were offshoots of the Benedictines, or later growths, of course, followed generally the lines already laid down; but diversities are perceptible. The severity of the Cistercian rule restricts their libraries to what is strictly practical; the Carthusians are prolific in devotional and contemplative books, but have little else. The Orders of Friars, however—Franciscans and Dominicans—show interesting developments: notably (under the influence of Roger Bacon) a return to the study of Greek and Hebrew. Copies of the Psalter or other portions of the Old Testament, in Hebrew with glosses in Latin, are relatively common in the latter years of the thirteenth century.

In the course of the thirteenth and fourteenth centuries, two great new elements became prominent in all the libraries, namely, scholastic theology, and law, both canon and civil. Medical books, which at first were usually present to some extent, became less common, for the study of medicine was more and more confined to the universities and to secular persons. Books of entertainment—romances, etc., in the vernacular—were not excluded; but these seem to have been gifts from men who entered the monastery. Histories, and, in particular, chronicles written at the monastery itself, became a very important element from the twelfth century onwards. At St. Albans, the succession of historians (of whom the greatest was Matthew Paris) was most carefully kept up down to the fifteenth century; but in many monastic houses it was the practice to record in annalistic form, often grafted on to an exciting chronicle, events of special interest to each community.

Means of identifying books as the property of a particular library were devised at an early date. In many places, especially in the smaller houses, it was sufficient to write the name of the house in a prominent place; but the greater libraries eventually had recourse to systems of class-marks and numbering which resemble those now in use. It is possible, by means of the various forms of these, to recognize the provenance of books even where the name of the monastery has disappeared. Leading cases in England are Canterbury, Bury St. Edmunds, Durham, Norwich.

Book-making. The extent to which books were actually manufactured within the walls of monasteries varied. The great houses kept up regular *scriptoria*, bought and prepared the parchment, wrote, decorated, and bound their own books; and this practice continued in full vigour into the thirteenth century. The book-trade then gradually passed into other hands. The history of the change is as yet not clear, but it may be said with confidence that, at the end of the mediaeval period, manuscripts were uniformly produced by professional scribes writing in the great towns or in the universities; while, in the twelfth century, almost all books were written in the abbeys. Particular abbeys cultivated special styles of writing,

as we might suppose; and hence it is possible to establish the fact that at great centres, such as Canterbury, books were written for the use of smaller monasteries which could not afford to keep up *scriptoria* of their own. Some places (*e.g.* Winchester) attained great proficiency in artistic decoration in early times, and their productions were eagerly sought after all over the country.

The subject of the decoration of books is of special interest. No survey of its history can be attempted here, but it may be said generally that in early times the books selected for special honour in this respect were those intended for liturgical use on great occasions, such as Gospel books, or for the private use of great dignitaries. Decoration of very high quality, however, is commonly found, in the form of ornamented initials, in ordinary library books. Still, the greatest artistic achievements in this department throughout the Middle Ages must be looked for in the books produced for wealthy individuals, ecclesiastical or secular: books of private devotion and books of entertainment.

University and Collegiate Libraries. These do not come into prominence until a comparatively late date. In this country the University of Oxford received a bequest in 1327 to found a common library, but this did not take effect till many years later. Of the Cambridge University Library, the first catalogue is of 1424. College libraries are coeval with the foundation of colleges, late in the thirteenth century. Their contents did not, of course, differ materially in kind from those of the contemporary monastic libraries; but they were composed, as a rule, of less handsome and costly books, intended for use at lectures, and written with a view to economizing space and material. Any book distinguished for beauty of appearance will usually be found to have been the gift of a benefactor. It was a not uncommon practice to separate these libraries into two parts: the contents of the "outer" library might be borrowed by students and used in their chambers; those of the "inner" were chained, and could only be consulted in the library building. Books of the common kind were manufactured in large quantities at the universities, the trade being carried on through the "stationers." Poor students often added to their resources by working at transcription. The disposition of library buildings in colleges followed the monastic plan already described. The library of Merton College, Oxford, a well-nigh untouched building of the fourteenth century, affords a very good example of the structure of a mediaeval library, though the fittings are of later date. The libraries of Oxford and Cambridge and those of certain of our cathedrals are the only ones in England which have enjoyed a continuous existence *in situ* since mediaeval times.

Royal and Private Libraries. Of royal libraries founded in mediaeval times, considerable remains exist in most European countries. In France, between 1364 and 1422, the kings Charles V and Charles VI (especially the former) accumulated over 1,200 books, of which upwards of 100 have survived. The relics of the collection made by the dukes of Burgundy are chiefly at Brussels. Bamberg possesses remains of German imperial and royal libraries. The old royal library of England, to which Edward IV made important contributions, is in the British Museum. But of all such libraries, the Papal is infinitely the most important, though it does not date from an earlier period than the pontificate of Nicholas V (1447–1455), the collection formed by earlier popes having been dispersed and destroyed. The papal library founded by Nicholas V has had a continuous existence in the Vatican since his time.

The private libraries of older mediaeval dignitaries have, almost without exception, been dispersed. Before the fourteenth century, few secular nobles were in the habit of owning books; in and after that century they often possessed small collections of romances and other books in the vernacular, which were apt to be finely illuminated. In the period of the revival of learning, these collections were increased in scope. Humphrey, Duke of Gloucester, and John Tiptoft, Earl of Worcester, are examples of men in this country who owned large numbers of books. Duke Humphrey's went to Oxford for the most part, and have perished; John Tiptoft's were promised to Oxford, but never came there. The books owned by bishops and others of the dignified clergy were commonly bequeathed by them to churches or colleges in which they were interested, and many have remained. Parish priests and ordinary secular persons usually possessed a few volumes, not often rare or beautiful, of which we learn chiefly from their wills. Almost everyone in easy circumstances—men and women alike—owned a prayer book (Book of Hours) or psalter—upon which some amount of artistic skill had been spent.

M. R. J.

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LIBRARY FOR STUDENTS, THE CENTRAL (20 Tavistock Square, W.C.1).—Was founded in March, 1916, in order to secure for poor students the use of expensive books of reference.

Largely owing to the attitude taken up by public libraries, the conception of the Central Library has broadened into a national reserve of expensive and duplicate books for the whole country. In a few words, its destiny is to become a library for libraries.

Its book issues have steadily increased from 2,005 in the first year to 15,018 in the fourth year.

Students desiring to use the library may apply either direct or through their local libraries. Books are issued for a period not exceeding three months free of all cost to the borrower except payment of carriage to and fro.

The library has been officially approved by the Minister of Education, and during the war it was used by the Ministry of Pensions, Ministry of Munitions, and the Army Education Service.

A. MANSBRIDGE.

LIBRARY, THE ELEMENTARY SCHOOL.—This, if systematically used, is an important feature in school organization. Books should be distributed, not as a reward, but as part of the ordinary school routine. If they are issued only for good conduct, attendance, or work, some children will never use the library at all; and to them its chief aim—to stimulate a love of reading—will be lost. Methods of distribution depend upon the size of the school, but cards on which the scholars write the names (not the numbers) of the books they want are most useful. The names are easier to read, and show at a glance the class of book a child prefers.

A classroom should be set aside as the library room, the books arranged in cupboards, or on open shelves, and the room made attractive with portraits of writers, newspaper and magazine cuttings mounted on cardboard, etc.; on the walls, too, should hang the various catalogues. Certain catalogues are essential: (*a*) an authors' catalogue, having titles of books arranged under names of authors; (*b*) a catalogue *raisonné*, having books classed according to their subjects; and (*c*) an annotated catalogue. The last is the most important; in it the books are catalogued alphabetically under their titles, and after each book is written a short *précis* of its contents.

Another useful list is the class catalogue, one of which should be prepared for each class, and contain the names of books dealing with the special work of that class. These catalogues should hang in the different classrooms.

With regard to the selection of books for a school library, one point must be borne in mind. As the chief use of the library is to cultivate a love of reading, only really interesting books should be included. Youth is the age of romance, so fiction should predominate, and historical novels figure largely. History should deal with the pageant rather than with the philosophy of history: Macaulay, Green, McCarthy, Fitchett, and Lang make a good selection. Poetry had better be the poetry of action, not of thought. The "cut-throat" style of Macaulay, the rousing verses of Newbolt, the martial lines of Scott, will appeal to children more than Wordsworth or Milton. Books must never be forced on children. Advice and hints as to choice may legitimately be given, but, speaking generally, the children should have a free hand.

The library and the school work should be closely correlated. No history, geography, or literature lesson ought to be regarded as complete without a reading from one of the books in the school library. Five minutes at morning assembly may be occupied with a reference to the anniversary event of the day, illustrated by a passage from some author.

Now and then the whole collection of books in the library may be lent to a class for a silent reading lesson. The children will ramble through the books, and decide on what to borrow at some future date. During the winter months, lantern lectures may be given, drawing attention to books on various subjects. F. W. G.

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LICENSING OF TEACHERS.—In A.D. 787, Charlemagne addressed a letter to the bishops and abbots throughout his empire—the letter, which has been called "the first general charter of education for the Middle Ages," requiring the general study of letters in all ecclesiastical institutions. All the schools concerned were under ecclesiastical guidance; even the Palace schools cannot be said to have stood outside. Learning and teaching were recognized universally as the functions of the Church. Well into the twelfth century, therefore, there was no question as to the ecclesiastical nature of the teacher's office; but in the Renaissance of that century, schools and teachers were multiplied, and teaching fell into lay as well as ecclesiastical hands.

As M. Léon Maître says: "Frightened by the violent emancipation of the *bourgeoisie* and by the multiplication of mistakes which were being made, the Church judged it prudent to submit to its control all the new masters, lay as well as those in orders."

Accustomed to consider the Church as the only teaching authority, the aspirants to teaching were thankful that it did not assume the monopoly of teaching. Outside teachers might receive recognition by obtaining the privilege of the *licentia docendi*.

The Lateran Council of 1179 requires (1) every cathedral church to provide a benefice for a master to teach the class; and (2) that anyone selling the licence to teach, or refusing it to one fit for teaching, shall be deprived of his own benefice.

In 1181, Pope Alexander III required the Bishop of Winchester to abolish in his diocese all fees for licences to teach. *Gratis accepistis, gratis date*, he says. Originally, the bishop had personally undertaken, occasionally, the function of teaching. (See SCHOLA DOMESTICA.)

In the tenth century, Notgar, bishop of Liège, was accompanied by his scholars on pastoral visits. The bishop then delegated his teaching functions to a canon, a simple priest or monk of St. Benedict. Even the bishop's duties of supervisor of the cathedral and diocesan became too laborious, and usually were handed over to the chancellor, *magister scholarum*, or *scholasticus*, of the see, who had jurisdiction over the schools and the teachers, including the granting, under the bishop, of licences. In the reign of King Stephen, it was laid down that all schoolmasters teaching schools in London without licence from the Cathedral Master of the schools (*Magister Scholarum*) should be *excommunicated*.

Disputes arose as to jurisdiction over schools, mainly in the earlier times, in connection with lords of the manors in their struggles with abbeys, especially as to the collation, as it was termed, to the schoolmastership. But it was "decided that the lord could only choose for presentation to a teaching benefice a teacher who had been licensed by the diocesan."

In the eleventh century, it was held that, as qualification for licensing, a teacher should be of ripe age, and of great purity of manners (Fulbert); and, in the twelfth century, the qualifications named by Étienne de Tournay are that he be of tried and proved virtue and of complete erudition. The payment for a schoolmaster was the holding of a prebend in a cathedral; or, in later mediaeval times, of a chantry in a church. This gave the schoolmaster what we should call security of tenure. He was bound to reside permanently where his work was.

The Position of the Universities. It is evident that, when the early universities arose, the bishops of the dioceses would consider themselves in a position to claim control, and the diocesan chancellors to raise the question whether the new teachers trained academically would not still need to apply to them for their licences to teach. Eventually, at Oxford, the Bishop of Lincoln and, at Cambridge, the Bishop of Ely gave way, and the masters of arts of either university elected their own chancellor. At Paris, however, the diocesan chancellor retained the right to license teachers. The consequence was

that the Rector of the University of Paris gradually surpassed the authority of the chancellor.

In course of time, it was recognized that only emperors or popes could establish new universities, but the Church practically exercised her right of monopoly in the licensing of teachers; and the universities, even in England, until 1588, retained ecclesiastical chancellors, who admitted to degrees—the master's or doctor's degree always implying the right to teach. The opportunity of ecclesiastical power was further secured by the sense of need of each university not only to have the right of teaching within the jurisdiction of the university, but that of teaching anywhere. The *jus ubique docendi*, securing universal recognition of the degree of a university, could be obtained only by the university's possession of a charter from a "world-sovereign," and this meant, for the most part, from the Pope or the Emperor. Necessarily, therefore, the licensing of teachers was ecclesiastical; and we may say that, so far from registration of teachers (*q.v.*) being new, it was practically universal in the Middle Ages.

Legal Struggles. But not without legal struggles, though, of course, in ecclesiastical courts bent on suppressing all unlicensed teachers. Mr. A. F. Leach furnishes many instances. In 1304, Robert of Dalton, clerk, "unmindful of his salvation, dared to teach school, to the prejudice of the liberties of the Church." He was ordered to desist in nine days, or he would be solemnly excommunicated.

In 1305, Geoffrey of Sancton was charged with being unlicensed and in charge of a school. He was sentenced to excommunication, but, repenting, he was absolved. Mr. Leach refers to further cases of suppression of unlicensed teachers at St. Paul's, London, 1137; at Winchester, 1180; at Canterbury, 1307–1322; and states that similar rights of licensing were exercised by the Abbot of Walden, at Saffron Walden in 1475 (*Yorkshire Archaeological Society*, Record Series, 1898–1899). Mr. de Montmorency shows in the Gloucester Grammar School case, as early as 1410, in which damages were claimed against a competitive schoolmaster, how it was held that "to teach youth is not punishable by the Common Law, though it was an ecclesiastical offence to teach without the licence of the bishop." (*State Intervention in English Education*, pp. 51–60.)

At the Reformation, the system of licensing by the Ordinary of the diocese remained as a survival from the old practice; and in Queen Elizabeth's reign was soon applied by Convocation of Canterbury to be used as a test and a spur to conformity. The Visitations of the Archbishops and Bishops showed that the survival was to be no empty letter. Archbishop Grindall, on being asked by the Privy Council, in 1581, to have a good regard to the execution of the Act concerning recusant schoolmasters, at once required the bishops to institute the inquiry in their dioceses: "Whether any schoolmaster of suspected religion, or *that is not licensed to teach* by the Bishop or Ordinary, doth teach in any public or private place within this diocese."

In 1604, the seventy-seventh of the English Church Canons enjoined: "No man shall teach either in public school or private house, but such as shall be allowed by the Bishop of the diocese or Ordinary of the place under his hand and seal, being found meet as well for his learning and dexterity in teaching as for sober and honest conversation, and also for right understanding of God's true religion." He must further subscribe to the Article of the King's Supremacy and the Church of England "as a true and Apostolical Church." This canon was re-inforced by the Act of Uniformity in 1662. It was only in 1846 that the sanction of punishment on those teaching without the bishop's licence was removed; and, in 1869–1870, the Endowed School Commissioners provided in every school for the dispensing with the Ordinary's licence.

Licensing and Persecution. It is clear that the ecclesiastical jurisdiction of schoolmasters, by means of a monopoly of licences to teach, was turned into an instrument for the compulsion to uniformity of acceptance by teachers of the authoritative Church and State. No less was this the case in the time of the Commonwealth, when the power of licensing schoolmasters was exercised by the major-generals, who required absolute acceptance of the Commonwealth's political authority. Acquiescence in the established Church and State was required not only from teachers, but also from physicians (see Archbishop Sheldon's orders to the bishops of his province, 1665).

Licensing of teachers was a form of persecution, as we have seen, to Roman Catholics (recusants) from Queen Elizabeth's reign onwards and, after 1662, to Protestant dissenters. One well-known instance is, in 1707, that of Richard Claridge, a Quaker. He was a M.A. of Oxford, "a good orator, philosopher, and musician"; taught children *gratis* in the (Latin) grammar and English tongue at Barking and Tottenham (1702–1707). It was urged against him that he might proselytize, and, at any rate, "the school was an eyesore to the vicar, his lecturer, and the master of the free school."

In 1733, the great dissenting minister, Dr. Philip Doddridge, of Northampton, wrote in a letter that twenty cases of persecution with respect to absence of bishops' licences had taken place "in this diocese."

It may be noticed that the Charity Schools required their teachers to seek the bishops' licence. These schools in 1760 numbered over 1,800, and were thus well kept under clerical guidance. Historically, licensing meant the guarantee by the Church of the teacher's orthodoxy and oath of allegiance to the State. F. W.

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LIEGE, THE UNIVERSITY OF.—(See BELGIUM, THE UNIVERSITIES OF.)

LIFE-SAVING, THE TEACHING OF.—Knowledge of the best methods of saving life and resuscitation of the apparently drowned is of essential value to the young, and for years past its teaching has been one of the subjects of instruction at many schools and colleges. The teaching of swimming does not end when the various strokes have been mastered, for the ability to save life is not thereby acquired; and it is this ability which makes a knowledge of swimming, apart from its healthy recreative influence, so useful to the youth of both sexes.

The knowledge can be easily acquired by those able to swim, and it can be taught just as easily as swimming. There are many teachers who already possess the medallion or Hon. Instructor's Certificate of the Royal Life Saving Society; and there are not a few who have passed for the diploma, the highest technical award a swimmer can obtain, the possession of which has been found highly valuable by teachers of physical education. But those who have not passed can soon do so, provided they are efficient breast- and back-stroke swimmers, and their task of educating young pupils is thereby simplified.

Methods of rescuing drowning persons are taught by means of a land drill, found by experience to be highly efficacious, which can be used as an adjunct to physical drill as well as to the swimming lessons, thus saving time and knitting up memory. By these methods one is taught how to approach and to carry a drowning person on the surface of the water with ease; but it often happens that the person being rescued creates difficulty for the rescuer and endangers the lives of both. Methods of release from the grip of a drowning person are therefore taught, also by means of a land drill, the technical details of which are given in the official handbook issued by the Royal Life Saving Society.

Both the rescue and release drills are repeated in the water, and later the pupils are taught resuscitation by means of the Schafer method, a drill again being used, which makes the technique of teaching extremely simple. Elementary lessons in physiology will probably have prepared the pupils for a rational appreciation of the principles of resuscitation; but, if not, the teacher should see that they do understand them before allowing them to enter for an examination. Once they are capable, the seniors, such as monitors and heads of forms, can be entrusted to educate the younger pupils not only during the land drills, but also in the water.

The highest possible encouragement should be given to the formation of school life-saving classes and, when the pupils are efficient, to enter them for the various awards granted by the Royal Life Saving Society, whose awards are carefully graded according to the ability and the physical condition of the pupils.

In order to spread the knowledge of life saving in schools, the Society awards a valuable challenge cup to the school or college having the best record of trained pupils, the award of this trophy being based on the number who have passed the Society's examinations for the various awards, conditions of which are fully stated in the official handbook.

W. H.

LIGHTING OF SCHOOLS, THE.—(See BUILDINGS, SCHOOL.)

LILY (or Lilly, or Lilye), WILLIAM (1466–1522).—A classical grammarian; after graduating at Oxford, travelled in the south and east of Europe, learning Greek at Rhodes, Rome, and Venice. On his return, he became the companion of Grocyn, Linacre, and More, with all of whom he studied Greek. When Colet founded St. Paul's School, Lily became its first "high-master" with a salary of £35 a year and a house to live in besides, an income equal to one-third of that of the Lord Chancellor of the time. Colet was very anxious that the children should be taught good literature, "specially Christian authors who wrote their wisdom in clean and chaste Latin." He wrote the elementary parts of a Latin Grammar, and Lily added sections on Latin syntax and rules in Latin verse for genders, beginning "Propria quae maribus"; and others for past tenses and supines, commencing "As in praesenti." Henry VIII established the grammar by declaring it penal to teach publicly any other. Lily was head master of St. Paul's for twelve years, and died of plague.

LINACRE, THOMAS (1460–1524).—He was one of the leaders of the New Learning at Oxford. After his university course at Oxford, he travelled and studied in Italy for several years. On his return, he lectured and taught Greek and Latin at Oxford with Grocyn and Latimer. Among his pupils were Erasmus and Sir Thomas More. In 1501 he came to London as tutor to Prince Arthur, and on the accession of Henry VIII was made Court physician. The foundation of the College of Physicians was largely due to Linacre, and his benefactions to the universities were very important. He left several works on grammar and medicine. (See also RENAISSANCE, THE.)

LINCOLN TRAINING COLLEGE.—A Diocesan College for Schoolmistresses, founded in 1842, with practising school, students' apartments, and principal's house. Subsequent enlargements raised the accommodation, and now 130 students are admitted, including ten in each of two hostels. A number of day students are also in attendance. The course is preparatory to the Board of Education's Certificate Examination.

LING ASSOCIATION, THE.—This association was founded in 1899, and has its offices at 10 Mecklenburgh Square, London, W.C.1. The objects of the association are: (1) to band together teachers of Swedish Gymnastics and Medical Gymnastics; (2) to obtain a registered list of qualified gymnastic teachers and medical gymnasts; (3) to hold examinations for the Swedish Gymnastic Teachers' Diploma in Educational and Medical Gymnastics; (4) to act as an Employment Bureau.

Teachers who hold the Ling Association Diploma, or the diploma from the Anstey, Bedford, Dartford or Dunfermline Colleges; the Royal Central Institute or Dr. Arvedson's Institute, Stockholm; the South Swedish Gymnastic Institute, Lund; or the Diploma of Merit or Distinction from the Gymnastic Institute, Silkeborg, Denmark, are eligible for membership. Though the Association is open to men and women who have trained for at least two years in a recognized training college, very few men have joined, as the number of men with the necessary qualifications is very small.

The Association arranges Annual Holiday Courses for its members; has a well-stocked library of

books on Physical Education, Massage, Remedial Gymnastics, and allied subjects. It publishes a synopsis of the Swedish system of physical education; *Rules of the Game of Net Ball and Rounders; The Game of Net Ball and How to Play It; Scandinavian Dances, Series I and II; Good and Bad School Postures*—a series of 10 drawings showing the effects of faulty positions in standing, writing, sewing, carrying school books, etc.; also issues a monthly *Leaflet* with Association notices, items of professional news, and a list of vacant posts.

The subscription is 15s. a year, with reductions for teachers living abroad and those who have given up professional work. The present membership is over 800.

LINNEAN SOCIETY OF LONDON, THE.—This was founded in 1788 by Dr. James Edward Smith, of Norwich, who was knighted in 1814.

Carl von Linné (usually known as Linnaeus) was a Swedish botanist, who from the age of 24 devoted himself to the work of classifying plants according to their reproductive organs. He explored, botanically, several European countries; became Professor of Botany at Upsala in 1741; and at his death left a valuable collection of books, manuscripts, and specimens. The whole of the Linnean collections were bought by Dr. Smith in 1784 for £1,000, and at once the purchaser resolved to establish a society named after the Swedish naturalist. The Society was formed on 26th February, 1788, at the Marlborough Coffee House, Great Marlborough Street; and Smith was the first president, a title which he held for the next forty years. At his death the Society bought all his collections.

The Society is composed of Fellows, Members, and Associates. Originally, only men were admitted as Fellows; but, in 1904, a supplementary charter was obtained making it possible to elect women.

The objects of the Society, as set out in the Royal Charter, are: "The Cultivation of the Science of Natural History in all its Branches, and more especially of the Natural History of Great Britain and Ireland."

To carry out these objects, meetings are held twice a month, from November to June, for the reading and discussion of papers, and the exhibition of objects of biological interest.

The Society records its work in *The Transactions* from the beginning of the Society to 1875; *The Journal of the Proceedings*, which since 1865 has been named *The Journal of the Linnean Society*, and is issued in two parts, Botany and Zoology; *Reports* of each meeting; and *The Proceedings*, from 1838, issued yearly and recording the formal business of the year.

Collections and Library. The Society still possesses the collections of Linnaeus and his son, and Sir J. E. Smith; but many miscellaneous collections were sold in 1863, having become a burden to the Society; and the need for a museum disappeared with the modern development of the British Museum and the Royal Botanical Gardens at Kew.

There is a library open to all members of the Society from 10 to 6 (Saturday, 10 to 1); and Fellows are allowed to borrow books from the library.

A candidate for admission to Fellowship must be proposed by three or more Fellows and pay an admission fee of £6, and one annual contribution of £3. When elected, he is entitled to receive (gratis) all volumes of the *Transactions* and *Journal* afterwards published, and earlier volumes at a reduced price. A Fellow of the Society may use the letters F.L.S.

The Society does much to assist its Fellows and Members in publishing their papers on subjects connected with natural history.

The address of the Society is Burlington House, London, W.1.

LIPSIUS, JUSTUS (1547–1606).—An eminent philologist and critic; educated in Jesuit schools at Cologne, and at the University of Louvain. In 1572 he became Professor of History of Jena; but, owing to wars, he left Jena and lectured successively at Louvain, Cologne, and Leyden. He devoted many years to the study of Plautus and Tacitus, and published valuable commentaries on their works. He also wrote religious and political treatises, in which he advocated persecution of all who separated from the established church, and was obliged to leave Leyden on account of his opinions. In his later years he taught literature at Leyden. His written works include histories, political and ethical treatises, and epistles.

LIOUVILLE, JOSEPH.—(See CAUCHY.)

LISBON, UNIVERSITY OF.—(See PORTUGAL, EDUCATIONAL SYSTEM OF.)

LITERARY AND PHILOSOPHICAL SOCIETIES.—(See ADULTS, EDUCATION OF.)

LITERATURE, THE COMPARATIVE TREATMENT OF.—It is only of late years that the subject of the present article has taken much definiteness or prominence in public view: that Professorships of Comparative Literature (a decided misnomer, by the way) or of *Littérature Comparée* (which is a little better) have been founded; that books, larger and smaller, have been written on the subject, and so forth. It is, indeed, full fifty years since Mr. Matthew Arnold was almost, if not quite, the first, in England at least, to lay down the importance, nay the necessity, of this comparative study of letters; and it is not much more than a hundred—certainly not more than a hundred and fifty—years since the idea began to be formally conceived, and laboriously carried out, in the brief hey-day of German literature, by Herder and the Schlegels more especially, but by Goethe himself, Tieck, and almost all the critics of their school and time, more or less.

As an unformulated and unprescribed practice, the thing is, of course, far older, though not quite so old as critics themselves. It is, to this day, one of the greatest unsolved puzzles of the subject how, without any sign of it, the Greeks managed to anticipate almost all the secrets of criticism, though it is quite clear that where they went wrong, or fell short, it was precisely for want of comparison; and that their second greatest, if not their greatest, man, Longinus (or whoever it really was), actually benefited by the comparative method. The Romans, indeed, did not so much compare as copy; but Quintilian and one or two others came near the nobler practice, and there are perhaps few more unmistakable symptoms of the decadence of the Greeks than that they were too proud to use the opportunities given them by their pupils.

For a thousand years we find, and we should expect to find, little or nothing germane to our subject, with one signal exception. The one man

of genius who definitely attempts literary criticism between the fifth and the fifteenth century—Dante—though his subject is linguistic rather more than literary—distinctly touches the comparative mode. But, when the Renaissance came, that mode became imperative; though it was long before it was thoroughly understood, or, except by a kind of accident, rightly used. The explorers and revivers of ancient literature—for a long time in Italy only, but afterwards elsewhere—had forced on them, in the first place, the comparison of Ancient and Modern, and, in the second, that of Greek with Latin. It has just been hinted that they did not conduct either process in the more excellent way. The contempt with which the Moderns were at first regarded was excusable for a very short time, both as the general result of "a new toy," and because European literature was not in a very brilliant state during the fifteenth century. But it became unpardonable later, and passed into that silliest of literary squabbles (for all that it produced some excellent by-products)—the so-called "Quarrel of Ancients and Moderns" itself. In regard to the valuation of the two classical languages against each other, the effect was different, but also curious. For a time, the "new toy" principle gave the preference to Greek. But human weakness always inclines towards what modern slang calls the "softer option"; and there is no doubt that, from the time of Scaliger to that of Johnson, Greek might be praised, but it was Latin that was studied and loved. Moreover, the extremely slow growth of really appreciative criticism—a thing not too abundant in the classics themselves and scarcely to be found, except in very rare instances, before the latter part of the seventeenth century—indicated the absence of the true comparative spirit, for appreciation without comparison is practically not appreciation (at least not critical appreciation) at all.

There is no room here, nor if there were is the writer sure that he would avail himself of it, for an application of the too often idle question: "Who began the comparative treatment of literature in modern times?" There might be many candidates, not the least important being that very remarkable critic, the Italian Platonist Patrizzi, in the sixteenth century. But, in England, there is no doubt about the matter. Dryden may or may not have taken the idea of his "Prefaces" and "Essays" directly from the *Examens* of Corneille; and there is no doubt that Corneille had before him, and to some extent used, not merely the classics, but Spanish and Italian, both as sources and magazines, and also as patterns and subjects of study. But, like all but a very few Frenchmen of his time and later, he missed the most valuable of all subjects of comparison—our own literature; while Dryden was amply furnished with the corresponding advantage in regard to French. (It is said, at third hand, the authority being Bolingbroke reported by Spence, that he knew Spanish and the Spanish critics; but no such claim has been found in his own work.) The *Essay of Dramatic Poesy* is soaked in the comparative spirit as regards individual kinds, authors, and points; and there are not wanting signs in it that, with a little help of time and circumstance, the writer might have risen to a more complete "Pisgah sight" of different literatures and even of literature at large. But the time was not yet; and neither in Dryden, nor in any other English or French writer of his day, do we find what may be called a thoroughgoing comparative study of a foreign author. (Saint Evremond's remarkable *Sur la Comédie Anglaise* is a partial but not a complete exception.) Indeed, such a thing is hardly to be found before the Shakespearian studies of one of the elder Schlegels—not one of the two generally known brothers, but their earlier kinsman, Johann Elias. Voltaire, perhaps, came earlier; but Voltaire never had anything of the true comparative spirit in him. For there are false comparisons as well as true; and the prevalence of one false kind especially has had more to do than anything else with the slow progress and, even now, the frequent misunderstanding or ignoring, of the true.

True and False Comparisons. The commonest form of the false comparison is one which is so natural, that it is found almost at the beginning of criticism—the endeavour to "place" authors as schoolboys or undergraduates are placed in a class-list. Some results of this kind may, of course, inevitably, and even not unprofitably, emerge from true study; it is permissible to say—especially if you can give reasons for it—that Shakespeare is a better dramatist than Shadwell, and Tennyson a better poet than Tupper. But the true object of the comparative treatment or study of literature is not order of rank, but difference of quality. You must determine, not so much the merit, though that will certainly follow in some cases if not in all, but the nature of the subject. Such subjects in themselves vary almost infinitely. You may—and to be completely equipped as a student of literature, you should—compare the sonnet and the ballad, lyric and drama, Herrick and Carew, Montaigne and Sir Thomas Browne, French literature and English at large. Nothing is too small and hardly anything too great for the exercise of the comparative method; and hardly any such exercise fails to advance the student.

But, when people speak of this comparative study nowadays, they generally mean comparisons of *different* literatures: though there is still only too much need to insist on the importance of the comparison of different periods of the same literature. It may almost be said that, while the absence of comparison of other literatures chiefly fails to give additional light which might be attained, the absence of comparison of periods of the same literature leads right into darkness. But it is the former division of treatment which will probably be expected here.

The division of literature in which the importance of comparative study has been exhibited for the longest time, and in the most signal manner, is undoubtedly the drama, though prose fiction, in a more negative fashion, gives an instance almost equally striking. The famous—or should be famous—words of Dryden (never published by him, but beyond all reasonable doubt his): "It is not enough that Aristotle said so: for Aristotle drew his models of tragedy from Sophocles and Euripides; and, *if he had seen ours, might have changed his mind*"—though the writer may not have appreciated their wide-ranging force, put and point the moral of comparison in the most conclusive and unforgettable manner. Nor is the other moral of the absence of any considerable body of prose fiction in early Greek, as affecting the same great critic's theories of poetry generally, less obvious. The whole history of the literary Renaissance, earlier and later, is, in fact, an exhibition of the powers, the advantages, and also the dangers of the comparative method; and

so, on a much smaller scale, is the effect on the German critics of the earlier eighteenth century, of their discovery of English literature.

Nowadays, perhaps, there are no such momentous and (so to speak) sensational ignorances to remove, or discoveries to make. Yet no one who wishes to be more than a second-hand student of letters—a more than spoon-feeder at the hands of others, or retailer of what has been supplied to him by them—can dispense with comparative study for himself and at first hand. Perhaps, indeed, there is no branch of literary study in which this directness and first-handedness is more necessary. The talk so common now about the abundance and sufficiency of translations is in hardly any point more mischievous than in this—that, though translations do not entirely kill, they blunt and stint and maim the opportunities of comparison. The full range of those opportunities can only be realized—it will take more than a lifetime before it can be exhausted—by a student who has at his command not merely his native language, but those older ones from which that language—English, French, or any other—derives so much, and from which it yet differs so widely, with at least one or more (better more) of the other modern tongues which have used their borrowings differently, and are in their own selves so different—once more—from his vernacular.

It may be said that this is a counsel of perfection except for those, and perhaps even for those, who can devote their whole time to the study of literature. But this is a mistake. A whole life—indeed, many whole lives—might, it has been said, be devoted to that study without exhausting it. But a very moderate portion of a life, well used and well guided, will suffice to give an intelligent student a grasp of the principles and method of noteworthy comparison—a grasp which he can apply and extend for himself as time and opportunity serve. Even a single additional language, ancient or modern, will at once provide that almost magical observation of difference which more than anything else is the foundation of understanding. The points or facts which strike this match—as we may say—are innumerable and almost infinitely various in kind. Such, in one instance, is the fact unfortunately ignored by many professional translators—that if you keep the French sentence without readjustment in English, you will make a mess of the whole thing; such, in another, the singular difference in general cadence between Spanish and English poetry; in a third, the question why *stichomythia*—a dialogue in single lines for a considerable stretch—is not in the least absurd in Greek, while it always assumes a character of burlesque in English, even in the hands of such a master in one kind as Dryden, in another as Swinburne.

Place and Importance of the Study. These are purposely chosen as small instances—insignificant ones, some may say; but they lead up, through others of wider range, to the most ambitious considerations of the comparative quality of different literatures themselves, and to the possible discovery or, at least, better understanding of the principles and characteristics which distinguish all literature. It may, of course, be a question whether the study is best carried on—there cannot be much doubt that, if possible, it should be begun—in the teaching of individual literatures. And it might be urged that the attempt to teach it separately has its dangers. It would be very difficult to secure adequate and, still more, uniform knowledge of different literatures among students even in the Honours stage of the best university teaching; and, on the other hand, there is an equally obvious danger of superficial, and what is commonly called "gassing," utterance on the part of a professor or lecturer on the special subject. But the first of these arguments counts for little, and the second not at all, against the judicious admixture of comparative treatment in literary teaching, whether in universities or in the very highest forms of schools; while neither has anything to do with that private study for which the subject, as has been said, is perhaps most suitable. It is possible for a boy of 17 or 18, without being a prodigy or a prig; and it is positively desirable for a young man, as he reads Homer and Virgil and Milton, or Shakespeare and Victor Hugo, or Tennyson and Heine, to ask himself whether there are not differences quite independent of their respective individualities, between these men, and whether the nature of them is not worth finding out. If he goes on in that way, he will probably become a real student of letters; perhaps he will never become quite a real one if he does not go on in it. G. S.

LITERATURE, THE ROYAL SOCIETY OF.—This Society was incorporated by royal charter in 1825, and consists of Fellows and Honorary Fellows who are elected as a recognition of their eminent work in the field of letters, and of members chosen for their interest in literature. A Fellow is entitled to use the letters F.R.S.L. after his name.

The object of the Society is the advancement of literature by the publication of inedited remains of ancient literature and of such works as are of great intrinsic value, but not of that popular character which usually claims the attention of publishers; by promoting discoveries in literature; by endeavours to fix the standard and promote the purity of the English language; by the reading and publication of papers on literary subjects; and by assigning honorary rewards to works of great literary merit. The work of the Society is carried on by a council of sixteen, and an academic committee of about forty Fellows, all of whom hold high places in the world of literature.

The office of the Society is 2 Bloomsbury Square, London, W.C.1.

LIVERPOOL, THE UNIVERSITY OF.—This institution first received its charter of incorporation as the University College of Liverpool in 1881, and commenced its teaching on a humble scale in general arts and science subjects. Plans for extension met with strong local support, and in 1882 additional land and buildings were bought and presented by the City Council. During 1883–4 the College absorbed the medical school of the Royal Infirmary, and in 1884 it was admitted as a constituent College of the Victoria University. Further powers towards autonomy were conferred by a supplemental charter of 1900, which also provided for extensive representation of the city authorities and local institutions on the Court of Governors. The remarkable success of the College and the enthusiastic interest of the citizens led to a strong movement for further development, and this was carried to a successful conclusion when the charter entitling the institution to recognition and powers as an independent university was granted in 1903.

His Majesty the King has the honorary office of Visitor. The Right Hon. The Earl of Derby is the present Chancellor. The other chief officers include two Pro-Chancellors, a Vice-Chancellor, a President and a Vice-President of the Council, Deans of the faculties of arts, science, medicine, law, and engineering, a Director of Dental Education, and a Secretary to the Board of Veterinary Studies. The government of the University is in the hands of the Court, which consists of over 300 members representing public bodies and donors; the executive work is carried out by the Council; academic work is regulated by the Senate; and the graduates of the University are represented by Convocation.

Curricula and Examinations. A notable feature of the University has been the vigorous development of its teaching along cultural lines. Social science and kindred studies are prominent in the curricula.

Degrees are granted in Architecture (B.Arch.), Arts (B.A., M.A.), Letters (Litt.D.), Commerce (B.Com.Sc.), Dental Surgery (B.D.S., M.D.S.), Engineering (B.Eng., M.Eng., D.Eng.), Law (LL.B., LL.M., LL.D.), Medicine, Surgery and Hygiene (M.B., Ch.B., M.D., Ch.M., M.H.), Science (B.Sc., M.Sc., D.Sc.), and Veterinary Science (B.V.Sc., M.V.Sc., D.V.Sc.). Diplomas are also granted in architecture, civic design, education, engineering, public health, social science, tropical medicine, and veterinary hygiene. The following are some of the average costs of degree, diploma, and certificate courses, exclusive of a compulsory subscription of 30s. a session payable to the Guild of Undergraduates: B.A. or B.Com.Sc., £57 for three sessions; B.Arch., £94 for five sessions; B.Sc., £70 for three courses; M.B., Ch.B. (including hospital practice), £165 for five sessions; M.H., £48 for two sessions; LL.B., £50 for three sessions; B.Eng., £108 for three sessions; Ph.D., £10 for three sessions. For diploma courses the fees are as follows: for four sessions in architecture and dental surgery, £64 and £169 respectively; for one session in civic design, £20; education, £11; public health, £29; tropical medicine, £13 13s.; veterinary hygiene, £15 15s.

The matriculation examination, for which a fee of £2 2s. is payable, is conducted twice yearly by a Joint Board of the Universities of Manchester, Liverpool, Leeds, Sheffield, and Birmingham. Possession of certain diplomas or certificates granted by other examining bodies exempt from the matriculation examination.

A flourishing scheme of university extension aims at providing means to higher education for persons who are engaged in the regular occupations of life, and provides for university extension, lectures, tutorial classes, travelling libraries, etc.

LLANDOVERY COLLEGE.—In 1848 this Carmarthenshire public school was founded and endowed by Thomas Phillips, in a picturesque part of the valley of the Towy. The religious teaching is in accordance with the doctrines of the Church of England. There is a large staff, giving a ratio of about one to thirteen for masters to boys. The parallel divisions of the upper school are so numerous that successful specializing is rendered easy, and boys are able to prepare for various careers and examinations without losing touch with their form-fellows. Athletics, especially Rugby football, are keenly practised, many of the masters being experts.

There are upwards of 150 boarders in three houses. The endowment provides many entrance scholarships, and there are two leaving scholarships to Oxford. Llandovery has a preferential claim, along with Christ College, Brecon, on sixteen valuable scholarships and sixteen exhibitions at Jesus College, Oxford.

Additional buildings to commemorate the school jubilee were begun in 1898, and are now completed. Recently, a fine new gymnasium was built.

LOCAL EXAMINATIONS (UNIVERSITY), THE HISTORY, WORK, AND PROGRESS OF.—Early in the second half of the nineteenth century, the importance of furnishing middle-class parents with some criterion of the education which their sons were receiving appears to have impressed several educationists. Examinations for both teachers and pupils had been started by the College of Preceptors (*q.v.*) in 1853, but schools—public and private—were neither inspected nor subject to external examination. In 1857 Sir Thomas Dyke Acland and others appealed to the Universities of Oxford and Cambridge to satisfy this need. The Universities met the appeal by establishing the Local Examinations, first held by Oxford in June, and by Cambridge in December, 1858.

Schemes, Syllabuses, and Developments. The Local Examinations of the two Universities have always shown a close resemblance in their main features. Each university entrusts the management to a committee (called at Oxford a delegacy, at Cambridge a syndicate) selected from its resident members. Each has from the first held two examinations—the Junior and the Senior—the former designed (according to present regulations) for students under 16 years, the latter for those between 16 and 19 (Oxford), or 16 and 18 (Cambridge). Each publishes annually a syllabus defining the subjects of examination. The time-table and the question-papers (sent from the university) are identical for all candidates. The answers, written at the "centres" throughout England and the Dominions, under the supervision of presiding examiners appointed by the university, are dispatched to Oxford or Cambridge and there examined. In the Class List, the names of candidates entitled to certificates are arranged alphabetically in three Honour classes and a Pass List. Students reaching a high standard in a subject receive a special mark of distinction. The syllabus includes religious knowledge, English language and literature, classics, modern languages, history, geography, arithmetic, mathematics, the natural sciences, drawing, music, needlework, hygiene, shorthand, with practical tests in natural science, and oral tests in French and German. The original conditions for a certificate, while leaving a wide choice among optional subjects, made the rudiments of an English education compulsory. Subsequently the tendency was to limit the compulsory element.

The following developments may be noted—

(i) Girls were admitted to examination by Cambridge in 1865, by Oxford in 1870.

(ii) The Higher Local Examination, established by Cambridge in 1869, by Oxford in 1877, is designed for students above 17, and is of a more advanced character than the Senior. The principal subjects of education are divided into groups, and candidates are required to pass in arithmetic and in three groups; but all the requirements need not be satisfied at the same examination. The examination is taken almost exclusively by women. Its

Leipzig University

Lund University

PLATE LIX

foundation marked a notable advance in the days before the Universities were thrown open to women.

(iii) The Preliminary Local Examination for candidates under 14 years, established by Oxford in 1895, by Cambridge in 1896, is being discontinued by both Universities.

Sphere of Influence. The Local Examinations gradually gained acceptance among secondary schools, except those specially entitled "Public Schools" (for which a distinct system of examination conducted by the Oxford and Cambridge Schools Examination Board was instituted in 1874), and it is generally admitted that the progress in secondary education during the second half of the last century owes much to them. Some schools enter selected candidates, others use the examinations as a test for the whole of their upper classes. The two examining bodies undertake the examination and inspection of schools as distinct from the Local Examinations; the latter may be combined with a school examination. The Senior Examination came to be recognized, under varying conditions in each case, as exempting from University Matriculation examinations and the preliminary examinations for most of the professions. The local examinations have undoubtedly influenced the curriculum and teaching of the schools; on the other hand, the examining bodies have constantly considered suggestions from the schools, and have latterly instituted conferences with representative teachers. Moreover, a school may submit its own syllabus in any subject.

Each University now examines annually from 22,000 to 24,000 candidates. The examinations are taken widely in the Dominions, Cambridge especially examining large numbers in Ceylon, India, the Straits Settlements, the West Indies, South Africa.

The Secondary Schools' Examination Council. In consequence of the widespread opinion that the schools were suffering from the multiplicity of examinations, and that the teaching profession should be admitted to a share in their management, the Board of Education, in 1914, invited the English universities to enter into a scheme for the co-ordination of the Senior Local Examinations, the Oxford and Cambridge Board's School Certificate Examination, and the School Examinations held by the other universities. The invitation was accepted, and the co-ordination of the examinations is being effected under the Board of Education, by a Secondary Schools' Examination Council, on which the universities, the teachers, and the local education authorities are represented. The examinations just mentioned now serve both as school-leaving examinations for students aged about 16½ years, and—with a higher standard for passing—as examinations qualifying for entrance into the universities and professions. The State assists schools receiving grants from the Board of Education by paying the fees, which have hitherto usually fallen on the parents. Teachers are now represented on all the examining bodies.

Under this new system, Senior candidates are required, as a minimum, to attain a certain standard in (i) English subjects; (ii) a language other than English; (iii) mathematics or natural science. They may subsequently take the Higher School Certificate Examination, representing two years of more specialized work in classics or modern literary studies, or mathematics, or natural science, together with one or more subsidiary subjects. J. H. F.

LOCAL GOVERNMENT BODIES, TEACHERS ON.—When the Education Act of 1902 was before the House of Commons, the following clause was included by the Government: "Any person shall be disqualified for being a member of an Education Committee who, by reason of holding an office or place of profit, or having any share or interest in a contract or employment, is disqualified for being a member of the Council appointing the Education Committee; *but no such disqualification shall apply to a person by reason only of his holding office in a school or college aided, provided, or maintained by the Council*" [Clause 17 (4)]. This clause was adopted without dissent by all parties in the House of Commons. That Parliament attached much importance to teachers becoming members of local education authorities is obvious from the fact that the insertion of this clause in the Education Act constituted a considerable change in the law and practice with regard to the eligibility of servants of a council becoming members of a committee of that council. The council have the power to appoint teachers working within the area as members of the Education Committee, and they may consider any recommendation with regard to the appointment from an association of teachers.

The Education Act of 1918, Section 6 (3), also declares that teachers are eligible for membership of joint committees established by local education authorities, and it is necessary that provision for the appointment of a teacher member or members shall be made in the scheme for the constitution of the Education Committee. Many education authorities at once took advantage of this, and made suitable provision under the scheme for the constitution of a committee which should include teachers as members; others have since amended their schemes with the approval of the Board of Education, and have appointed teachers as members of the Education Committee. About 350 teachers and ex-teachers are now serving on some 220 education committees.

The benefits of such representation are widely acknowledged. The representative teachers take to the Education Committee not only their own expert knowledge of educational questions, but the considered and collective opinion of their teacher colleagues. They are able to explain to the Education Committee the attitude which the teachers are likely to adopt with regard to certain proposals in connection with the work of the school, and such knowledge is of the greatest possible service to the Education Committee and its officials. They also, on their side, are able to learn something of the principles upon which the committee may be acting, and something of the motives which have guided them in reaching their decisions, and are thus able materially to aid the smooth working of educational matters. By this means, they become a bond of union between the Education Authority and the teachers: their presence as members of the committee is a constant evidence of mutual trust and goodwill.

Teachers and Public Work. Whatever developments may come in the future as a result of the desire for closer co-operation between employers and employed, which may lead to some form of a Whitley Committee for education in each district, it is hoped that the practice of co-opting representative teachers on education committees may be continued and even extended. About 300,000 men and women described themselves as teachers

at the Census of 1911. These, with their families, may be estimated at something like 2 per cent. of the whole community. Teaching is a distinct profession, with a particular service to render to the State, and with special knowledge as to its own particular needs; and it is thus very desirable that these arrangements shall be made for representing their views on the education committees of their respective districts. But it is also the duty of

TEACHER REPRESENTATION ON LOCAL EDUCATION AUTHORITIES.
(1918-1919.)

	Types of Authorities.				Total.
	Counties.	*County Boro's.*	*Boro's.*	*Urban Dists.*	
(*a*) Elected as a Member of the Council, not nowemployed as a teacher	13	10	14	2	39
(*b*) Elected as a Member of the Council, but employed as a teacher by another L.E.A. .	—	1	3	9	13
(*c*) Appointed by the Council to the Education Committee on nomination or recommendation of the Local or County Association or of the Certificated Teachers of the district . .	47	33	55	18	153
(*d*) Appointed by the Council to the Education Committee without nomination or recommendation of the teachers.	33	30	44	19	126
	93	74	116	48	331

teachers not to confine their attention to the service for which they are definitely engaged. It is the community as a whole that must be served, and teachers are able to do much good social work on account of their intimate knowledge of children and parents. Questions of housing, health, and pensions come particularly within their province, and the public services gain considerably if teachers are allowed to take part in the discussions and decisions on public matters.

Teachers in the past have been too much divorced from the administration of education, but there are signs that the situation is improving. In 1919 the Middlesex Education Committee took the wise step of electing four teachers among the eight co-opted members on the committee. This gave an opportunity for representation of all grades of teachers —and of men and women.

In the past, the choice of an Education Minister was made mainly on political grounds; but in the appointment of Mr. H. A. L. Fisher by Mr. Lloyd George to this very important post the tradition in this matter was broken, an eminent educationist being selected to fill the office, and his success during a very difficult and trying period has proved the wisdom of this departure from political precedent. Teachers generally may claim to have a definite contribution to give to local government work by exercising a professional judgment, being able to formulate distinctive opinions upon public service, and having a share in the corporate government of working life.

The need of the democracy is for good leaders; and, as the masses using the schools appreciate the teachers, there is a great opportunity for them to exercise their influence and do a great public service by coming into public work.

From the experience gained, it is worthy of note that the number of those authorities which have tested the practice of appointing teachers as members of the education committees continues to increase; and several local authorities have entrusted duties of an important character to these teacher members, and have found them specially helpful in dealing with difficult professional cases.

The statistics as shown in the table will be of interest. E. R. C.

LOCAL LECTURES IN CONNECTION WITH UNIVERSITIES.—(See University Extension Movement, The.)

LOCAL PATRIOTISM.—(See Patriotism, The Teaching of.)

LOCAL SIGN.—(See Touch, The Sense of.)

LOCKE, JOHN (1632–1704).—Humanist, physician, publicist, philosopher, and educationist; was son of an attorney, a Puritan, who became a captain in the Parliamentary Army in the Great Civil War. Locke was educated (1646–1652) at Westminster School, under Dr. Busby. But Locke hated the memory of his school-days, and condemned public schools. Locke became the chief exponent of the idea that education should fit a boy for practical life, for trade as a profession, as well as for the Church, the Law, and Medicine. In this sense, Locke is a democrat in education. Nor is it to be overlooked that Locke had strong human sympathies with the children of the poor. In 1697, when he was a commissioner of trade and plantations (1695–1700), he advocated a system of "working-schools" for all pauper children between 3 and 14 years of age, where they were to be taught "spinning, or knitting, or some other part of the woollen manufacture." This useful training, together with Church-going and religious training, was a minimum educational training, in accordance with all Locke's pedagogy, which insisted on individual exercise in *habits* of practical usefulness, and *habits* of thinking and forming tested judgments, as more important educationally than instruction in the established subjects of the curriculum. He pronounced "learning" as the "least part" of education: virtue, wisdom, manners being three higher aims. "Secure the child's innocence, ensure the good, weed out bad inclinations, and settle him in good habits." Where the child has "leisure" for further education, as with gentlemen's children, "learning" may be reasonably added. The fact that Locke's *Thoughts concerning Education* (1693) was written for the son of a nobleman, has led to the supposition that Locke is not democratic, but no educationist ever enunciated principles behind the details more susceptible of general application.

Locke was at Christ Church, Oxford (1652–1667), where his dislike of ordinary academic studies further developed. Nevertheless, in view of his later attack on the classical system, it should be remembered that Locke became, at Christ Church, Oxford, reader, first, in Greek and, afterwards, in Rhetoric. Locke, at the age of 34, began medical studies, and took his M.B. degree in 1674. In 1668 he became a Fellow of the Royal Society. From 1667–1684 he was in the service of Lord Ashley (Earl of Shaftesbury), and acted as tutor in his family. Locke became an exile in 1684 to escape the fate of association with Shaftesbury in his downfall. He travelled abroad till the Revolution of 1689. From 1691–1704, he lived with the Masham family at Oates in Essex. From 1675 onwards, Locke's health rendered him often an invalid.

Locke as Physician and Psychologist. Locke, thus, in his life, "played many parts." As a physician, he took his profession seriously, and hoped at one time to become Professor of Medicine at Gresham College. He won high commendation from Dr. Sydenham, whose simplification of medical treatment no doubt influenced Locke's views. Locke, however, on the practical side, was a "thoroughgoing sceptic," as Dr. Payne suggests, "to all medical dogma." In medicine, in political philosophy, in psychology, in trade, Locke was independent of party or school, or authority. In every department of life, as R. H. Quick pointed out, he was guided by two characteristics: he believed, with passion, in "truth for truth's sake"; and insisted on "following reasons" to obtain it. Hence he was a "rationalist" in every subject of study. Though a Puritan, he thought that for reading straight through "perhaps a worse book could not be found" than the Bible as it stands.

A man of the widest experience in the observation of practical affairs, Locke was, in addition, a psychologist by nature. This attitude gives him a special value with the modern reader, and entitles Locke to the highest position as an educationist. His *Essay on the Human Understanding* (1690) is the corner-stone of modern empirical psychology. His *Thoughts concerning Education* (1693) is not so systematic, but is thoroughly practical. The physician Locke suggests that diagnosis of the individual child is as necessary for the teacher or parent as it is for the medical attendant; and yet, whilst he transfers this medical attitude to education, he entirely detaches himself from his own profession, and it is doubtful if he gives as many medical parallels as most educationists. His educational system, as his philosophical system, is built up on the maxim, "Nihil in intellectu quod non prius in sensu fuerit." Yet he maintains that the mind takes notice, when once aroused, of its own operations, and the manner of them, in *reflexion*. Thus, however complex an idea may be, it is the outcome of combinations and associations of simple ideas, "bottomed" in a simple sensation, a simple reflexion, or in both combined. Still, Locke is alive to the educational necessity of the promotion of verbal accuracy as parallel to mental accuracy. The third book of the *Essay on the Understanding*, on language as the means of expressing ideas, should be read along with the *Some Thoughts concerning Education*. Though himself an encyclopaedist, Locke is a true modern in his despair of encyclopaedism as an educational aim, since the extent of knowledge is so vast and lifetime so short. Hence the curriculum must be chosen for practical ends. And his *Conduct of the Understanding* warns us that the study of the sciences is to be regarded as *an increase of the power and activity of the mind, not as an enlargement of its possessions.*

Locke is especially noteworthy in his advocacy of individual treatment of the child, based on psychological observation, in his recognition of child (and other comparative) psychology, as well as normal psychology. But, essentially, Locke is a humanist. He wants the educated to be prepared to enjoy the best things of life in every direction, and to be trained to be of use and helpful to society in his generation. He is an anti-specialist, and yet, in an age of specialization, no English writer, except Herbert Spencer, has received more attention than Locke. The reason probably is that, in spite of self-contradictions, he is himself master of the "large, sound, roundabout sense," which he wishes to induce by means of education. F. W.

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[It is not always remembered that Locke wrote the following book illustrative of a suggested method of language teaching:
Aesop's Fables in English and Latin, interlineary for the Benefit of those who, not having a Master, would learn either of these Tongues. With Sculptures. (London, 1703.)
The book consists of 337 pages, 8vo; and has 5 plates containing 74 small figures of animals. The preface, giving a full account of Locke's method, is re-printed in
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LOG-BOOK.—The oldest instrument used for measuring the rate of a vessel at sea consisted of a *log* of teak in the shape of a quadrant, loaded so as to float vertically. The log-book of the ship recorded the results of experiments with the log, as well as other daily occurrences, and became the ship's diary. Every elementary school department must keep a diary of important events which happen in connection with the department, and the diary is known as the log-book.

LOGIC IN ENGLAND, HISTORY OF THE TEACHING OF.—In the Middle Ages, the attempt was made to deal with ecclesiastical dogma, with dialectic or logic as the instrument of deduction. Formal logic was developed by syllogistic ingenuity into an educational method, absorbing all the intellectual energy of the age. Starting nominally with the trivium of grammar, rhetoric, and dialectic, the two former arts were engulfed almost to loss of recognizability in logic. Grammar retained its name but little more, for it was permeated with the dialectical method. In Northern Europe, Alexander of Villedieu, Ebrard of Béthune, and other grammarians took grammar out of its practical sphere, and infused into it the methods of logic and metaphysics, and the study became wrapt in abstractions of essences, entities, and *ex-vi-s*, etc. Rhetoric fell into disuse as a study, only to be resuscitated at the Renaissance; and no change is

more characteristic of that movement than the substitution of a study of rhetoric joined with the reading of authors, in place of the all-absorbing mediaeval exercises in dialectic. Erasmus argued in favour of the retention of logic, but refused to go beyond Aristotle, and said: "I prohibit the verbiage of the schools" in the training of the youth.

Text-books. In the study of logic, the text-book of Melanchthon (1547), the *Erotemata Dialectices*, marks the great break with the Middle Ages. The first English printed book on Logic, the outcome of the Renaissance spirit, was called the *Rule of Reason*, written by Sir Thomas Wilson, published in 1551. This was followed by Ralph Lever's *Art of Reason rightly termed Witcraft* in 1570, but these text-books were not so important, even in England, as the manual of logic by Rodolph Agricola, called the *de Inventione dialectica*, written in the latter half of the fifteenth century, which was emphatically the academic text-book. For instance, in 1535, it was prescribed for use in the University of Cambridge. In the sixteenth century, however, the leadership in the logic text-book passed on to Peter Ramus, whose *Dialectica* was written in 1553. Opposed, as Ramus and the other logicians of the sixteenth century professed themselves to be, to Aristotle, they quietly annexed his syllogistic basis, whilst they indulged in diatribes against him. Spencer Baynes, in editing the excellent *Port-Royal Logic*, speaking of Aristotle as the original source of all later deductive logics—says suggestively: "The history of logic has been chequered with fewer revolutions than have marked the progress of any other branch of mental science." The essential improvement brought about by Ramus, in his text-book, was the inclusion of passages from the writings of poets and orators to provide subject-matter for logical exercises. Ramus was closely associated with Protestantism, and thus the struggle between Ramist-logic and the older types of Aristotelian logic was bitter and prolonged. Milton, in 1672, wrote an elementary text-book on logic, founded on Ramus.

Logic after Bacon. The "logic" urged by Francis Bacon (*q.v.*), who is wrongly regarded as the introducer of "inductive" methods, is a method which he considered as suitable for scientific investigation. But the best examples of inductive inquiries up to Bacon's time, on the whole, were those in philology and classical archaeology by classical authors. Bacon's inductive method, in so far as it was sound, was mainly the application of the best humanist methods to a wider range of scientific research. With the rise of mathematical studies in the eighteenth century, there was a corresponding decline in the position of logic.

Archbishop Whately, in his *Logic* (1826), did much to re-instate the subject academically, but he advocated its study as a university honours subject.

John Stuart Mill's *System of Logic* (1843) brought the subject into further prominence, and the University of London gave a distinct impetus to the study by undergraduates. The modern universities have been well-inclined to logic, especially as connected with the exposition of the methodology of scientific research—the most approved text-book of the latter part of the last century being Professor Stanley Jevons's *Principles of Science* (1874). Boole, de Morgan, Jevons, and Venn have dealt with logic in mathematical terms; whilst Hegel, Sigwart and Lotze in Germany, and Bradley and Bosanquet in England, have developed the metaphysical implications of logic.

[For the general lines of logic and its various departments and aspects, see the appropriate articles in J. M. Baldwin's *Dictionary of Philosophy and Psychology* (New York).] F. W.

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LOGIC IN SCHOOLS.—Logic is the science of correct thinking (*i.e.* of thinking about things as we ought to think). In other words, it is the science of knowledge; it deals pre-eminently with that organization of knowledge which is applicable in all departments of cognition; it is the science of sciences.

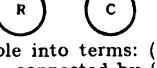
Language is the indispensable instrument of thought in dealing with things. As regards the relation of this instrument of thought to thought itself, we will, for the present, simply accept the position that thought, as logic deals with it, is thought expressed in language. Of the relation of thought to things, all that can be said here is that, for the operations of logic, anything *whatever that we think about* is distinguished *as something*—as a thing in the widest sense—from *our thought about it.*

Logical Theory. Thoughts about things are expressed in propositions. Thus it is with propositions—with their import, their constituents, and their relations—that logic is concerned throughout.

Take the following propositions—

The morning star is the evening star.

Rashness is not courage.



These propositions are analysable into terms: (1) Subject (S) and (2) predicate (P), connected by (3) a copula—

(1) Morning star, rashness;
(2) evening star, courage;
(3) is, is not.

Terms have (*a*) denotation or extension (*i.e.* they apply to the things of which they are the names); and (*b*) intension (*i.e.* they signify qualities or characteristics). *Biped* in extension applies to men, birds, monkeys. In intension, *biped* signifies "having two feet."

"The morning star is the evening star," and all other propositions of S *is* P form (*i.e.* all affirmative categoricals) assert denotational identity (of subject and predicate) with intensional diversity (of subject and predicate)—it is one thing which is both Morning Star and Evening Star, and in S *is* P, S and P have one identical application—but Morning Star and Evening Star are differently defined, and S and P are differently characterized.

"Rashness is not courage," and all other propositions of S *is not* P form (*i.e.* all negative

categoricals) assert that the predicate is other than the subject. Rashness is one thing; courage is another. And, generally, S is one thing, P is another. So S *is not* P asserts denotational distinctness together with intensional diversity. (We are not here concerned with the requirement that in S *is* P and S *is not* P, S and P should refer to some underlying whole.)

On this view of import, the possibility and validity of conversion is apparent.

—entitles us to assert P *is* S as well as S *is* P. The relation here of P to S does not differ from the relation of S to P. If the Morning Star is the Evening Star, then the Evening Star is the Morning Star. This appears evident, both from the analysis of import here accepted, and also from the diagrammatic representation of the proposition.

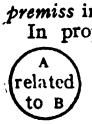
So with Obversion. If S *is* P, then clearly S *isn't* not-P; denotationally, not-P is an Other to P, is not identical with it. This is in accordance with the Law of Contradiction. S *is* P and S *is* not-P are directly apprehended as incompatible in the highest degree. Correspondingly, S *is-not* P, justifies us in passing to P *is-not* S (since the connection between P and S is the same as that between S and P)—also to S *is* not-P. This is in accordance with the Law of Excluded Middle; we directly apprehend that S is either P or not-P.

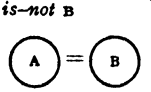
Conversion and Obversion are the fundamental processes of Immediate Inference or Eduction.

It is the Denotational identity of S and P in S *is* P propositions, which justifies Conversion and Obversion of affirmatives. In so-called Mediate Inference also, the possibility of passing from premisses to conclusion depends on denotational identity.

I will illustrate by Thackeray's familiar story, as quoted by Dr. Bosanquet (*Essentials of Logic*, pp. 140, 141): "An old Abbé, talking among a party of intimate friends, happened to say—'A priest has strange experiences; why, ladies, my first penitent was a murderer.' Upon this, the principal nobleman of the neighbourhood enters the room. 'Ah, Abbé, here you are; do you know, ladies, I was the Abbé's first penitent, and I promise you my confession astonished him!'" It is the indispensability of this denotational link (whether or not the recognized result of intensional connection) which is at the foundation of the unremitting logical demand for "distributed Middle" in Syllogism, and for *one affirmative premiss* in all cases of Mediate Inference.

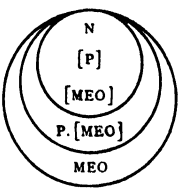
In propositions of the form A-*is-related to* B, A and B, the related elements, have distinct denotation—*e.g.* in A = B, A *is-not* B





In *If* M *is* P *and* S *is* M then S *is* P, we have a symbolic example which presents the premisses and conclusion of a categorical deductive inference in a typical hypothetical proposition, of which *if* M *is* P *and* S *is* M is antecedent, and *then* S *is* P is consequent. Taking an elliptical case of the same type, we get *If* M *is* P, S *is* P [because S is M]. The constituents of hypotheticals are here seen to be categorical in form—and the same is true of disjunctive or alternative propositions (*e.g.* S *is* P or M *is not* P).

If M *is* P *and* S *is* M, *then* S *is* P gives the barest framework of a complete categorical inference of affirmative form. Such an inference is not syllogistic unless some of the terms are quantified class-names; *e.g.* if all planets move in elliptical orbits, and Neptune is a planet, then Neptune moves in an elliptical orbit.



(Neptune is a Planet, but only *that Planet which is Neptune*. Planets are things moving in Elliptical Orbits, but only *those things Moving in Elliptical Orbits which are Planets*.)

Inference that depends on such precepts as: Transpose the subject and predicate of the proposition, change the quality of the proposition, and take the negative of the old predicate for the new predicate—is guided by mere rule-of-thumb. Similarly with Mediate Categorical Inference which proceeds in blindfold reliance on the *Dictum de omni et nullo*. Intelligent inference is based upon a mental construction and is intuitive in character.

And here we must take note of a consideration which seems specially interesting and important with reference to Inference—namely, the relation to thought of the different attitudes of speaker and audience respectively. The speaker who sets out to enunciate a proposition is in the position of having before his mind at starting the whole statement which he intends to make—*e.g.* "That picture is a portrait of the late Master of Trinity, and is one of Herkomer's masterpieces." The hearer, on the other hand, only apprehends the statement word by word, and builds up, as it goes on, the whole construction with which the speaker started.

That "Herkomer's portrait of the late Master of Trinity is one of the artist's masterpieces" might, from the point of view of audience, be regarded as an *inference* from the original statement, and could be justified by rule-of-thumb methods. But the real justification both for this, and for the conventional precepts about valid inference, is the mental construction which the hearer has put together in following the speaker's pronouncement. Each clause is a fresh label on the one object referred to—

THAT PICTURE
PORTRAIT OF LATE MASTER
BY HERKOMER
ONE OF H.'S MASTERPIECES

It would hardly be called an inference in the case of the speaker, because he would probably have already grasped the inter-relations of the various items of his assertion, so that no one of them would be to him more inferential than the others—the whole case would be for him an organized whole of inter-related elements.

Logic, as here outlined, is fundamental, simple,

and universally applicable; and, as far as it goes, is an intelligible and coherent, but not a cut-and-dried and isolated whole. It is in accordance with the light of Nature, and yet clears up long-standing logical puzzles as to Import of Propositions, Inference, etc., while setting forth that minimum of theory which is compatible with, and presupposed in, every more elaborate logical scheme. It takes account of the Extension and Intension of terms, the force of Affirmation and Denial, the nature and justification of Inference, the different attitudes of Teacher and Learner.

Theory of Terms is necessary for Theory of Import of propositions, and Theory of Import of propositions for Theory of Relations of propositions. There is an intimate interdependence between the three.

The Teaching of Logic. We go on to the question: "What is the best way to teach Logic, thus understood; and, especially, what is the best way to *begin* teaching it?"

A word is due here as to the relation between thought and language. Though there are stages of thought at which language may be to some extent a hindrance to thought, yet, on the whole, it is our indispensable instrument, our faithful servant. The only indictment which, from the point of view of the ordinary learner or teacher of Logic, it seems reasonable to prefer is that language is subject to ambiguity, and may conduce to confusion of thought both in speaker and audience.

The obvious remedies for ambiguity of language are clearness of thought itself, familiarity with good literature, a habit of accurate speech, conscious care in the choice of words, and recourse in all cases of obscurity to definition and example. It is probable that the best way of approaching Logic in the case of children is by this avenue of careful choice and use of words. Essay-writing, Literature, Grammar, even ordinary letter-writing and ordinary talk, will furnish innumerable opportunities for helping a child to clearness of expression and of thought, not to mention the continual training which the study of any foreign language provides. Access to such books as Trench's *Study of Words* would afford further aid, and so, in fact, would every subject with which the pupil occupies himself.

Again, it is certain that the teacher will not lack occasions for pointing out fallacies in reasoning and defects in definition and classification, as well as examples of cogent argument, clear statement, and impressive presentment. A pupil who has had such an informal introduction to Logic as is here suggested will find it generally valuable whether he pursues the subject or not; and if he does go on to make a further study of it, he will be in a favourable position for doing so.

I would suggest, also, definite school-teaching in Logic—a weekly class, say, for selected pupils. The instruction should take the form of lectures, supplemented by the writing of papers—say, one a fortnight, with a time paper once a term—and the pupils should be encouraged to ask questions, and to look out for examples of good and bad arguments, ambiguous use of terms, tautologies, contradictions, cross-divisions, and so on, in books and letterpress. Logic lends itself admirably to this sort of teaching, and would be found very fascinating by many learners. E. E. C. J.

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LOGICAL AND HISTORICAL SCHOOLS OF MATHEMATICS (MODERN).—The growing logical tendency in mathematics, as exemplified in the work of Gauss (*q.v.*), Cauchy (*q.v.*), and especially Weierstrass (*q.v.*), was developed during the latter half of the nineteenth century into a much stricter investigation of the foundations of mathematics than had ever been attempted before. Chiefly from Weierstrass's rigorous way of introducing irrational numbers and dealing with questions about limits of sets of real and complex numbers, grew (through the important and beautiful work of his pupil, Georg Cantor), the modern theory of aggregates and "transfinite" (infinite) numbers. With the work of Weierstrass and Cantor combined, the independent work of Richard Dedekind formed a theory known as the "arithmetization" of mathematics, according to which all analysis is to be based on the concept of number alone, and geometry is to be used only for illustrative purposes. But this obviously did not go far enough: the logical treatment of the ultimate principles of mathematics was necessary to complete matters. The logical elements in the fundamental work of Dedekind and Cantor on the theories of integer and irrational number were combined with the logical work (in a mathematical form) of Leibnitz, Boole, De Morgan, Frege, Peano, and Bertrand Russell (see Russell's *Principles of Mathematics*, Cambridge, 1903). The influence of this modern logical school on the teaching of higher mathematics at the present day is very conspicuous.

While most good text-books, such as Boole's *Differential Equations*, have always made use of the historical order in presenting a theory to a student, the historical method in teaching has grown to very large proportions in modern times. A very notable example of the influence of history on the teaching of applied mathematics is given by Mach's *Mechanics* and the text-books founded on it; and this tendency has spread into pure mathematics. Of late years, also, great stress has rightly been laid on the necessity for taking into account the *general* history of science, so that we can form some idea of the growth of Science as *a whole*. It is in education that we see the need of combining historical criticism with logic. P. E. B. J.

LOLLARD SCHOOLS.—The schools established by the Lollards represent the early appearance of dissent in regard to religious teaching. Such schools were established without the episcopal licence to teach. In the fourteenth century, many strong attempts were made to establish unlicensed schools and to get the civil courts to support unlicensed teachers. The Lollard teachers would not accept licences, and Richard II supported them against the archbishops. In the reign of Henry IV, Parliament prohibited unlicensed teaching and persecution of the Lollards followed.

LOLLARDS AND EDUCATION.—(See COMMON LAW AND EDUCATION, THE.)

LOMBARD, PETER.—(See SCHOLASTICISM.)

LONDON CITY COMPANIES AND EDUCATION, THE.—The City Companies effectively carry on the policy of the mediaeval guilds—their progenitors—with regard to education. Amongst the objects which they promoted, the building and maintenance of schools constituted one of their chief duties. This tradition is still maintained, and a considerable portion of the wealth of the Companies is devoted to educational purposes.

It was not unusual for a generous member of a guild to build and endow a school and place its management in the care of the fraternity, feeling confident that the trust would be discharged faithfully. Thus, when Dean Colet re-founded St. Paul's School, he committed the *cure* thereof to the Mercers' Company, "considering the assured truth and circumspect wisdom and faithful goodness of the honest and substantial fellowship of the mercery of London . . . and trusting in their fidelity and love that they have to God and man and to the School." From the middle of the fifteenth century, a large number of scholastic institutions were founded, not only in London, but also in the provinces, by pious benefactors, who appointed the City Companies as governors and managers. Most of the Companies have, therefore, several trust funds to administer, as well as corporate wealth; and even in the darkest days of their misfortunes, such as when they were deprived of much of their property at the time of the Reformation, or when the Great Fire raged through London and destroyed their halls and other buildings, they faithfully discharged their trusts. In recent times, enormous sums of money have been granted from their corporate funds for the purpose of rebuilding schools and adapting them to modern requirements. Technical education was provided for by the system of apprenticeship, which lasted seven years, youths being thoroughly taught their trade and kept under discipline—sometimes very severe discipline. (The by-laws of the Mercers' Company directed that apprenticeship should last for ten years, beginning at the age of 16; in some cases, fourteen years, if the apprentice began his service at the age of 12.) The connection of the Companies with their respective trades is now somewhat slight, but very large sums are expended by them in promoting technical knowledge and instruction. Thus do the Companies maintain their traditions and their association with the trades and crafts, the names of which they bear.

Schools Maintained by the Companies. A very large number of schools are managed and supported by these bodies. Five large first-grade schools, in which classical education is given, rank high amongst the educational establishments of the country.

(i) ST. PAUL'S SCHOOL (*q.v.*). Dean Colet has the credit of founding this school, placing it in the charge of the Mercers' Company; but "Poules Schole" was in existence in 1111; and Colet re-endowed, enlarged, and re-constituted it. The buildings stood in St. Paul's Churchyard, and were destroyed in the Great Fire; it was re-built shortly afterwards, and again in 1818, by the Company, who removed it to Hammersmith in 1888. A school for 300 girls has since been added. The income received from the trust property amounts to about £12,000 a year. Several scholarships and exhibitions have been founded by benefactors to enable "poor scholars" to proceed from the school to Oxford or Cambridge.

(ii) MERCHANT TAYLORS' SCHOOL (*q.v.*) was founded by the Merchant Taylors' Company, in 1561, "for the better education and bringing up of children in good manners and literature." It is entirely supported and maintained by the Company out of their corporate funds, and has no endowment whatsoever.

(iii) TONBRIDGE SCHOOL (*q.v.*). This was founded, in 1553, by Sir Andrew Judd, and entrusted to the care of the Skinners' Company. As part of the same foundation, in 1888 a commercial school was established by the Company for day-boys, and also a Middle School for boys at Tunbridge Wells and a girls' school at Stamford Hill.

(iv) ALDENHAM SCHOOL. Alderman Richard Platt in 1596 founded this school, and entrusted its management to the Brewers' Company "for the instruction of poor men's children of the parish of Aldenham and towns near adjoining." At the time of its foundation, the charity enjoyed the modest income of £54 a year. Owing to the increasing value of the property with which it was endowed, it has grown to £3,753, and the Company expend upon the maintenance of the school £2,200; they have built and endowed lower schools at Aldenham and Medburn, very richly endowed the North London Collegiate School for Girls and the Watford schools, also giving support to the Aldenham elementary schools.

(v) MERCHANT TAYLORS', CROSBY. The Merchant Taylors' Company govern and maintain this important school, near Liverpool, founded in 1618, by John Harrison for 100 boys. In 1878 they built a large new school for 200 boys at a cost of £17,000. It was enlarged again in 1893 for the accommodation of 300 boys, and a girls' school has been added, which has in every way answered the expectations of the Company and been of immense service to the people of Great Crosby.

Middle Class Schools in London. In addition to these large and important scholastic institutions wherein a classical education is given, the Companies are founders, trustees, or managers of several middle-class schools for both sexes. The principal foundations of this character in the London area are the following—

MERCERS' SCHOOL. The date of its foundation is usually stated to be 1542, when Henry VIII sold St. Thomas à Becket's College of Acon to the Mercers' Company on condition that they maintained a grammar school for twenty-five scholars, but its origin may be traced back a century earlier to the time of Henry VI. It has migrated several times, and in 1894 was established in Barnard's Inn, Holborn, and now educates about 300 boys.

GROCERS' MIDDLE-CLASS SCHOOL, at Hackney Downs, was founded by the Grocers' Company, in 1873, in accordance with a scheme approved by the Endowed School Commissioners. They realized £26,782 by the sale of some properties bequeathed to them for charitable purposes now obsolete, contributed £6,000, and bestow annually £3,500 for maintenance. The school is very successful.

BANCROFT'S SCHOOL was founded by Francis Bancroft in 1728, and placed in the charge of the Drapers' Company. It was situate in Mile End, and some years ago was removed to Woodford, in Essex, when £50,000 was spent by the Company on new buildings for 300 boarders and day scholars.

SIR WILLIAM BOREMAN'S FOUNDATION, established in 1685 for the Greencoat School at Greenwich, for the sons of seamen, under the control of the Drapers' Company, now educates 100 boys at the Upper Nautical School of Greenwich Hospital,

and provides exhibitions for the higher education of girls.

ASKE'S SCHOOL, founded at Hoxton by Robert Aske, in 1692, for twenty boys, and placed in the charge of the Haberdashers' Company, has grown into a large educational scheme. In 1873 schools were built for 300 boys and 300 girls; and, in 1898, the former was removed to West Hampstead, the latter to Acton, at a cost of £60,000. Under the same scheme, schools have been built at Hatcham for 500 boys and 300 girls.

DAME OWEN'S SCHOOL at Islington, founded in 1609, is maintained by the Brewers' Company, and educates 450 boys and 300 girls.

THE RATCLIFF SCHOOL CHARITY, founded in 1540, managed by the Coopers' Company for Stepney, supports a school for 500 boys at Bow, and one for girls at Bow Road.

STATIONERS' SCHOOL. This school was founded by the Stationers' Company in 1858 in Bolt Court, Fleet Street. Now, at Hornsey, it has 400 boys.

Middle-class Schools in the Provinces. The Companies do not confine their benefactions to London. Their schemes of educational charity cover England, and even reach Ireland, where the Ulster estates which they were induced to acquire by James I entailed upon them certain responsibilities.

It was not unusual for a young countryman to go to London to be apprenticed, and there to make a large fortune in trade. In his prosperity, he would remember his native town or village, and determine to benefit it by building a school and an almshouse. These he would place in the custody of his Company. This is the origin of many of the foundations in the country controlled and maintained by the Companies, partly out of their trust funds and partly out of their corporate income.

HORSHAM SCHOOL was founded by Richard Collier in 1532, and is managed and maintained by the Mercers' Company, who also control a similar school at West Lavington in Wiltshire.

OUNDLE (*q.v.*) GRAMMAR SCHOOL, NORTHANTS, is under the beneficent care of the Grocers' Company, who have spent vast sums upon the perfecting of the institution. In 1556 it was founded by Sir William Laxton, and has developed under the management of this Company into a very successful establishment, including a first-grade classical school. The trust fund is only £300 a year. The Company has spent about £150,000 upon it, and provides an annual sum of £3,000. Other schools maintained and managed by the Companies are situate at Witney, Tottenham, Holt, Cromer, Bromyard, Stockport, Ashwell (Herts), Wallingford, Newport, Monmouth, Landrake with St. Erney, Peel (Isle of Man), Sutton Valence, and Isley (Leicestershire).

The Companies and the Universities. The Companies greatly assist the cause of education by providing scholarships and exhibitions at Oxford or Cambridge for "poor scholars," who proceed from their schools. About thirteen of these bodies devote a considerable sum every year for this purpose, and in normal times assist more than 100 undergraduates. The Arabic Professorship is supported almost entirely by the Drapers' Company. The Grocers give £1,000 a year for the endowment of scientific research. Many Companies give grants to the Ladies' Colleges at Oxford and Cambridge, King's College (London), the University of London, etc.

Technical Education. During the last thirty or forty years, the whole subject of technical education has occupied the attention of the Companies' who have generously supported it in many ways. Usually each body has striven to promote the advancement of the trade with which it is associated. Thus the Clothworkers' Company has promoted the establishment of the Yorkshire College at Leeds, where instruction is given in the manufacture of woollen goods. The Clothworkers' wing was built and equipped at a cost of £70,000, and is maintained by the annual grant of £4,000. They also support similar institutions at Bradford, Huddersfield, Wakefield, Trowbridge and Westbury (Wilts), Stroud, Glasgow, and other places, the present seats of their former trade.

However, the great effort of the Companies was a united one. In 1883 they joined together to found "the City and Guilds of London Institute for the Advancement of Technical Education." It was a grand scheme, and has been nobly carried out. Very large sums have been subscribed. A Technical College was built at Finsbury, and a Central Institute in South Kensington for training teachers. Second-grade schools for technical teaching and polytechnics have been established in London and the provinces. About £25,000 a year is given to the support of these objects, and a building fund of £100,000 was raised. But this does not nearly represent the full amount that has been spent. The Goldsmiths subscribed an immense sum for their establishment at New Cross, and other Companies have been very active. Several have held exhibitions of manufactures connected with their trades (*e.g.* the Fishmongers', Fanmakers', Turners', and Shipwrights' Companies). Others, such as the Bakers', Cooks', Coachmakers', Farriers', Fruiterers', and Needlemakers' Companies, have offered prizes for proficiency in technical subjects. The Farriers have devised a good system of examination and the national registration of shoeing-smiths. The Apothecaries conduct an examination for the national diploma, provide a scholarship for research in pathology, and recently gave instruction in the use of the Röntgen Ray apparatus. The Carpenters arrange lectures on architectural sanitation, and other subjects, and have established the Carpenters' Company Trades Training School, where the Joiners', Tylers' and Bricklayers', Wheelwrights', Painter-stainers', and Plasterers' Companies have classes for the teaching of their respective trades. The Plumbers have initiated a national registration and training of persons connected with their craft, and several thousand plumbers are now registered in various parts of England.

The many schemes which the City Companies have devised for the promotion of technical and general education, the beneficent manner in which they carry out their trusts, the wisdom shown by them in the management of their schools, the expenditure of vast sums upon their buildings and maintenance, and the adaptation of old benefactions to modern needs and requirements, entitle these institutions to the appreciation of all who value the cause of education throughout the country.

P. H. D.

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LONDON CHAMBER OF COMMERCE.—(See ASSOCIATED CHAMBERS OF COMMERCE OF THE UNITED KINGDOM, THE.)

LONDON COUNTY COUNCIL, ANNUAL CONFERENCE OF TEACHERS.—The first annual conference of teachers took place in 1897, and attracted school inspectors, educational officials, elementary teachers, lecturers in technical institutes, and secondary schoolmasters and mistresses from all parts of the country. Indeed, the earlier meetings were rather overwhelmed by the number of provincial visitors, till the pressure was relieved by the establishment of an annual conference in the North of England based on similar lines. At the inaugural meeting, which was arranged by the Technical Education Board of the L.C.C., attention was concentrated mainly on the teaching of science and modern languages, and these matters continued for some few years to fill a large part of the programme. When, however, the Council took over the control of all forms of education, the scope of the discussions was much widened; and at the same time the duration of the conference was extended from two days to three.

Procedure. Experience has shown that it is well to limit a session to two hours, with a single main subject for discussion, and to arrange for the attendance of practised speakers competent to deal with its different branches or aspects, so that the audience may carry away with them a well-balanced, all-round impression of the matter. The method adopted may be exemplified by the following brief accounts of recent meetings.

1. "THE TREATMENT OF BACKWARD CHILDREN." *Chairman:* Sir James Crichton-Browne; *Addresses by* (i) The High Master of the Manchester Grammar School, on "The Problem"; (ii) the Medical Superintendent of the Birmingham Education Committee, on "The Mannheim Method of Treatment"; and (iii) the Medical Officer of Health for Brighton, on "An Experiment." *Discussion opened by* the L.C.C. Superintendent of M.D. and P.D. Schools.

2. "FATIGUE." *Chairman:* Dr. McDougall, Wilde Reader in Mental Philosophy at Oxford; *Addresses by* (i) A District Inspector, L.C.C., on "Evidences of Mental Fatigue in Adolescent Pupils in Evening Schools"; (ii) a Manchester Experimental Psychologist, on "Recent Researches on Fatigue"; and (iii) a St. Andrews Lecturer in Education, on "The Attitude of the Teacher to Problems of Fatigue." *Discussion opened by* the Reader in Psychology, King's College, London.

Aims and Scope. The addresses are reported verbatim, and careful abstracts are given of the discussions. The permanent record of the proceedings possesses high professional value. Among the subjects dealt with have been the following: The history of London as part of the history scheme; open-air education; the Montessori method; school-books and eyesight; specialization; the organization of higher schools; phonetics applied to language teaching; the artistic training of craftsmen; the training of artisans; the trade schools of Paris; the teaching of domestic economy; the scientific basis of vocal culture; and manual work in the lower standards. Many eminent men and women have taken part in the conferences, as chairmen and speakers, among whom may be noted: Professor Adams, Sir George Alexander, Hon. W. N. Bruce, Sir T. Lauder Brunton, Mrs. Sophie Bryant, Sir John Cockburn, Sir Alfred Keogh, Sir A. K. Rollit, Lady St. Helier, Sir Albert Spicer, and Viscount Suyematsu.

The audiences average 800–1,000; there appears to be no sign whatever of loss of interest, the last meeting being one of the most successful on record.

The organizers have always been careful to keep out of the programme any matters having a political bearing. Great prominence is given to modern educational developments, and no efforts are spared to obtain the services of the most able exponents of these methods. In 1911 a whole session was devoted to psychological work. The result was so gratifying that the experiment has been continued with increasing success. The subjects dealt with in this section of the work have been: Memory, the doctrine of formal training (mental discipline), attention, and fatigue. Distinguished psychologists have taken part in these meetings. Another feature has been the devotion of one—more recently two—sessions to important experiments actually being carried on in London schools, with great benefit to the teaching in other schools; those carrying out the experiments also profiting considerably from the criticism.

C. W. K.

LONDON COUNTY COUNCIL, EDUCATIONAL WORK OF THE.—In order to understand the educational work of the London County Council, it is necessary to give a little consideration to the position of education at the time when the Council first accepted educational responsibilities.

Elementary education, since Mr. Forster's Act of 1870 (*q.v.*), had been under the control of the School Boards, which continued their work until the appointed days fixed in accordance with the Acts of 1902 and 1903 (*qq.v.*). When the Council came into existence in 1889, there was no money available either from rates or taxes for secondary or technical education, except the grants paid by the Science and Art Department on the results of their examinations, and the residue of the Public Library Rate (if any); and there was no public control over the schools except the very slight supervision which could be exercised by the Charity Commissioners in virtue of the Endowed Schools Acts.

Teaching in science and art was aided by grants from the Science and Art Department, and the upper sections of some elementary schools earned considerable amounts from this Department while the children continued to be recognized by Whitehall as in attendance at a public elementary school.

Not much attention had been paid to the technical training of craftsmen until the City and Guilds of London Institute took up the subject in 1878, although the Artisans' Institute (St. Martin's Lane) had been established in 1877. Shortly after this, a Royal Commission, under the chairmanship of Sir Bernhard Samuelson, was appointed to inquire into the provision of technical education, and a Report was issued in 1882. After many delays, a Bill was passed in 1888 for the promotion of Technical Education in Scotland; but, notwithstanding the exertions of the National Association for the Promotion of Technical Education, under the presidency of the Duke of Devonshire, England and Wales were without any corresponding provision until the following year.

The Technical Instruction Acts. In 1889 was passed the Technical Instruction Act, which empowered the Council to raise a rate of a penny in the £ for the purposes of technical and manual

instruction. It was the first Act to confer any widespread educational powers on any local authority other than the School Boards.

Technical instruction, while including the principles of Science and Art and their application to industries, was not to include "teaching the practice of any trade, or industry or employment"; but was to include any branches of Science or Art on which grants were paid by the Department of Science and Art, and any other form of instruction, including modern languages and commercial and agricultural subjects, sanctioned by the Department by a minute laid before Parliament on the application of the local authority. Manual instruction meant "the use of tools; processes of agriculture; and modelling in wood, clay, and other materials."

Very few local authorities at first took any action under the Act of 1889. Rating for educational purposes was not popular, and, as the Act was an "adoptive" Act, it remained almost a dead letter. In the following year a Bill was introduced for the purpose of purchasing public-house interests out of the proceeds of the Liquor Traffic, and a tax of a shilling a barrel on beer and threepence a gallon on spirits was imposed; but the opposition of the extreme Temperance Party led to the defeat of the Bill. The tax had, however, been imposed, and its proceeds were estimated at £1,050,000 for the first year. Without the Bill, there was no item in the Estimates to which this money could be applied. The difficulty was solved by Mr. A. H. D. Acland, (now Sir Arthur Acland, Bart.), who suggested to the Chancellor of the Exchequer that it should be made available for the purposes of the Technical Instruction Act of 1889. Accordingly, the Local Taxation (Customs and Excise) Act, 1890, was passed, under which £150,000 a year was appropriated to the Pension Fund for Metropolitan Police; an equal sum for the pension of provincial Police and the "residue" was divided between the county councils and the county borough councils, with *permission* to them to employ it for the purposes of the Technical Instruction Act; while they received an informal assurance that if they so employed the grant, it was not likely to be removed.

This gave a great spur to technical education throughout the country; but, during 1890 and 1891, the London County Council continued to take no action; and the whole of the residue grant, or "whiskey money" as it was irreverently called, received by it was applied to the reduction of the rates. In 1892 it appointed a committee to consider what steps should be taken; and in February, 1893, voted for the purposes of technical education the balance of a sum of £30,000 which in April, 1892, had been placed to Suspense Account. In March, 1893, the Technical Education Board was appointed as a committee of the Council, and to this committee the Council delegated nearly all the powers that could be delegated under the Act. The Board, throughout its work, adopted the policy of utilizing to the full any existing institution which could be raised to the necessary standard of efficiency before establishing any new institution of its own; and new institutions were provided only where there was a need which could not be met in the locality, or in the case of certain trades for which a single mono-technic school was required for the whole County, or for advanced subjects in which centralized teaching was necessary.

Another principle which governed the Board's policy was that it met out of income all expenditure, except in the case of two or three freehold sites, whether for ordinary maintenance or for buildings or equipment, or for building or equipment grants to aided institutions; and when scholarships were awarded, it provided out of the year's revenue all the cost of maintaining the scholars appointed for the whole time during which their scholarships were tenable.

In spite of the restrictions of the Technical Instruction Acts, the Board tried certain tentative experiments in intelligent anticipation of an amendment of the law. As an example, it may be mentioned that the Council purchased the Aske's Schools at Hoxton, and took over the Cabinet-making School, which had been started by the Vestry of Shoreditch, and made it the model for all pre-apprenticeship schools which have since been created in London.

The Central School of Arts and Crafts was established originally in Regent Street, in premises belonging to the Polytechnic, as a school of university rank for artistic crafts. The School of Photo-Engraving and Lithography in Bolt Court grew out of classes started by the Society of Lithographic Artists and Engravers. The Leathersellers' College, now in Tower Bridge Road, was established under the auspices of the Borough Polytechnic in the disused buildings of Herold's Institute, Bermondsey. The Building Trades' School at Brixton was mainly due to the pressure put upon the Council by representatives from Lambeth to establish a school within that borough; and the offer at a reduced price of the building which the Borough Council had acquired for a swimming-bath—all these were mono-technic institutions, and they have all justified their existence. A mono-technic of a different order was the London Day Training College. Practical classes in domestic subjects were encouraged in technical institutions attended by women; and in Battersea Polytechnic a training college was established for teachers of Domestic Economy, and has achieved a high reputation throughout the country.

Among the most useful scholarships awarded by the Board were the Artisan Art Scholarships, which carried a substantial annual payment to encourage young craftsmen to attend Schools of Artistic Crafts in the evening, and to undertake work of an advanced type.

Another important piece of work carried out by the Technical Education Board was a series of inquiries into the requirements of particular trades. The reports of the special sub-committees appointed for these inquiries were published by the Council.

Science and Art Schools. The schools of Art and the other classes conducted under the Science and Art Department were largely dependent upon the grants earned on the results of the May examinations; and in many cases the head teacher received these grants and the pupils' fees from his committee, and was solely liable for all expenses, including the salaries of his assistants. At a very early stage, the Technical Education Board decided that, as a condition of receiving its aid, every new Polytechnic should appoint an Educational Principal; that in no institution should teachers be remunerated by receiving the whole or any portion of the grant earned by the examination of their pupils; that all Science teaching should be accompanied by suitable laboratory work; and that laboratory classes should not exceed 20, or workshop classes 15, under one teacher; and that it should be possible for a student to attend a class in theory and practice for one

evening a week for an inclusive fee not exceeding 10s. a session. The result of this was that no student could be regarded merely as a grant-earning unit who was expected to go through courses of study by which he or she could earn the largest grants for the benefit of the school.

When technical education had been fairly started, the National Association for the Promotion of Technical Education (see above) added Secondary Education to its title and objects, and commenced a campaign to secure legislation in the interest of secondary education. A Bill to place secondary education under the larger local authorities was introduced by Sir John Gorst in 1896, but was abandoned in the committee stage through the action of the representatives of the smaller authorities.

The Scholarship Ladder. In 1893 the Council was not prepared to make large grants to university institutions, or even to secondary schools; and as it could not, under the Technical Instruction Acts, spend money on literary education, it was unable to establish and conduct secondary schools of its own, but the scholarships, in which the Council was specially interested, served as a ladder on the rungs of which the Board was able to pay a system of grants to secondary schools and university colleges, towards the cost of the teaching of Science, Art, modern languages, commercial subjects, domestic economy, and manual training provided by them. Through the Junior County Scholarships awarded to children in public elementary schools, a large number of children were annually sent into the secondary schools, and it became the duty of the Council to see that the secondary schools were in a position to give the best possible training to the scholars.

Moreover, some of the junior scholars in course of time gained Intermediate Scholarships and, later on, Senior Scholarships, and the Council had to see that there were suitable facilities for the university education of these scholars. (Before the Technical Education Board disappeared, there was scarcely an endowed secondary boys' school in London which did not possess chemical and physical laboratories.) Thus the higher scholarships brought the Council into financial relations with institutions of university rank, and with the University of London itself.

The University of London. When the Council commenced its educational work, the University was still only an examining and degree-giving body, without teaching functions or any control over the London colleges. It was largely through the action of the Technical Education Board, taken in the interest of students of the poorer classes, that the University of London Act contained a provision that no student should be deprived of any of the advantages of the University solely on account of his being able to study only in the evening; and that the Statutory Commissioners made provision for the recognition as teachers of the University of qualified teachers in polytechnics and other institutions under conditions which are said to have given a great impetus to higher work in those institutions. (See also LONDON, UNIVERSITY EDUCATION IN.)

The Education Acts, 1902 and 1903. The Education Act of 1902 abolished school boards throughout England and Wales, and appointed the present local education authorities. It left London untouched, to be the subject of a Bill in the following year. The continuance of one *ad hoc* authority in London in the face of the changes made in the rest of the country was scarcely to be contemplated. The issue lay between the London County Council, with or without a statutory committee comprising persons other than members of the Council as the advisory body; or a new corporation made up mainly of representatives of the Metropolitan boroughs, more or less on the model of the Metropolitan Water Board, but not altogether free from the objections which obtained against the Metropolitan Board of Works. Those who feared the strong hand of the London County Council used their influence in favour of the latter body. For a long time the Government was undecided between the alternatives. There was a widespread fear that the Council's organization would break down under the strain of the educational work. This fear was allayed at the last moment; and the Education (London) Act, 1903, which incorporated nearly the whole of the Education Act of 1902, but made certain additional provisions to meet the special needs of London, was passed.

The Acts of 1902 and 1903 (*q.v.*) combined all grades of education in each district under one local authority, except in certain urban areas outside London, where the Borough Council or Urban District Council is responsible for elementary education only, and the County Council for higher education. In the Administrative County of London, there is but one authority: the County Council, with a statutory committee, which the Council is obliged to consult on all educational questions, though it is absolutely free to repudiate their advice in every case and adopt reports from any other of its committees. The functions of the Metropolitan borough councils are limited to the appointment of school managers, and to reporting on the choice of sites for new provided schools.

The Work of the Council under the Act of 1903. The County Council, as Local Education Authority, not only took over the work of the School Board, but became responsible for the secular education in non-provided elementary schools as a condition of these schools receiving Parliamentary grant. It thus became the duty of the Council to pay the salaries of the teachers in non-provided schools, though technically the teachers remained the servants of the managers. The Council was also made responsible for the co-ordination of all grades of education within the County, and was *empowered* to make provision for higher education where necessary. The chief new institutions which the Council has provided under these powers are training colleges for teachers, secondary schools for boys and girls, pre-apprenticeship schools for boys, and trade schools for girls. The Education Acts of 1902 and 1903 repealed the Technical Instruction Acts, and therewith abolished all restrictions upon trade teaching. They allowed the local education authorities to provide education without defining or qualifying the term, and they assigned the residue grant under the Local Taxation Act of 1890 permanently to the purposes of higher education. In 1906 this grant was fixed for London for all future time at £177,258, very nearly the equivalent of a penny rate.

Education Acts since 1903. When the Liberal Government came into office in 1905, repeated attempts were made in "Annual Bills" to find some other solution of the problem of the provided and non-provided elementary schools.

Although, in 1903, fear had been expressed that the Council would be unable to deal with the work of the School Board, a new administrative burden

was laid upon it by the Education (Provision of Meals) Acts, 1906 and 1914 (*q.v.*). In 1907 was passed the first Administrative Provisions Act. This Act enabled scholarships and bursaries to be provided for children in attendance at elementary schools, and permitted education, other than elementary, to be given to persons not ordinarily resident in the area of the Council. It also gave the Council *power* to provide vacation schools and play centres, or other means of recreation during school holidays; while it imposed on the Council the *duty* of providing for the medical inspection of children on entering public elementary schools, and at such other times as the Board of Education may direct; and added the *power* to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of children educated in public elementary schools. Such share of the cost of medical treatment as the local authority might direct was made chargeable to parents by the Medical Treatment Act of 1909. (See also MEDICAL INSPECTION OF SCHOOL CHILDREN.)

In 1908 came the Children Act, which empowered the Council through its medical officer or persons authorized by him "to examine in any Public Elementary School provided or maintained by the Authority the person or clothing of any child attending the school, and to carry out compulsorily the cleansing of the child if the parents neglect to do so within twenty-four hours of receiving notice."

The Education (Choice of Employment) Act of 1910 empowered the Council "to make arrangement, subject to the approval of the Board of Education, for giving to boys and girls under seventeen years of age, assistance with respect to the choice of suitable employment, by means of the collection and communication of information and the furnishing of advice"; and this led to the establishment of Care Committees. The Education (Administrative Provisions) Act, 1911, introduced a very valuable change in the law when it substituted the close of the education year for the close of the school year as the time when children over 15 years of age must leave the elementary school, thus enabling the children to complete the session instead of being compelled to leave school when the annual accounts of their particular school were submitted to the Board of Education. This Act also provided that the restrictions of the Building Acts and the local by-laws should not apply to buildings the plans of which had been approved by the Board of Education.

The Mental Deficiency Act of 1913 (*q.v.*) would have thrown a great deal of extra work on the Council had not the School Board already provided special schools for the mentally defective under the Defective and Epileptic Children Act. This provision, which was optional under the earlier Act, became mandatory under the Act of 1913.

The Recent Work of the Council. The principal features of the Council's educational work since the Education (London) Act of 1903 came into operation on 1st May, 1914, until the passing of the Act of 1918, have been—

1. An improvement in the scale of teachers' salaries in the elementary schools, the same scale being adopted in provided and non-provided schools.

2. The adoption of a minimum scale of salaries for teachers in secondary schools, whether provided or aided.

3. The establishment of a pension fund for all teachers. This has been almost entirely replaced by the provisions of the Teachers' Superannuation Act.

4. The provision of central schools with a four years' course extending from 11 to 15, and a commercial or industrial bias.

5. The foundation of secondary schools wherever the schedule of school accommodation indicated that this provision was defective.

6. The establishment of municipal day training colleges, in some cases provided with residential hostels, for a sufficient number of students in training to meet London's demand for new teachers.

7. The provision of practical workrooms in elementary schools, reckoned as part of the accommodation.

8. A new system of promotion to headships in elementary schools.

9. The so-called "40 and 48 scheme," under which, in all new elementary schools and, within fifteen years of the establishment of the scheme, in all old schools, the number of children in any one class in a senior department should not exceed 40, and in an infants' department 48.

10. The provision of 19 pre-apprenticeship schools for boys and of 28 trade schools for girls, maintained or aided by the Council.

11. The reorganization of the evening school system, including the introduction of the course system, the formation of women's institutes, and clearer differentiation between junior technical and junior commercial institutes; the concentration of higher commercial education in senior commercial institutes; and the placing of the junior technical institutes more or less under the supervision of the neighbouring polytechnics or senior technical institutes.

12. The great development of the system of Junior County Scholarships followed by bursaries and student teacherships for those pupils who propose to become teachers in elementary schools, in place of pupil teachers' centres.

13. The provision of a very extensive system of university lectures for teachers as a development of the Saturday classes for teachers in the schools of the university which were initiated by the Technical Education Board.

14. The award of substantial annual maintenance grants to the University and to the Imperial College of Science and Technology.

15. The provision of free meals to imperfectly-fed children.

16. The establishment of open-air schools for tuberculous and anaemic children. (See OPEN-AIR SCHOOLS.)

17. The introduction of open-air classes into some of the ordinary elementary schools.

18. The creation of a complete system of medical inspection of school children.

19. The provision in some districts of school clinics, and in others of facilities for the medical treatment of school children through local hospitals or otherwise.

20. Arrangements for the cleansing of children in elementary schools, when necessary.

21. The provision, where possible, of facilities for organized games for elementary school children.

22. The encouragement of the school journey during school terms. (See SCHOOL JOURNEYS.)

23. The establishment of a reference and circulating library, mainly for teachers, at the Council's Education Office.

Education Act, 1918. The Acts already referred to were followed in 1918 by the far-reaching Act ably piloted through the House of Commons by Mr. H. A. L. Fisher, Minister of Education, and commonly known as the "Fisher Act." Under Section 4 (2) of this Act, the Council prepared and published a "Scheme" of Education for London for submission to the Board of Education. The scheme was subjected to criticism of local London authorities and individuals interested for the three months ended 31st October, 1920; and, after consideration had been given to the criticisms, was sent forward to the Board for official approval. It covered 112 large foolscap pages and, in addition to the text, had numerous diagrams, maps, illustrations, and plans explanatory of the proposals under the scheme. Part I comprised a historical and legislative retrospect; and Part II the proposed developments under elementary, higher, and university education, and finance. It was a matter of legitimate satisfaction to the Council that much of what is obligatory or considered desirable under the 1918 Act was already a part of London's settled educational programme. For example, Sections 2, 13, 17, 23, and 24 had already been anticipated.

The important new proposals in the Scheme for the next ten years or thereabouts are as follows—

1. Lighter forms of school buildings to be erected wherever possible on the "pavilion" plan, with classrooms which can be altered, adapted, or even demolished with a minimum of expenditure.
2. Provision of 90,000 more elementary school places.
3. Increase of central schools from 51 to 100, providing for a total of 40,000 children.
4. Improving by reorganization of the education of children over 11 years old in ordinary elementary schools.
5. Proceeding experimentally with six nursery schools and aiding non-provided nursery schools.
6. Extension of provision of camp schools, open-air schools, organized games, and school journeys.
7. Increased grants for children's Shakespearean performances.
8. Reorganization and extension of school libraries.
9. Improvements in organization of special and reformatory schools.
10. Extension of medical inspection and treatment to secondary and continuation schools.
11. Extension of provision of secondary schools by 4,000 places.
12. Erecting two new training colleges for teachers.
13. Extension of scholarships schemes so that estimated expenditure will increase from £75,950 in 1921 to £857,500 in 1931.
14. More building and equipment grants for technical education.
15. Day continuation schools to be started on 1st January, 1921, with 15,000 scholars, rising to 120,000 in two years. At the end of seven years, compulsion will be applied at 16 to 18 years of age, ultimately making a total of 240,000 "young persons" at the end of the ninth year. Twenty-two principals commenced work on 1st August, 1920; and a staff of 800 part-time teachers in January, 1921. Proceeding in first instance in temporary buildings, ultimate cost estimated at over one million sterling yearly.
16. Supporting the movement for adult education "through the University of London."
17. In university education, to continue in principle the present grants in aid.
18. Original educational research and psychological investigation to be an important part of the scheme.
19. An approximate estimate of the cost of the scheme is £116,500 in the first year, rising to £3,037,500 ten years hence.

Teachers' Superannuation Act. The Council gave effect to this Act with alacrity, and the teaching staff accepted it enthusiastically. Under the Act passed in 1918, and operating from 1st April, 1919, the Council was relieved of its annual contributions in respect of nearly all its teachers then contributing to the Council's Superannuation and Provident Fund. These amounted to £31,000 a year, together with £11,500 a year, until 1961, in respect of the liquidation of the initial deficiency on the Fund and £2,500 in respect of interest—or almost £45,000 a year in all. In addition, it realized a substantial saving in administrative expenses. Practically all the Council's teachers, exercising an option, withdrew from the Council's Fund, receiving back from the Council all their contributions to the Fund, together with interest at 3 per cent. In case tax had, however, to be paid on the returned contributions, repayment was made in many cases by transfer by the Council of 5 per cent. War Stock, 1929–1947, at its then current value. The Act relieved the Council of a source of difficulty in its relations with "aided" secondary schools and other "aided" higher educational institutions, the staffs of which could not be incorporated under the Council's own fund. The staffs of these schools were under a disability as compared with the Council's own employees.

Of late, there has been a tendency to redistribute some of the work undertaken by the polytechnics, technical institutes, and schools of art, so as to approximate to a faculty distribution in place of the geographical distribution, which was rendered necessary twenty-five years ago on account of the lack of cheap and rapid travelling facilities, and also on account of the local feeling which was prevalent in London before the unifying influence of the Council and of electric tube railways began to take effect.

W. GARNETT.
T. GAUTREY.

LONDON INSTITUTE OF NEEDLEWORK, THE. —(See NEEDLEWORK, THE TEACHING OF.)

LONDON INSTITUTION, THE.—This was established in 1805 with the intention of providing a library of works of intrinsic value; reading rooms for daily papers, journals, and periodicals; and lectures for the diffusion of useful knowledge. The Institution consisted of a limited number of proprietors, each of whom subscribed seventy-five guineas. Other members were admitted as life subscribers and annual subscribers. A large sum of money was received at the outset; and books "of unquestionable scarcity, value, and merit" were soon purchased to the value of £6,000, and housed at No. 8 Old Jewry, in the City of London. At the end of the first year of its existence, the London Institution included 950 proprietors, had received over £76,000 in subscriptions, and had purchased nearly 8,000 volumes at a cost of £6,600. The first librarian was Richard Porson, the famous

Cambridge Professor of Greek. In 1807 the Institution obtained a charter of incorporation and proceeded to acquire a site for carrying on its educational work, but found this a matter of difficulty owing to waning interest in the Institution and consequent decrease of income. But in 1812 land was obtained on Moorfields, then an open space on the north side of the City of London. The foundation stone of the new building was laid in November, 1815, and the building itself was opened in April, 1819. Its great cost and the dwindling revenue caused the committee to cease to purchase newspapers for the reading room, and at various times to sell their scientific apparatus. For many years attempts were made to convert the Institution into a circulating library; but they failed, as the proposal was inconsistent with the intentions of the founders and, therefore, illegal.

In 1841, Professor Grove became Professor of Natural Philosophy at the London Institution, and while acting in this capacity discovered the gas battery which bears his name. Lectures were commenced in 1819 and continued down to 1874. A circulating library was established in 1852, in addition to the reference library, which had reached a total of 65,000 volumes. Little use was made of the reference library, and in 1880 the two libraries were amalgamated, but again separated in 1887.

Power was obtained in 1912 for the disposal of the property of the Institution, and each of the proprietors received a sum of money for his share in the property. The Government took over the building with the library, and established a college for the study and teaching of Oriental languages.

LONDON, ORGANIZATION OF EVENING SCHOOLS IN.—(See CONTINUATION SCHOOLS AND CLASSES, EVENING.)

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.—(See WOMEN IN ENGLAND, HISTORY OF MEDICAL EDUCATION OF.)

LONDON TEACHERS' ASSOCIATION, THE.—The history of the London Teachers' Association (L.T.A.) is almost contemporaneous with the School Boards established under the Act of 1870. It started as the Metropolitan Board Teachers' Association (M.B.T.A.). Only twenty-three attended the first informal gathering, and the membership at the first annual meeting in 1872 was only 120. The young Association declared its object to be "to ascertain and represent the opinions of teachers under the School Board for London upon all matters affecting their work and interest, and for the promotion of social intercourse." The Association caught some of the eager confidence and hopes of the intellectual giants on the early School Boards. Numbers rapidly increased with the growth of the schools, until, in 1893, they reached 5,050, including 1,015 head teachers. The secretarial work had so grown that a whole-time Secretary was appointed and a City office opened.

The next great advance occurred when the Education Act of 1903 came into operation. The constitution and rules were entirely remodelled; and, for the first time, teachers of all grades in schools controlled and aided by the London County Council were invited to unite under one banner. Nearly all the non-provided school teachers joined at once, and many engaged in the various higher education institutions. To-day the membership stands at 21,000, or over 90 per cent. of the possible total.

The next great change arose directly from the large membership. It was the substitution of government by an elected Conference and an elected General Committee for that General Meeting and General Committee which had prevailed since 1872.

Activities. The work of the Association has developed as rapidly as its membership has increased. Constituted on a democratic basis, it offers facilities for every section of its membership to express its opinions, and to protect its special interests. It deals broadly with all matters concerning the relation of the teacher to the Local Employing Authority (the L.C.C.). The Association possesses its own weekly organ, *The London Teacher*, with a circulation of 22,000. For a quarter of a century its General Secretary has been a duly-elected member of the Authority—first of the London School Board and, since 1904, of the L.C.C. Throughout, he has been an active member of the Education Committee and Sub-committees. The officers are in frequent communication with the education officials, so that considerable influence is exerted. The many interests of its members are safeguarded by sub-committees of representative members. There is one for each of the following: Mistresses; teachers in non-provided schools; higher education institutions; central and higher grade schools; evening institutes; handicraft instructors; schools for the blind, deaf, mentally defective, and physically defective; and domestic economy instructresses. The general operations are carried on through four sub-committees, viz., Finance and General Purposes, Press, Education, and Mutual Insurance Fund. Nor are the personal interests of individual members overlooked. The General Secretary is in constant requisition for assistance and advice on the many difficulties arising amongst members in relation to so huge an administration as London's education. Over 1,500 consult him every year. Members are also provided with many other advantages, such as cheap holiday travelling. The turnover of the L.T.A. Travellers' Club, as it is called, for fares only, is £14,000 a year, and the estimated saving to members £4,000. Continental travel is largely catered for at extra cheap rates. Extended tours conducted by the General Secretary have been taken to Canada, Sweden, Finland, Russia, the Mediterranean and Egypt, and the Azores, West Indies, Costa Rica, and Panama. A highly successful trading scheme is organized with an annual turnover of £100,000. Library facilities are given, and the best expert medical advice arranged on special terms for members. Critics within and without sometimes allege that these activities are derogatory to the professional work of the L.T.A.; but, in practice, they are found to have a contrary effect.

Mrs. Sidney Webb, in a recent survey of teachers' professional organizations, came to the conclusion that "the criticism savours of an obsolete and somewhat snobbish gentility."

The progress of the Association, therefore, in membership and activities has been rapid, and it is claimed that its achievements have been equally progressive. It has done much to place education on practical lines. It conducts educational research. It has several times secured improved scales of salaries for its members; has, after years of efforts, placed the vexed question of corporal punishment

on satisfactory and practical lines; has secured the establishment of a satisfactory L.C.C. Complementary Superannuation Scheme, and many other advantages.

The L.T.A. is the largest autonomous association of teachers in the Empire. T. G.

LONDON, UNIVERSITY EDUCATION IN.— "Having observed in divers Writers, as well Forraigne as English, the Cittie of London to be stiled an Universitie, and doubting of it, I tooke occasion thereby to examine uppon what grounds and causes they had so stiled it, and after some search and consideration thereof, I found sufficient cause and reasons to satisfie me: For I saw that not onely those Arts which are called liberall, but also all, or the most part of all other Arts and Sciences, proper and fit for ingenuous and liberall persons, were, and are in this Cittie professed, taught, and studied: which is (adding but *cum privilegio*) as much as can be sayd, for the name and authority of any University, and which can be rightly sayd of very fewe other Universities of Christendome. For in the Cittie of London be reade and taught the Arts of Grammar, of Rhetoricke, of Arithmeticke, of Musicke, of Geometry, of Astronomie, of Geographie, of Hidrographie: Likewise the other Mathematicall learnings, and Philosophie, Phisicke, and Metaphisicke, the lawes Ecclesiasticall, Municipall and Civill. As also the Arts of Riding, Gladiatorie, Alchimie, Optica, Memorative, Geodesie, Poetrie, Herauldrie, Graphice, Charactery, Brachigraphie, and divers Languages, holy, learned and strange, and many other free and subtill Arts and Sciences are professed, taught, studied and practised within this Cittie, as shall more plainely appeare in the processe of this Treatise. And (that which is most chiefely of all to be observed) the chiefest Science, the Science of Sciences, and the Key of all knowledge (to wit) the Science and Art of serving of Almightie God (called Theologie and Divinitie) is no where better nor more plentifully taught then in this Cittie; many and dayly lectures being read thereof, not onely in the chiefe and Cathedrall Churches of Saint Paul, and Saint Peter, but also in all the Parish Churches, and Temples: and particularly and Academically also in Gresham College. So that these places are nothing else but Schooles of Theologie, and Colledges of Divines. Then consequently it followeth if *Academia et Studium et Universitas* according to their uses in severall ages be but *Sinonyma et aequivoca* (as the learned know) and that this last name *Universitas* hath bæne lately given and appropriated to generall Schooles of learning, for and in respect of the Universality of Arts, Sciences and Faculties professed, taught and studied in them, *et pro ipsâ Studiosorum Societate* (as our most learned Countryman hath intimated in his immortall Britania) and that in Universitie or Academie be but *Coetus hominum exercentium studia literarum et in iis se occupantium* (as Francis Iunius defineth it). Then I say it followeth consequently, that London may not only challenge justly the name and stile of an University but also a chiefe place in the Catalogue of Universities."

. . . . . .

"It appeareth hereby to be cleare, that unto London belongeth duely not onely the stile, and title of University, but also of a chiefe and principall University, having no complement thereof wanting but one, and that is the government and protection of an honourable Chauncellour; which the King my Master may easily at his Majesties pleasure supply, having good choyse of most grave and noble personages, fit for this charge when it shall please his Majesty.".

These are the first and last paragraphs of the Preface to Sir George Buck's *Discourse or Treatise of the Third Universitie of England*, which forms part of the Appendix[1] to the 1631 issue of Stow's *Chronicle of England*. There follow on the Preface, forty-eight chapters setting forth the claims of London to be the "Third Universitie of England." These chapters set forth the "Universitie" teaching under the following heads: "Of the Schooles of Theologie or Divinity, three principall churches—Saint Paules, Westminster, and Saint Peters in Cornhill; of the Kings Colledge at Chelsey; of the Colledges of the Municipall or common Lawyers; of the Colledges or Innes of Judges and of Sergeants at the Law; of the foure Innes of Court; of the Innes of Chancery and first Thavis Inne; of Furnivals Inne; of Barnards Inne; of Staple Inne; of Cliffords Inne; of Clements Inne; of New Inne; of Lyon Inne; of Strand Inne and of the Studies of these Innes of Chancery; of the Sixe Clerkes Inne or Kedermisters Inne; of Bacons Inne or Corsiters Inne; of the Colledge of Civilians, called Doctors Commons; of the Colledge of Physicians; of Gresham Colledge; of Cosmographie (Lecture in the Black Friers), Hydrographie and Art of Navigation (Trinity House); of Whittington Colledge; of St. Catherines Colledge; of the Monastery of Grayfryers or Christs-Church; of S. Anthonies Colledge; Languages, Poets and Musicians; of the Arts of Calligraphie, Brachygraphie, Steganographie, Arithmetick and Cyphering of Hippice or the Art of Horsemanship; of the Art Gladiatory; Artillery or Art Military, Pyrotechnic and of the Art of Swimming; of Orchestice or the Art of Dauncing; of Graphice or Art of Paynting and of Pourtraiture and of Harmony and of Cosmetica; of the Colledge of Heraulds; of the Art of Revels."

The final paragraph of the forty-eighth chapter (The Peroration) is as follows—

"Seeing then that there be read, taught, studied, and professed so many Arts, Faculties, and Sciences in this Cittie of London, as in no University more, and in fewe or none so many. And that there be so many magnificent Colledges, Athenaees, houses, and Schooles, founded and erected for them and their professors, and endowed with lands and revenewes, by the ancient Kings and Princes of this Land, and by other noble and worthy Benefactors, and unto them royall priviledges indulted; who can then deny that London is not onely the third University of England, but also to be preferred before many other Universities in Europe, or in any other part of the world knowne?"

Gresham College. Out of the impressive array of colleges and academies — one to which Buck attaches special importance is Gresham College. "Particularly and Academically also in Gresham Colledge" (Preface); and in Chapter XXX: "Gresham Colledge in Bishopsgate streete, was lately founded by that Royall Marchant Sir Thomas

[1] "An Appendix or Corollary of the Foundations and Descriptions of the Three Most Famous Universities of England, viz., Cambridge, Oxford, and London. The matters whereof concerning the former two Universities were gathered by that Industrious and much reading Chronist, Mr. Iohn Stow, Cittizen of London, and supplied, and continued by Edmond Howes, a London Gentleman. The Third was collected and written by Sir George Buck, knight, one of the Gentlemen of the King's Priuie Chamber and Master of his Maiesties Office of the Revels."

Gresham knight, about the yeare of our Lord M.D.LXXXX.[1] This is a little University or Academies Epitome." . . . "For in this Colledge are by this worthy founder ordained seauen severall Lectures of seauen seuerall Arts and Faculties, to be read publikely, viz. A Lecture of Divinity, a Lecture of Ciuill Law, a Lecture of Physick, a Lecture of Rhetoricke, a Lecture of Astronomy, a Lecture of Geometry, and a Lecture of Musick, by seauen seuerall renowned professors of these Arts and Learnings. And these Lectures must be read onely in the Tearme times. To every Lecturer or Reader is provided and allowed by this Founder, fifty pounds of Annuall fee, or stipend, and a faire lodging within this his Palace-like house, now their Colledge, which this magnificent knight built and disposed, and bequeathed to this good and honourable use."

Thus does Buck summarize the purport of Sir Thomas Gresham's will. He had made provision for the seven branches of human learning as then conceived, the trust for the Quadrivium (Divinity, Astronomy, Musick and Geometry) being committed to the "Major and Commonaltie and Citizens of London," that for the Trivium (Law, Physick and Rhetorick) to the "Wardens and Commonaltie of the Corporation of the Mercers."

The Lord Mayor, Aldermen, and Commons "for want of Judgment to discern of Men of most Sufficiency in the said Faculties," invited the Universities of Oxford and Cambridge each to nominate "Two meet Persons . . . of best knowledge in every Faculty of those Four that were referred to the bestowing of the City, being also furnished with good Utterance . . . that they might make choice of the fittest Person in every Faculty."

Cambridge hesitated for jealousy "that these Lectures, being to be read in London, might be prejudicial to that University." What Oxford did does not appear to be recorded. The Corporation of the City and the Mercers' Company made the appointments apparently without the aid they sought from the two ancient Universities. There were difficulties from the outset justifying the Corporation's pleas of "want of judgment" in such matters. The lectures were delivered in Latin at "Nine a Clock in the Forenoon," in English "at Three in the Afternoon," except that in Music, which was given in English only at "Four on Saturday Afternoon." The audiences varied in size, and at times were such as to render it necessary to lecture in the street. But the Plague of London (Dec., 1664) and the growing prestige of the Royal Society[2] (incorporated 1663), together with the lack of sympathetic and understanding management of Gresham College, extending even to irregularity in the payment of the professors, seem to have combined to destroy the great possibilities of Sir Thomas Gresham's foundation. When his mansion was pulled down in 1768, to each of the professors was awarded a further sum of £50 a year in commutation for his residence. From that time to this, each professor has received the sum of £100 yearly; and instead of the weekly lecture, delivered once in Latin and once in English, each professor now delivers some ten or twelve lectures a year.

Of the other institutions enumerated by Buck, some ceased to exist; others, like the Inns of Court and Gresham College, survive, but the glory of teaching and extending knowledge has, in most cases, departed from them. They have never had "the government and protection of an honourable Chancellour."

The Foundation of the University of London. It was not until the third decade of the nineteenth century that any formal movement for the establishment of a university in London took place. Movements for improving the education of the people were in progress: they had manifested themselves in the establishment of mechanics' institutes. Henry Brougham (afterwards Lord Brougham), the poet Thomas Campbell, and Dr. George Birkbeck were among the leading spirits. Attention was directed to the restrictions and limitations of university opportunities afforded at that time by Oxford and Cambridge. The range of studies was, in practice, confined to theology, classics, and mathematics: the annual cost of sending a son to either University was estimated by Thomas Campbell at £250; no student could be admitted to Oxford unless he subscribed to the Thirty-nine Articles, and no student could obtain a degree at Cambridge unless he declared himself a *bonâ-fide* member of the Church of England.

To establish a University in London that should be free and comprehensive in its curriculum, impartial as among the warring religious communities and sects, and accessible at an annual cost in fees of £25 to £30 a year, had long been a favourite project of the poet, Thomas Campbell. He had discussed it with Brougham, Francis Place, and Joseph Hume; he visited Berlin for the special purpose of observing the working of the University there. He formulated his scheme in a letter to Brougham, then Lord Rector of the University of Glasgow, which was published in *The Times* on 9th February, 1825. "It is no matter of party-politics, or of Church-and-state-disputation,"[1] was Campbell's view and hope; but this was not the view of others, and Campbell's hope was not realized. The idea of a University in London was readily accepted in "Liberal" and "dissenting" circles. A provisional committee was formed of which the chief members were Brougham, Campbell, Isaac Lyon Goldsmid, George Grote, Jeremy Bentham, David Ricardo, John Stuart Mill, James Mill, Joseph Hume, John Black, John Austin, and John Romilly.

The work of the provisional committee resulted in the Deed of Settlement executed on 11th Feb., 1826, whereby the subscribers were constituted "an Association"; and for effecting the purposes of the deed, a building was to be erected on the land near Gower Street, to be called "The University of London." The foundation-stone was laid on 30th April, 1827; and the central portion of the present University College buildings was opened for teaching in Arts, Laws, and Medicine in the autumn of 1828.

In the interval, a Bill to incorporate the new foundation had been introduced into the House of Commons (May, 1825), but had not been proceeded with. After two successful sessions of work, with an entry of some 400 students, the Council,

[1] "Sir Thomas Gresham's will directed that his Lectures should not begin till after the Decease of his Lady, and accordingly the Lady Anne Gresham Dying in the Year 1596, the Lecturers were not long after chosen, from that Time to be continued for ever, and appointed to begin their Reading in Trinity Term 1597." —(Stow's *Survey of London*, 1720.)

[2] The Founders of the Royal Society had met first (1645) in Gresham College, which was then apparently the intellectual centre of London.

[1] See his Letter to *The Times* (9th Feb., 1825).

constituted under the Deed of Settlement, presented a petition for a charter of incorporation in 1830.

This petition received the approval of the Law Officers of the Crown, but the granting of it was prevented by the opposition of the Universities of Oxford and Cambridge, who desired that the new university should be restrained from granting degrees. The question was raised again in the House of Commons in 1833, and a large majority voted in favour of the granting of the charter. A new application was made in 1834 to the Home Department, for the determination of the Crown. The ancient universities renewed their opposition, and received support from the College of Surgeons. The City of London sent up a petition in favour of the charter.

In the same year (1834) the Bill, which had passed the House of Commons, for the admission of Dissenters to degrees at Oxford and Cambridge, was rejected by the House of Lords. Meanwhile, by the foundation of King's College in August, 1829, a new element had been introduced into the question of providing a university for London. King's College was founded by those who thought that university teaching should be associated with the "doctrines and duties of Christianity as the same are inculcated by the United Church of England and Ireland."

After protracted negotiations, a scheme was devised for the institution of a separate and independent body, to be called "The University of London," to confer degrees upon men who produced satisfactory certificates of study from one of the affiliated colleges of the University. The council of the institution founded by the efforts of Thomas Campbell and Mr. Brougham ultimately assented to this scheme, thereby surrendering to the new examining body the title of "The University of London," and receiving in its place the title of "University College, London."

University College and King's College, together with certain medical schools, became the first affiliated colleges of the examining university.

Two charters were accordingly granted on 28th November, 1836, the one constituting the new examining body as "The University of London," the other incorporating the proprietors and donors of the teaching institution under the name of "University College, London." Thus the University of London grew out of the original teaching institution, and was "only the superstructure of which University College was the foundation." [1]

The Certificate of Studentship. The Senate of the University of London thus established had the power of conferring degrees and also of determining the courses of instruction to be followed by candidates for degrees in the institutions authorized to grant certificates of having there completed a course. The Senate, however, did not exercise the power of determining courses of instruction. A certificate was required by the University from each candidate for examination for degrees "of having been a student during two years at one of such institutions." At first, the list of institutions was a small one, and certificates of study appear to have been given under fairly uniform conditions; but little by little the list of institutions was increased. Ultimately it included colleges and seminaries scattered all over the country, many of which were not university institutions, but were merely secondary schools. The certificate required by the University thus gradually ceased to have any definite educational significance, because the institutions granting these certificates had no course of instruction determined for them, and because they were "of very varying degrees of academic standing and of very unequal educational equipment." By the indiscriminate admission of institutions to the list of those that could grant certificates, the relation of the University to teaching institutions became anomalous and especially unjust to the great teaching colleges in London, which from the time of their foundation had upheld a high standard of university teaching and research.

In practice, therefore, by 1850 the University had by its own action destroyed the meaning of the certificate of studentship; the only evidence of a candidate's scholarship that remained was that afforded by his ability to pass the examinations of the University. This state of things led ultimately to the separation of the University from its affiliated institutions. This separation was not achieved without considerable opposition; the graduates protested, and so did the more important of the affiliated institutions. The Senate (the body of Professors) of University College drew up a remarkable memorandum, setting forth the true meaning of university education and showing clearly the relation that examination should hold to teaching.

Notwithstanding these protests, a new charter was obtained in 1858. Under that charter, the connection of the University with the affiliated colleges was abolished; the Senate was empowered to dispense with certificates of studentship, and to admit candidates without certificate to all its examinations, except examinations for degrees in medicine. For medical degrees, evidence of attendance at some recognized medical institution was still required, as the medical degrees of the University afforded, by the statute of 1854, the right to the "practice of physic."

Relation between Examinations and Teaching. By the charter of 1858, the graduates were admitted as part of the corporate body of the University, and obtained the right to assemble in Convocation and to veto proposed modifications of the Charter.

The University continued to act under this constitution, with slight modifications—which will be referred to below—until 1900, although the charter of 1858 was replaced by a charter dated 6th January, 1863. This charter differed from that of 1858 in that it empowered the Senate to confer the degrees of Bachelor and Master in Surgery.

The developments that immediately followed at this time were connected with the admission of women. A supplementary charter, giving power to institute special examinations for women, was obtained in 1867. Under this charter, schemes of examinations specially devised for women were drafted, but the number of candidates entering for them was small. Ultimately a further supplemental charter was granted in 1878, under which every degree, honour, and prize awarded by the University was made open to both sexes on terms of equality.

The charter of 1867 also gave the graduates the right to send a representative to Parliament.

The University of London, under the constitution that subsisted until 1900, was financially a Government Department, paying into the Treasury its receipts and receiving thereout grants for its expenses. It was housed from 1836 to 1853 in

[1] See the Speech of Sir John Shaw Lefevre at the Distribution of Prizes, 1855–1856.

Somerset House, and from 1853 to 1855 in Marlborough House, rooms for examinations being provided from time to time at Burlington House. From 1855 to 1870 the University was housed in rooms at Burlington House, until, in 1870, a new building was provided in Burlington Gardens. This building was opened by Her Majesty Queen Victoria; the University remained in occupation of it until its removal to the Imperial Institute buildings at South Kensington in March, 1900.

The examinations organized by the University included subjects for which the older universities had made little or no provision, such as English Language and Literature, Modern Languages, and the whole range of subjects now included within the Faculty of Science; but there was no machinery for keeping the examinations of the University in touch with the progress of learning. There were no Boards of Studies, and the University had no connection with teaching institutions, except the purely formal one in Medicine, which consisted merely in accepting from them certificates of study. The work and progress of the London colleges was seriously hampered by this condition of affairs.

The growth of the various university colleges in the provinces—foremost among them Owens College, Manchester—further helped to indicate the unsatisfactory nature of the constitution and organization of the University of London. These colleges speedily realized that the effectiveness of their teaching and their power of promoting new knowledge was hampered by the examinations of the University of London, owing to the lack of any definite relation between those examinations and properly organized university courses. The aims and ideals of university teachers were found to be at variance with examination schedules drawn up by persons many of whom were unconnected with teaching.

The need for greater provision for university education expressed itself in various forms in the late '70's and the early '80's of the last century. Liverpool founded a University College in 1878, and the university movement in the North was sufficiently organized by 1880 to secure the foundation of the Victoria University of Manchester. From this time onwards, the university movement grew throughout the country with remarkable rapidity. It was recognized that the examinations of the University of London had played their part "as affording an incentive to diligent study on the part of large numbers of students," and that "many who had no other guide" had "profited by the definite direction given to their studies by the syllabuses of requirements set out by the University in connection with its various examinations" (see Dr. G. Carey Foster's *History of University College*). As each of the provincial university colleges grew strong, a claim was made for full university powers, in order that teaching and examining should hold their proper relationship.

Meanwhile the development of university teaching in London was hampered by the fact that the body bearing the title "The University of London" exercised only one university function, that of examining; and that function was, by its very nature, not limited to London.

This movement led to the formation in 1884 of an association under the name of "The Association for the Promotion of a Teaching University for London." It was largely guided by Sir George Young, Bart., and by Professor Karl Pearson. This Association succeeded in drawing attention to the defects of university organization in London, and from it sprang most of the subsequent movements. There followed two important petitions: one, promoted by the Royal Colleges of Physicians and Surgeons, praying that they should be incorporated under the name of "The Senate of Physicians and Surgeons," with power to grant degrees in Medicine and Surgery; the other, from University and King's Colleges, praying for a charter for a body of persons to be incorporated to form a University in and for the London district, with power to grant degrees in the Faculties of Arts, Science, and Medicine, and to add other Faculties.

The First (Selborne) Royal Commission. These petitions led to the appointment of a Royal Commission presided over by Lord Selborne. Lord Selborne's Commission was unanimous in the view that a university with teaching powers was needed for London. The majority of the Commission suggested that there should be one university, combining the teaching and examining functions. A minority, including Sir William Thomson (afterwards Lord Kelvin), Professor Stokes, and Dr. Welldon, expressed doubts as to whether the functions of a teaching university could be combined with those of an examining university, and stated that they would have preferred the establishment of a new teaching university for London, leaving the old university to discharge its widely extended examining functions. The Senate of the University then attempted to provide for the reconstitution of the University on the lines suggested by the report of Lord Selborne's Commission, but the scheme of the Senate was rejected by Convocation.

The Second (Gresham) Commission. The petition of University and King's Colleges was then revived in the form of a draft charter for the constitution of a second university to be entitled "The Gresham University of London." This led to the appointment of another Commission, known as "The Gresham Commission," which was presided over by Lord Cowper. They reported (1894) in favour of a single university authority for London, advocating the reconstitution of the examining university under a scheme that, while it provided for the continuation of the examining functions, the examinations remaining open to all comers irrespective of place or manner of education, sought to establish a new side to the university to enable it to develop the work of teaching and promoting research that had hitherto been carried on in the colleges without the aid or guidance of the University. The aim was to unite for the purposes of the teaching side the several institutions of University rank that had grown up independently in London, and gradually to extend them and add to them so as to provide a University organization adequate to the needs of London. The professors and other teachers of adequate rank were to be grouped in faculties, the faculties were to appoint committees or boards of studies, while general academic policy was to be in the hands of the Academic Council. The two sides were to be ultimately governed by one Senate.

Present Constitution. The scheme of the Gresham Commission was extensively modified by the Act of 1898, under which the present constitution was ultimately framed by a body of statutory Commissioners under the chairmanship of Lord Davey. The new constitution took effect in 1900. Its

defects were obvious and perhaps inevitable, but it brought together as "Schools" of the University those institutions (twenty-four in number)[1] deemed worthy by the Commissioners, and gave to them for the first time means of co-operating for University purposes. They were the following—

IN ALL THE FACULTIES[2] IN WHICH THEY RESPECTIVELY AFFORD INSTRUCTION:
- University College, London.
- King's College, London.

IN THE FACULTY OF THEOLOGY:
- Hackney College, Hampstead.
- New College, Hampstead.
- Regent's Park College.
- Cheshunt College.
- The Wesleyan College, Richmond.
- The London College of Divinity (commonly called Saint John's Hall, Highbury).

IN THE FACULTIES OF ARTS AND SCIENCE:
- The Royal Holloway College, Egham.
- Bedford College.

IN THE FACULTY OF SCIENCE:
- The Royal College of Science, London.

(IN AGRICULTURE ONLY):
- The South-Eastern Agricultural College, Wye.

IN THE FACULTY OF MEDICINE:
- The Medical School of St. Bartholomew's Hospital.
- The Medical College of the London Hospital.
- The Medical School of Guy's Hospital.
- The Medical School of St. Thomas's Hospital.
- The Medical School of St. George's Hospital.
- The Medical School of the Middlesex Hospital.
- The Medical School of St. Mary's Hospital.
- The Medical School of the Charing Cross Hospital.
- The Medical School of the Westminster Hospital.
- The London (Royal Free Hospital) School of Medicine for Women.

IN THE FACULTY OF ENGINEERING:
- The Central Technical College of the City and Guilds of London Institute for the Advancement of Technical Education.

IN THE FACULTY OF ECONOMICS AND POLITICAL SCIENCE:
- The London School of Economics and Political Science.

A large number of the teachers at these twenty-four "Schools" were placed by the Commissioners on the list of "Recognized Teachers": the Commissioners also recognized and, by their statutes, authorized the Senate to recognize, teachers in public institutions (not "Schools") within the University area.

The reconstituted University had, besides, the power to appoint professors or other teachers, whether attached to one of the "Schools" or not, but it had no funds for these purposes. The prime essentials of a teaching university are a professoriate and accommodation for its work.

The Council, Fellows, and Governors of University College came to the conclusion that the aims of the founders of the College could, under the new conditions, be best fulfilled by handing over the College, with all its property, to the University. Negotiations followed and, as a result, University College ceased to be an independent corporation, and was incorporated in the University on 1st Jan., 1907.

King's College followed suit and, with the exception of its Theological School, was incorporated in 1909.

These incorporations gave reality to the scheme for a teaching University, for the University thereby acquired traditions of teaching and research of a high order, reaching back to 1828, as well as property of very great value. The University was thus enabled to establish a professoriate, which now numbers 116, and includes men and women of the highest distinction in their respective subjects. There are also 58 Readers.

But, in spite of these favourable conditions, it soon became evident that the constitution of the University was not adapted or adequate to the great task before it.

The examination tradition held sway and still dominates to some extent University counsels. The freedom for teaching that is so essential for real University work is still lacking in London, although it is true that the professors and teachers have gained influence since the reconstitution in 1900. Seeing that this freedom has already been accorded to the provincial universities, most of which are smaller than either of the great London colleges, it is not to be wondered at that the London professors ask for further reform.

The ineffectiveness of the new University machinery for the purposes for which it was intended was clearly expressed by the refusal of the promoters of the Imperial College of Science and Technology[1] to incorporate that College at its foundation in the University. Provision was, however, made in the charter of the Imperial College for it to be established, in the first instance, as a "school" of the University of London, with an indication that it may hereafter become an integral part of the University of London.

The Third (Haldane) Royal Commission. The realization of the imperfection of the present constitution of the University led to the appointment of a third Royal Commission in 1909, under the chairmanship of Lord Haldane, then Lord Chancellor. That Commission issued its report in 1913. The Board of Education followed it up by the appointment of a Departmental Committee, under the chairmanship of Sir George Murray. The reference to the Departmental Committee is: "To inquire and report, after consultation with the bodies and persons concerned, as to the steps by which effect shall be given to the scheme of the Report of the Royal Commission on University Education in London, and to recommend the specific arrangements and provisions which may be immediately adopted for that purpose, and as the basis of the necessary legislation." The scheme of the Commissioners provides for a large and representative Court as the legislative body of the University; for a small non-representative Senate to act as the general executive, and especially as the financial, body; for an Academic Council to represent the combined wisdom of the faculties; and for the establishment of faculties with considerable executive functions. With a constitution of this kind, professors, readers, and other teachers, who do the real work of the University, should obtain their proper share of effective influence.

[1] The number has since been increased by the action of the Senate to thirty-four.

[2] University College in Arts, Economics, Laws, Science, Medicine, and Engineering. King's College in the same, with the addition of Theology.

[1] This College combines the Royal College of Science, the Royal School of Mines, and the City and Guilds College. The charter was granted on 8th July, 1907.

The scheme also suggests the establishment of a University Quarter "by bringing the constituent colleges and University departments as far as possible together in one district, and grouping them round the central buildings of the University." This seems desirable in the interests of efficiency and economy, for a university, in the highest sense of the word, cannot be made out of colleges and institutions scattered all over the County of London and often separated by many miles. The Commissioners agreed that all the institutions connected with the University cannot be gathered into one quarter; but with the establishment of a University quarter, colleges and institutions that are now too far separated to work together can, as opportunity offers, be brought together. In this way alone can the beginning of a university organization adequate to the needs of London be made. Plans must be made now that will permit of growth. Moreover, the University of London must be a place with a visible and impressive quarter of its own, if it is to appeal to the imagination of the people, and if it is to exert the humanizing influence that is the right of the University of the capital of the Empire.

While in its main features the report of the Commission is generally acceptable to those concerned with university education in London, there is a desire for the modification of many of its details.

For example, it has become abundantly clear that the teaching and research side of the University and the external examining side must each have Home Rule, while remaining united under the Senate.

Future Reform. The experience of the fourteen years prior to the war was invaluable: the lessons to be learnt from the war; the Education Act of 1918; the need for more extensive provision for adult education are new factors. If these be borne in mind, a new constitution under which a University, untrammelled by many statutes, with power to grow and freedom of adaptation to meet the needs of the time should be possible.

Already in pre-war days, the London colleges were training some 4,500 undergraduates, and were providing opportunities for the training in research of nearly a thousand post-graduates. It is in this last field that there is much leeway to be made up. There is no other city in the world where, to take two examples only, the materials for medical and historical research are to be found in such profusion. Organization of the existing professoriate would do much: additional chairs are needed; additional buildings are required; and generous endowments for assistants, equipment, and maintenance. It has long ago been recognized that the professor of any branch of natural science must have, besides his laboratories, a staff of assistants, a departmental library, and means for keeping his equipment up to date. It is equally true of the professor in all other branches of learning, if he is to be not merely a lecturer but a promoter of new knowledge. The entire equipment for higher learning—not only in London, but throughout the country—has been on too meagre a scale. The scale must be increased everywhere, but to the largest degree in London, where the needs and opportunities are specially great. While, therefore, a new constitution may do much to remove the present disabilities, there is, at the same time, need for greater financial resources than have ever yet been provided. "The government and protection of an honourable Chancellour," and much else that Buck's "Third Universitie" lacked in 1631, have been obtained: the other things should be added by "the zeale and liberalitie of the loyal citizens" supported by the local authorities and the State. The State has made a beginning and has presented to the University a site of about 11½ acres to the north of the British Museum, such site to be used in the first instance for the erection of a Senate House and general administrative buildings and for the removal of King's College from the Strand.

After very careful consideration the Senate accepted the offer in November, 1920. This site, together with the 9 acres occupied by University College, which almost adjoins, will at once provide a university quarter of upwards of twenty acres.

The first building to be erected on the new site has been provided by an anonymous benefactor and is for the purpose of an Institute of Historical Research, by means of which the great resources of London for historical research can be used to greater purpose than before. "Zeale and Liberalitie" has been shown by the Trustees of the Rockefeller Foundation of New York, to whom the University is indebted for a gift of upwards of £1,000,000 for the purpose of improving medical education at University College and University College Hospital Medical School. These are beginnings of great promise and the prospects of the University of London are thereby improved. G.F.

LONG VACATION.—This is the period from the end of June to the second week in October, when the majority of the students of Oxford and Cambridge Universities "go down." At Oxford, those who keep Trinity Term can stay till the early days of July. At Cambridge, Tripos students, by permission, remain in residence through July and August, and this period is counted as a term. In Law Sittings, the Long Vacation lasts from 31st July to 12th October.

LONGOLIUS.—(See CICERONIANISM.)

LORETTO SCHOOL.—Loretto is a high-class, first-grade proprietary school of about 150 boys, founded in 1829 at Musselburgh, near Edinburgh, on the site of the battle of Pinkie. The boys are all boarders. The school is famous for the excellent physical training its pupils receive, and their remarkable prowess on the football field; there have been few Scottish International Fifteens that did not include one or more Lorettonians. Leaving exhibitions, of a total value of £120 a year, tenable at Oxford or Cambridge, and choral entrance scholarships, are awarded annually.

LOTZE, RUDOLPH HERMANN.—Born 21st May, 1817, at Bautzen (Saxony); went to school at Zittau; graduated at Leipzig in medicine and philosophy in 1838, and was made Professor of Philosophy in 1842. Two years later, he was elected to the Chair of Philosophy in Göttingen, where he succeeded Herbart. After teaching in Göttingen for thirty-seven years, he was called to Berlin in 1881, where he died on 1st July of the same year.

Lotze made valuable contributions to physiology, pathology, metaphysics, the philosophy of religion, psychology, logic, ethics, and aesthetics—to say nothing of his volume of poems and his Latin rendering of the *Antigone*. His principal works are *Medical Psychology* (1856), in which he laid the foundations of experimental psychology; *Microcosmos* (1856–1864), a comparatively popular

account of his ideas on the history of Nature and man; *History of Aesthetics in Germany* (1868), valuable essays on modern conceptions of Art and aesthetic appreciation; *A System of Philosophy*, consisting of a *Logic* (1874) and a *Metaphysics* (1879)—a projected third part on Ethics and Aesthetics was not written. Of these works, the *Microcosmos*, the *Logic*, and the *Metaphysics* have been done into English, and the first part of the *Medical Psychology* into French.

What gives peculiar interest to Lotze is his serious attempt to satisfy all the manifold and apparently conflicting interests of human life. His profound respect for scientific method makes him very cautious and critical; but he is not an arid intellectualist—he is never oblivious of the moral and aesthetic aspirations of man. And so, while he repudiates as unscientific the dialectic method of Hegelian Idealism, he, nevertheless, endeavours to save all in idealism that is consonant with science and human experience. The chief article of his faith was that the universe is a system of spiritual monads intimately related to one another, and all of them striving towards the realization of values or "the idea of the good."

Lotze made no direct contribution to educational theory, but he helped to give prominence to some of the fundamental conceptions on which present-day educational theories are based. Special mention may be made of his view that thought is essentially active, and controls spontaneously the mechanical combinations of association. A. WOLF.

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LOUVAIN, THE UNIVERSITY OF.—The Low Countries possessed no centre of higher studies before the fifteenth century. Young men were obliged to cross the frontier to frequent foreign universities. When, towards the close of the Middle Ages, the provinces united to form a new state between the Germanic and the Romanic peoples, the need was felt for greater cohesion among the youth and for endowing Belgium with a new glory, that of learning. In 1425, under John the Good, 4th Duke of Brabant, Pope Martin V authorized the foundation of a *studium* at Louvain; courses of lectures began in the following year, and in 1432 the Pontiff permitted the addition of a faculty of Theology. After painful beginnings, the school of Louvain enjoyed an epoch of marvellous prosperity, the Popes, the Dukes of Brabant, and the City of Louvain conferring numberless privileges on it. Liberal benefactors multiplied Scholarships and made possible the foundation of colleges and hostels, whose number had risen by the end of the sixteenth century to no fewer than fifty. The University, rich and prosperous, was able to take a brilliant place in the front ranks of the great schools of the Renaissance. Erasmus twice sojourned at Louvain, the first time from 1502 to 1504, the second from 1517 to 1519, and gave a strong impulse to literary studies there. Thanks to his influence and activities, the University was endowed with a new foundation—the Trilingual College (*Collège des Trois Langues*)—the organization of which was soon after copied by the great schools in foreign lands. This new institution exercised a considerable influence on the philological and literary teaching of the sixteenth century.

A galaxy of celebrated men of letters and humanists was formed in the University city, all in intimate relation with Erasmus. It will suffice to mention Dorpius, at once humanist and theologian; Goclenius; Rescuis; and the two grammarians, Despantère and Clénard, whose manuals were so long in use.[1] Foreign scholars made Louvain a favourite rendezvous; besides others, Sir Thomas More several times visited the University, and carried on a literary correspondence with most of its professors.

Young men from all parts crowded the benches. "With the exception of the University of Paris," wrote Erasmus, "the School of Louvain is inferior to no other in the number of its students. . . . Nowhere has literary culture taken deeper root than here." Justus Lipsius, destined later to give lustre to the Chair of Ancient History and Latin Philology, reckoned, when himself a student, between seven and eight thousand students of the University. New methods transformed, little by little, all the sciences. The creator of the science of Anatomy, Andreas Vesalius, gave public lectures which exercised a great influence on the teaching of Medicine. The law school adopted the elegant methods introduced by Mudaeus, even before the analogous action of Cujas was known in France. But the most important part played by the University in the sixteenth century was that of the Faculty of Theology. The Louvain theologians revolutionized their traditional method of teaching. By their learned publications, and, above all, by the *Profession of Faith* to which the Emperor, in 1595, commanded all teachers and preachers to conform, they opposed an impregnable barrier against the doctrines of the Reformers. Later, two heresies took their rise in the School of Louvain: Baianism, taught by Baius, Professor of Sacred Scripture from 1551; and Jansenism. Jansenius was also Professor of Sacred Scripture in 1630, and subsequently attained the honour of the rectorship. His *Augustinus*, the treatise in which he expounded his doctrines on Grace and Predestination, appeared (posthumously) at Louvain in 1640.

A Period of Decline. During the second half of the sixteenth century, the University entered upon a long period of decadence. Pestilence ravaged the town; civil wars followed, and the great European conflicts which broke over the provinces for centuries lasted until the beginning of the eighteenth century. A new era of prosperity was actually in sight when the despotic Austrian domination commenced its work; and, under Joseph II, the University had to defend its privileges, its orthodoxy, its liberties. It was not found wanting: the struggle, upon which it entered with such heroism, was not without its tragic episodes. All the forces of the nation grouped themselves around the professors of Louvain, and Austria had to yield before their determined resistance.

The storm of the French Revolution burst over the provinces, and swept away many ancient institutions. The University of Louvain was shipwrecked, and was suppressed in 1797. For centuries she had made her name known all over Europe. Under all foreign dominations she had safeguarded the intellectual patrimony of the nation. And now, watching with jealous care over the patriotic

[1] [See an article: "The Humanists of Louvain," by Foste Watson, in the *Nineteenth Century*, October, 1914.]

aspirations of her youth, she had led the country to the glorious moment of independence.

The Free Catholic University. Under the aegis of constitutional liberty, the free Catholic University of Louvain, in 1834, took up the traditions of the ancient university, and devoted her energies to the promotion of knowledge and the formation of Christian character. In both tasks, her success has been very great. The number of students, only eighty-six in 1834, was close on 3,000 in 1914.

In the different branches of knowledge, the University's activity has given rise to many institutions which have been most prolific in their results.

In the Faculty of Philosophy and Letters (or, as we say, of Arts), in 1882, on the initiative of Pope Leo XIII, a chair of Thomistic Philosophy was assigned to the Abbé (now Cardinal) Mercier. A few years later, there was founded a great institute wherein all branches of knowledge combine to widen the old-fashioned methods of philosophy. Professor Mercier was the founder, and for many years director, of this *Institut supérieur de Philosophie*, which has opened out new paths in the vast domain of philosophical science.

The *Séminaire Historique* groups together students of Theology, Canon Law, Philosophy, and Arts, and is under the direction of the learned historian Cauchie. Its annual reports are a valuable source of material for historical research, and have given rise to important works included either in the vast *Recueil des Travaux d'Histoire et de Philologie*, or in the *Revue d'Histoire Ecclésiastique*.

Oriental languages have held a place of honour at Louvain perhaps more than elsewhere. It is sufficient, in proof of this, only to mention a few famous names—to speak only of those who are no longer living—such as Beelen, Nève, and de Harlez. *Le Muséon*, a review founded in 1882 by de Harlez, continues to publish the results of profound and patient researches. (Through the kindness of the Cambridge University Press, it was published during the exile at Cambridge.) And, in the domain of Classical Philology, research has been carried on year by year in practical courses, preparing the way for serious studies and important publications.

The Faculty of Law has possessed, since 1892, a school of Political and Social Science. The very extensive collection of theses published by this school is a guarantee of the value of its teaching.

The name of Carnoy, of the Faculty of Science, is one of the most illustrious in the annals of the new University of Louvain. As early as 1876, Carnoy created a course of Cytology, a course which Louvain was the first university to establish. Carnoy, who was really the initiator of all the various practical courses in the University, also founded a series of laboratories, all grouped in his Institute of Cytology and General Biology, and also founded the review, *La Cellule*, in which are incorporated the various researches and discoveries of the Institute. Attached to the Faculty of Science there have also been established, from 1865 onwards, the special schools of Mining, Civil Engineering, Arts and Manufactures, and of Architecture, to which was added, in 1900, the School of Electricity. These schools possess laboratories, museums, and special collections, and halls of machinery, which, quite up to the standard of all modern scientific requirements, were to have been enlarged on a vast scale in 1915.

The publications on the nervous system, due to the learned researches of the lamented Van Gehuchten (who died at Cambridge, 9th Dec., 1914) of the Faculty of Medicine, have acquired a world-wide celebrity; whilst Denys, in his Institute of Bacteriology, has obtained invaluable results in the study of tuberculosis serum. Other institutes of medical science, created a few years back, have not yet been able to develop their full fruit. Others were in a state of construction, including a splendid institution for Experimental Physiology.

Thus, in all domains of learning, the University of Louvain was prospering greatly when the European War brought ruin to the university towns. The Halles, that wonderful monument, a masterpiece of the noble architecture of two different epochs—the sixteenth and the eighteenth centuries—and the living centre of the University since 1432, fell a prey to criminal incendiarism. Among the ruins wantonly heaped up in a single night have disappeared for ever all the records of the ancient school of Louvain, and the magnificent University Library, with its 500 MSS., its 1,000 incunabula, and its 300,000 printed volumes. (See also BELGIUM, THE UNIVERSITIES OF.)

P. D.

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LOVETT, WILLIAM (1800–1877).—Born at Newlyn, Cornwall; became secretary of the British Association for Promoting Co-operative Knowledge; and later, in association with Owen, Cobbett, and others was connected with agitations for reforms, such as the abolition of stamp duties on newspapers and the opening of museums on Sundays. In 1836–1838 he was prominent in the Chartist Movement, and drafted bills and petitions for the leaders. After taking part in many popular agitations until 1849, he began to advocate national education and undertook the management of the schools of the National Association. After the Association broke up in 1857, Lovett became teacher of Anatomy in London schools and wrote several school books on elementary science. He has been described as the ablest writer and best man of business among the Chartists, and his *Autobiography* (1876) throws much light on the history of the movement.

LOWE (ROBERT): VISCOUNT SHERBROOKE (1811–1892).—Was born at Brigham, Nottinghamshire, on 4th December, 1811, the son of a clergyman. He was at University College, Oxford, and took a brilliant degree in classics, becoming a fellow of Magdalen College. He was called to the Bar in 1842 and later proceeded to Sydney, where he practised at his profession with substantial success and made his mark in the Legislative

Council of New South Wales. In 1850 he returned to England, and for a time was a writer of leading articles on the *Times* newspaper and largely influenced the policy of the paper. In 1852 he was elected member of Parliament for Kidderminster, a seat that he retained until 1859. He brought a reputation with him from Australia and he had a place in the Aberdeen Ministry which lasted from December, 1852, to January, 1855. In 1854 he took part in the debates on the Oxford University Bill. He joined the first Palmerston Cabinet, which lasted from February, 1855, to February, 1858, as Vice-President of the Board of Trade. In 1859, as member for Calne, he became Vice-President of the Committee of the Privy Council on Education in the second Palmerston administration. This position was in reality that of Minister of Education, since by an Order in Council of 25th February, 1856, the Education Department had been formed and comprised the educational establishment of the Privy Council Office and the Department of Science and Art. On 29th July, 1856, an Act was passed creating the Vice-President of the Committee of Council on Education for the time being a member of the Ministry. Mr. Gladstone was greatly opposed to the creation of this office, a "state functionary . . . with a salary of £2,000 a year and nothing to do," and regarded with suspicion the whole education vote on the ground that it stopped "educational movements upon different bases." The Privy Council system had, however, taken deep root. Not fewer than 7,588 schools were subject to inspection in 1856, an increase of 2,808 in two years. The annual cost of educating a child was 30s., and of this the State paid 11s. 4d. Mr. Gladstone and Lord John Russell introduced the principle of the capitation grant in respect of 176 attendances during the year. The position was very bad, since it was found that only 36 per cent. of the children in attendance earned the grant, and in 1858 it was found that only 27 per cent. of the children in attendance at the aided schools were over ten years of age. Mr. Lowe took the difficult problem of a State system in hand. He was determined to make it effective, and when he introduced the education estimates on 22nd July, 1859, he asked for nearly a million of money and declared that he could make the system universal at an annual cost of two and a half millions sterling. The Royal Commission on Education reported on 18th March, 1861, and recommended a combination of State and rate grants based on the attainment of a certain standard of knowledge in registered schools. It was proposed to carry out the system by County and Borough Boards of Education. The figures collected by the Commission were alarming, though they were the best in the world outside Prussia, where compulsory education was already in force. The private schools in England were useless and the public elementary schools contained on their books only one in twelve of the population. Only 76·1 per cent. of the children on the books were in attendance, and 70 per cent. were children under ten years of age. Mr. Lowe had to face the fact that the provision for the education of the masses of the people was entirely ineffective.

Revised Code of Regulations for Schools. It was in these disastrous circumstances that the famous Revised Code of Regulations for schools was placed on the table of the House in July, 1861. On 13th February, 1862, the Code was discussed in both Houses. Mr. Lowe declared that he had come to the conclusion that "inspection, as opposed to examination is not, and never can be, a test of the efficiency of a system of national education." The position, moreover, was getting worse. The average age of the children in attendance was lower than in 1852. So long as Parliament refused to introduce compulsion there could be no solution of the national problem. The most that could be done was, while acquiescing in child labour, to give the child, before going to labour at the age of ten years, the easily lost arts of reading and writing. Mr. Lowe's great hope was in the evening schools, as the necessary medium of more and better education. In 1862 there were only some 317 such schools. The Revised Code was vigorously attacked. On the suggestion of Dr. (afterwards Archbishop) Temple, the proposed system of grouping by age for examination purposes was abandoned for a system of examination by standards, and on 28th March, Mr. Lowe agreed to allow a substantial portion of the grant to be given on the general report of the inspector, but he retained his main principles, the abolition of appropriated grants and the introduction of examinations. Mr. Lowe's brilliant self-reliant and passionately painstaking personality made national education of vivid political importance, which, while on the one hand it led to the persecution of Mr. Lowe by Lord Robert Cecil, afterwards Lord Salisbury, and others, on the other hand made the nation realize the fundamental national importance of the subject. Mr. Lowe carried education into a new sphere, and, political things being as they were in 1862, his policy of payment by results was the only possible policy if the system, if system it could be called, was not to disappear altogether. In a sense that policy is revived to-day, though "the results" are not the achievements of a particular child, but the work of a particular local education authority. If the State pays it is bound to see that the money of the taxpayers is not wasted. The political persecution of Mr. Lowe at the hands of a section of the Conservatives came to a crisis in 1864, when Lord Robert Cecil recklessly, though in good faith, charged him with tampering with the school inspectors' reports, and the charge was so framed that on a division the Minister of Education was practically convicted, on evidence which was not produced, of mutilating the reports. He at once resigned. Lord Granville, in the House of Lords, boldly justified Mr. Lowe's position, and he himself in the Commons, in his undeniable way, cleared his character and showed that he had been treated without charity or justice. On 12th May, 1864, Lord Robert Cecil admitted that Mr. Lowe had "entirely cleared his honour," and, on the report of a Select Committee on 25th July, the resolution of April 12th condemning Mr. Lowe was, on the motion of Lord Palmerston, deleted from the Journal of the House. The tremendous stir created by this now long-forgotten incident did much to awaken the whole nation to the facts and the needs relating to national education. The Revised Code, within its limits, worked well. It secured a fall in expenditure and increased attendances. More than a million children were actually under instruction under good conditions in 1863, and there were 1,378,000 school places. The examination results were very disappointing. Of 70,000 children over ten years

examined, only 1,600 passed. It was plain that no code changes could solve the problem. On 28th February, 1865, Sir John Pakington moved for a Select Committee to inquire into the system in force. Mr. Lowe replied that it was useless to criticize this department "because it does not create that from the creation of which Parliament has expressly withheld it." The existing machinery could not be improved. It could not do more than it was actually doing. In 1867 a Minute was introduced to secure better teaching and results. An increased capitation grant was promised to those schools which improved their staffs and secured better results. This Minute also allowed a scholar who had passed the sixth standard to gain a further grant for his school for one year only on passing a satisfactory examination in any higher subject or subjects. From the proposal of 1867 sprang the modern system of ex-standards and higher elementary schools. On 5th April, 1867, Mr. Lowe attacked a proposal to increase the capitation grants, though he added that he believed that "No sum that the House would grant would be too large if by its aid the education of the people would be rendered more efficient." He, however, believed that the system in vogue was inextensible on such a scale. Mr. Lowe prepared the way for the Act of 1870, and compulsory education. Hé reduced the whole voluntary system to an absurdity in the sense that it could not meet the needs of the country. In that sense Mr. Lowe was the begetter of the compulsory system. It was his demonstration that made clear to the country the impossibility of a successful development of the old voluntary system. He had made it as effective as it could be made without compulsory attendance and the result was deplorable. When once that conclusion had been brought home to the House of Commons and to the nation, the work of Mr. W. E. Forster became possible.

Other Educational Work. Mr. Lowe's interest in education was not limited to the elementary schools. Himself a typical Oxford scholar of the best type, he loved to bring his scholarship to bear in the House of Commons, and he and Mr. Gladstone were equally famous for their apt classical quotations. After the Reform Bill Mr. Lowe became the first member for the University of London, a seat "created expressly for his benefit," as one of his enemies declared. In the debates on the Public School Act of 1868, Mr. Lowe pleaded that these ancient schools should be inspected and examined by Government inspectors: "the fathers and mothers of England should be made acquainted with the deficiencies of the education given." If the charges of deficiency were well-founded "the schools would be the gainers." More than fifty years later the views of Robert Lowe as to the great public schools seem to be making way. They no longer scorn the Board of Education. It is unnecessary here to trace further the brilliant political career of the most brilliant man who has ever intervened in the not very pleasing politics of English education. He was the legitimate successor of Lord Brougham, whose lifelong campaign on behalf of the education of the people Mr. Lowe took up. It is sufficient to say that he was created Viscount Sherbrooke of Sherbrooke in Warlingham, Surrey, in 1880, and died in 1892, the recipient of many honours, a Trustee of the British Museum, and a Fellow of the Royal Society.

J. E. G. DE M.

LOYOLA, IGNATIUS DE (1491–1556).—He was the son of a Spanish nobleman, and was brought up as a page at the Court of Ferdinand and Isabella. After some years of military life, permanent lameness, resulting from a wound, caused him to devote himself to religious exercises and to undertake a pilgrimage to Jerusalem (1523). He was ordained in 1537; obtained the Pope's sanction to the foundation of the Society of Jesus; and became its first general, an office which he held till his death. His *Constitutions* are the basis of the organization of the society. He was canonized in 1622.

LUDUS LITERARIUS.—(See GRAMMAR SCHOOLS.)

LUKMAN'S FABLES.—(See AESOPUS.)

LULL, RAMON (1235–1315).—Born at Palma, the capital of Majorca. His father, also Ramon Lull by name, had served in the army of Don James, King of Aragon; and Ramon went early to Court, where he became seneschal. He led a careless and luxurious, and even sensual, life. But (*c.* 1265) at 30 years of age he became converted by the appearance of the image of Christ on the Cross. The image appeared again and again, and brought Ramon to a terrible struggle between the higher self of sacrifice and the lower self of indulgence; His thoughts turned to the wars in which his father had taken part against the Saracens (*c.* 1229) and helped in their expulsion from the Balearic Islands. He determined to write a work on the truth of Christianity, to refute the Moslems. But he could only write in Latin, and he, therefore, began to realize the need of a knowledge of Arabic and formed the project of inducing the Pope and all Christian monarchs to join in the establishment of monasteries and schools in which Oriental languages should be taught, to enable Christians to contest successfully in arguments with Mohammedans. Lull was drawn to join the Franciscans, on the Festival of St. Francis of Assisi, in July, 1266. Putting aside a moderate provision for his wife and children, he sold all his property; became a mendicant friar; and went on pilgrimages, vowing himself to the "pacific crusade" against the followers of the Crescent. (For a predecessor in this Crusade, see DUBOIS, PIERRE, p. 498.) However, he purchased a Moslem slave (a method followed by Nicholas Clenard, later [*q.v.*], p.. 350), and studied Arabic for nine years. In this period he engaged in prayer and meditation; and also wrote the *Ars Magna* or *Generalis*, which expounded the grounds on which, logically, the Arabs could be overcome. It is one of the most original logical treatises in the whole of the Middle Ages.

Lull went to Paris and lectured in the University on the *Ars Generalis*. About 1292 he arrived at Tunis. He stated his readiness to weigh Mohammedan arguments, and his intention to adopt Mohammedanism if offered overwhelming arguments. The result was that Lull was thrown into prison for his temerity, and afterwards expelled from Tunis and warned against return. From 1296–1306 he travelled endeavouring to convert Moslems and Jews, first in his native Majorca, then in Cyprus, and even went as far as Armenia. In 1307 he went again into North Africa, and at Bugia invited disputations. Again he was thrown into prison, and again sent out of the country. At Paris, he controverted the views of Averroës. In 1311 the Council of Vienna was called, and Lull pleaded for the establishment

of colleges for the teaching of Oriental languages, and for training in the practice of systematic logic and rhetoric. In 1314, Lull again went to Bugia, formed a band of converts, and, in 1315, challenged and received martyrdom. Lull, not unworthily, had bestowed upon him the blessing of the Roman Church as a martyr.

Educational Importance. As a thinker, Lull attempted to reconcile faith and reason. His *Ars magna* contains his account of a logical machine, whereby ideas may be symbolized by means of letters, and relations established by moving them amongst different geometrical figures, such as circles, squares, and triangles, so that the resulting combinations may represent conclusions, and each permissible movement might constitute a proof—in short, a sheet of ready-reckoner for ideas. His system was taught in the Colleges of Montpelier, Paris, and Rome, and in the Universities of Barcelona and Valencia. It was warmly supported by such men as Giordano, Bruno, Cornelius Agrippa, and even Leibnitz.

The *Blanquerna* (see EDUCATIONAL UTOPIAS) and the *Felix* are romances of a philosophical and religious tendency. In the *Doctrina puerilis*, he deals with religious education, especially the knowledge of the Fourteen Articles of Faith, the Ten Commandments, the Seven Sacraments, the Seven Gifts of the Holy Spirit, the Eight Felicities, and the Seven Joys of Our Lady; in moral education, he deals with virtues and vices, and the Three Laws: Natural, the Old Law, and the New Law of Christianity. Lull also treats of education as contained in the seven Liberal Arts, and their application to the purposes of law, medicine, and mechanical arts.

As F. J. H. Probst points out, Lull is the precursor of Rousseau in saying: "The artisan can live in *any* country whatever, and it is for that reason that the Mussulmans have a very good custom, that every man, rich or poor, must not omit to train his son in some trade, so that, if he loses his wealth, he may live by his trade."

Lull demands that the pupil should learn Catalan: the mother-tongue first, afterwards Latin.

Influence on the Study of Greek. It was due to Lull that the Council of Vienna, in 1311, passed the important decree requiring the Roman Court, and the Universities of Paris, Oxford, Bologne, and Salamanca, each to maintain two scholars in each of the following languages: Hebrew, Greek, Arabic, and Chaldean; to teach students, and to translate books from those Oriental languages into Latin. The teachers in the Roman Court were to be provided from the funds of the Roman See; but, in the Universities, the teachers were to be paid by levies made upon prelates, monasteries, chapters, convents, colleges, and rectors of churches in France, England, Scotland, Ireland and Wales, Italy and Spain.

He has further claim to distinction by his advocacy, in the Middle Ages, of instruction in a sound knowledge of the vernacular, the Catalonian, and only afterwards in Latin. When it is remembered that Richard Mulcaster, in 1582, is regarded as the English pioneer in the English advocacy of the vernacular, the Catalonian enthusiasm for Lull will be readily understood.

(For other pioneers in the teaching of Oriental languages, see CLENARD, NICHOLAS; and DUBOIS, PIERRE.) F. W.

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LUND UNIVERSITY.—This was established by Charles XI of Sweden in 1666, and was the cause of a revival of the prosperity of the city, which had been for many years the capital of the Danish Kingdom. It is a State university, with faculties in arts, law, science, and medicine. In 1870, women were admitted to the medical faculty, and in 1873 to law and philosophy. Admission is granted to candidates who have passed the final examination of an elementary school. Public courses are free; private lectures are provided at a fee for the semester.

LUTHER, MARTIN (1483–1546).—He owed his religious hold on the confidence of the German people largely to the fact that they felt him to be one of themselves, speaking out of an experience he had had in common with his countrymen, and wrestling with problems that had pressed alike upon all. In regard to his educational influence, the same might be said. He approached the subject not as a doctrinaire or as a pure scholar, but with the broad sympathies of a man who remembered vividly his own youthful struggles, and regarded education from a practical—if also pre-eminently—a moral, and religious point of view. In the result, Luther secured the position of popular education in Germany much as Knox did in Scotland.

He retained clear impressions from his own childhood. He respected and valued the strict *régime* of his parents, though considering they had punished too severely, and used fear where love would have sufficed. "The apple," he says, "should be placed beside the rod."

From his first school at Mansfeld, he recollected the dull, mechanical routine of learning declensions and conjugations, enforced by brutal and senselessly cruel punishments. At the age of 14 he was removed to Magdeburg, where he benefited by one of the higher schools under the influence of the Roll Brethren. A year later he was sent to Eisenach, where he became acquainted with the gracious Frau Cotta through his singing, according to the fashion of the time, with other boys for bread in the streets, to eke out his school maintenance. In this school he seems for four years to have had the best of instruction. His only complaint against this later education is a religious one—that he was brought up not in happy assurance of God's love, but in a religion of ceremonies and rules, and fear. His own ideal in this matter is well illustrated in his famous letter to his little son Hans.

At Erfurt University, Luther found himself under the influence of the revived interest in classical

learning, and became a competent scholar not only in mediaeval philosophy, but in Latin and Greek, and entered into friendly relations with the movement called Humanism.

Practical Concern with the Young. The first evidence of Luther's practical concern with the young is seen in his ministry in the town church at Wittenberg, where, in addition to his university duties, the young professor preached regularly and conducted systematic religious instruction for the children of the congregation (1517–1520). The first classic passage about education in his writings occurs in his "Address to the Christian Nobility of the German nation," which he issued at a critical moment in the widening of the breach with Rome (1520): "The universities also require a right strict reform. . . . Above all, in the higher and lower schools the chiefest and common reading should be the Holy Scriptures, and for young boys the Gospel. And would to God every town had a girl's school, in which girls might hear the Gospel one hour in every day." (We should bear in mind that Luther has here in view the displacement of Aristotle and commentaries on his works.)

Four years later, when his influence was supreme in all reforming circles, Luther returned to the subject of education in a specific address: "To the Councillors of the Cities of Germany—A Summons to Establish and Maintain Christian Schools." He urges that education is a primary concern of the State as well as of the Church. He would make lessons attractive rather than toilsome. He would have "history sung as well as taught, and mathematics"—this may be hyperbole—"set to music." Reading rather than incessant grammatical drill should be the method in languages. New and better devised books are required for instruction; and especially German history should be taught, not only that of classical antiquity.

As the Reformation became established, Luther busied himself with the promotion of schools. The "visitations" that were instituted were largely occupied in putting elementary instruction on a sound basis. He followed up his *German Catechism* by an abridgement for children and simple folk. We may admit that the main work of educational supervision fell on Melanchthon's (*q.v.*) shoulders; at the same time, men knew that, in turning to that scholar for guidance, they were only learning how to obey the clarion call sounded by Luther.

R. W. S.

LUXEMBURG, EDUCATION IN.—Luxemburg is a small Grand Duchy with a population of 250,000, who are nearly all Roman Catholics. In the Middle Ages it was a member of the German Empire, and subsequently passed under the rule of Spain, Austria, and France, until, in 1815, it became part of the Germanic Confederation. In 1867 the Treaty of London declared it neutral territory under the King of the Netherlands, on whose decease (1890) it passed to the Duke of Nassau. Education in Luxemburg previous to 1867 was dependent upon the ruling power; and the present system was established in 1868, when the Government took charge of public education, and created a Department under the Minister of the Interior and a Council of Public Instruction. Each commune has the duty of providing elementary schools according to the needs of the population, and the Government contributes to the expenses by providing a certain proportion of the salaries of the teachers. Education has been compulsory since 1881 for children between 6 and 12 years, and the commune may extend the limit to 13 years. Fees are paid except in necessitous cases. The course of instruction includes both the German and French languages, and some technical and commercial subjects. Religious teaching is given by the clergy, or under their direction. The Grand Duchess (or Duke) appoints the Director-General of Education, and the bishop is a member of the Council. Teachers must obtain from the Council temporary certificates, which are made permanent only after five years' experience. They are appointed and paid by the communes. Higher elementary schools are provided for children over 12 years of age. The teachers in these schools are graduates of secondary schools. A State normal school, established in 1817, provides training for teachers. Higher education was provided for by a law enacted in 1848, and was re-organized on its present basis in 1900.

The Luxemburg Athenaeum, in the capital, consists of a classical school or gymnasium on the German model, with about 500 pupils, and a school of commerce with about 400. The Athenaeum provides a six years' course for pupils from 12 to 18 years of age; and, as Luxemburg has no university, prepares them for the Universities of France and Germany. The commercial school was established in 1901; there are also a school for artisans (1896) and a school of agriculture (1883).

LYCURGUS (*c.* 850 B.C.).—He was a Spartan legislator. On returning from travels in Asia, he found Sparta in a condition of anarchy; and, at the invitation of the chief citizens, he re-modelled the constitution (military and civil) and made a new division of property. Exacting from the Spartans an oath to preserve his institutions inviolate for ever, Lycurgus left Sparta and disappeared.

M

MACARIA.—(See UTOPIAS, EDUCATIONAL.)

MACGILL UNIVERSITY, MONTREAL.—This University was founded by the aid of funds bequeathed by the Hon. James MacGill, who died in 1813. A charter was granted in 1821, and the University was opened in 1829 with faculties of arts and medicine. The faculty of law was added in 1852, that of science in 1878, and that of agriculture in 1907. The University is under the control of the Dominion Government, and the Governor-General is the visitor. Affiliated to it are the MacGill University College of British Columbia in the cities of Vancouver and Victoria, the Acadia and Allison Universities, and several theological colleges in Canada. The university courses may be

taken at Montreal or at any of the affiliated colleges, and the degrees are granted on the results of examination at Montreal. The Royal Victoria College for Women provides university courses for women, who have been admitted to privileges of membership since 1899. The total number of students in Montreal and British Columbia is about 2,500.

MACHINE DRAWING, THE TEACHING OF.— The old name for this subject—"Machine Construction and Drawing"—implied that there were two sides to the instruction, as indeed there are, since the principal requirements of a draughtsman are, first, that he should be able to produce a neat and workmanlike drawing; and, second, that he should have a full and accurate knowledge of the details used in the construction of machines, together with a general knowledge of the materials commonly used in engineering construction and, in the more advanced stages, of the strength and other physical properties of such materials, and of the theory of design.

The teacher of this subject has, therefore, to combine instruction in the actual preparation of the drawing with information as to details of machines and of processes by which machine parts are made, in order that such drawings may not be open to the charge of being technically incorrect, whether as regards the method of representation, or as to the constructional or manufacturing methods implied by such representation.

The work commences with a year devoted to the elements of practical geometry; the use of instruments and other draughtsman's tools; measurement and scales, together with simple drawing from actual measurement, a course usually described as "Technical Drawing." The class will probably include beginners in other than the engineering trades, so that the examples chosen should not be confined to metal work. Apart from the geometry of the subject, the work should be entirely from actual measurement of simple models or parts.

Elementary Course. In the following year, the subject becomes machine drawing proper, and in this course the lessons should be of from 2 to 2½ hours' duration, each lesson dealing with some machine detail or related group of details. The first 15 minutes may be spent in freehand sketching from wall diagrams or models, in an exercise book, preferably with very faint ¼ in. square ruling, each object to be shown by at least two views in projection, occupying not less than 3¼ in. × 3¼ in., or the equivalent according to the shape of the detail.

A lecture of three-quarters of an hour to an hour's duration should follow, in which the teacher should describe and demonstrate some typical detail of an engine or machine, illustrating his remarks by reference to as many examples and diagrams of this detail as he can gather together, showing how and why they differ in construction, action, or in use; and discussing with the help of the class the most direct and effective method of representation on paper. Afterwards, particulars of one example are given to the students by means of a sketch or diagram on the blackboard, or by reference to a text-book. As the course proceeds, there should be more and more call upon the student to supply missing detail or additional views, work not finished in class being regarded as part of the homework.

The method of placing the views and the selection of a suitable scale, so as to produce a v balanced drawing, is, after the first few less left as an exercise to the student. Attention i be drawn to the ordinary scales adopted for w ing drawings, but practice should also be give the use of the metric system; the decimalized i and in scales of odd fractions, involving a spe scale set out on the drawing.

If the introductory work in technical draw has been mainly from actual measurement, method of procedure just described will have effect of improving the speed of working, si there is an element of competition arising when students are working at the same exercise, wh is wanting when working from actual measurem and from different models.

The second-year course will include some mentary design, and the drawing examples again be taken from actual measurement, us more difficult examples. In connection with notes on design dealt with in the lectures, publications of the British Standards Commit should be referred to for screw threads, flan specification of material, etc.; and the "un system of design for bearings, couplings, etc., sho be explained and used.

Advanced Courses. The more advanced cou will be largely design, a new type of problem be introduced in each lesson and the necessary calcu tions for the design indicated, the student be then required to work out the design and to di the essential parts. If a *précis* of the finish calculations is shown on the same sheet, the s sion's work will be found to be of considera value, if preserved in a portfolio, for future referen

The models used in the above courses may be wood or metal; the former, while light and clea in use, are frequently misleading on points of c struction, so that it is generally preferable to the actual metal objects, purchased from engine stores or marine store dealers as opportunity offe Each student should have a 12-in. steel rule a suitable calipers; and should sketch in pencil a finish in ink, in his exercise book, two views of ea separate detail of the drawing exercise, showing necessary dimensions, the details being arran as far as possible so that they correspond to t position which they occupy when in use (*i.e.* r wrong way up or on their side). On a separate pa a "general arrangement" should be sketch showing how the final drawing is to be set out the paper.

A schedule should be drawn up, each separa part being given a reference letter, and the colum headed as follows—

Reference Letter	Number Off	Name of Part	Material

listing the whole of the separate items, and th drawing attention to the proper names of the pa and to the materials used.

In working drawings, engineers do not requi any considerable degree of artistic finish, but se bold drawings with clear dimensions and letterin giving concise and complete information so th no further reference to the drawing office is nec sary when once the drawing has been issued to t works. Students should be taught the standa

methods of dimensioning and lettering, and the accepted schemes of arrangement of views. The drawing-office procedure—pencilled original, inked tracing on paper or linen, and blue or other photo-print duplicates for issue to the works—should be explained and discussed. The methods of indicating where machining is necessary, and other conventions as between the drawing office and workshop, including methods of dimensioning for use with the "limit" system of gauging, should also be fully dealt with from time to time as the course proceeds.

For the sake of experience, drawings should occasionally be finished off completely and the sections coloured, flat tints for surfaces not in section and colour shading being also used; while the special methods of shade-lining the edges of objects, and the method of shading by lines of graduated spacing or thickness as required for patent office drawings, together with the conventional methods of cross-hatching to indicate the material of the part or of colouring the sections with the same object, should be introduced at appropriate places in the course. G. E. D.

MACLAURIN, COLIN (1698-1746).—Professor of Mathematics at Aberdeen and, later, at Edinburgh; and one of the few British mathematicians who rank with the Continental mathematicians of his time. He is best known for his great *Treatise on Fluxions*, published in two volumes in 1742, which was the first complete exposition of Newton's method of fluxions, together with numerous applications of it to geometry and mechanics. The name of Maclaurin has been preserved in treatises on the differential calculus in connection with a theorem which is only a special case of Brook Taylor's Theorem; however, this was a comparatively unimportant part of Maclaurin's work. Maclaurin's *Algebra* (1748), founded on Newton, contains some algebraical results discovered by Maclaurin himself, but suggested by some of Newton's. Maclaurin's geometrical work, both in his *Fluxions* and in his *Geometria organica sive descriptio linearum curvarum universalis* (1720), is extraordinarily beautiful. P. E. B. J.

MACROCEPHALY.—(See MENTALLY DEFICIENT CHILDREN.)

MADAGASCAR, EDUCATION IN.—(See FRENCH COLONIES, EDUCATION IN.)

MAGAZINES, SCHOOL.—A magazine is a generally recognized activity of a well-conducted school. It is, in most cases, a chronicle of school doings—society meetings, debates, sports, and examination successes—with some small prose and verse contributions from present and past scholars.

The great public schools all have well established magazines, Radley, perhaps the oldest, dating back to 1864. Many of the newly-established secondary schools are making interesting experiments and breaking fresh ground, and even in elementary schools it is found possible and profitable to have some sort of a school newspaper.

A magazine may be annual, terminal, or monthly. The *Eton College Chronicle* is unique in appearing weekly.

A large school has sufficient happenings for a monthly magazine during term-time, and the paper serves for announcements as well as a record. Criticism often justly levelled against the school monthly is that it is trivial. The terminal magazine is naturally more likely to exclude banalities, as it has a greater and more varied choice of subject. The annual is possible even in a small school.

The simplest of all magazines is the one-copy written magazine, in which, on pages of uniform size, contributors each write their own effusions, the pages being then sewn into a cover and passed round. This unpretentious form of the symposium is capable of very useful treatment, and much interesting matter may be secured for such a production.

The following is a selection from an ably-conducted village school magazine—

Original short story by a senior girl.
Collection of well-designed trade marks.
Household hints.
Portraits of poets with a quotation under each.
Puzzles.
Missing letter competition (*e.g.* G. EN. in a Belgian map).
Maps of small English districts for recognition (*e.g.* Lake Bala).
Illustrated cutting from a magazine (a useful source): "Folding of tongue in birds and animals."
Patterns of crocheting.
Dolls' dresses.
Cookery recipes.

An edition of half-a-dozen or so can be managed with the help of copyists. Incidentally, this can be made a stimulus to good handwriting, the name of the copyist being allowed to appear.

From thirty to fifty copies can be produced by means of a Hectograph, the drawback being the variation in the quality of the different pages. Still, much can be done in this way; and sketches, maps, diagrams, and designs in colours can all have place in a magazine so produced.

The following is a selection from the index of an interesting girls' school magazine produced on a duplicator.

Reports of Reading Circle and Debating Society.
Set of school rules (*fiercely ironic*).
A train journey in Canada.
Examination "howlers."
School coiffures (very much illustrated).
Original story.
Drawings of embroidery.
Helen Keller.
Athletic sports.
New library books.

Restriction to an annual will sometimes permit of printing where a more frequent appearance would mean the use of the duplicator.

The "annual" serves to chronicle the doings of the school year; is readily purchased by the whole school; and the effort of production is spread over a sufficiently long period for care to be exercised in the preparation and selection of articles, drawings, etc., for inclusion.

A printed magazine may have drawings, sketches, plans, graphs, etc., done on sheets the size of the printed page, to be pasted in as insets. These can be prepared beforehand, so preventing need for rush as the date of issue nears.

Articles which have appeared in a school annual are as follows—

Ancient educational bequests.
Local grammatical blunders.
School songs.
Translation of French verse forms.
Local folk plays and ballads.

Relative hardness of local waters.
Local entries in Patent and Close Rolls.
The flora of a weed patch.
Graphs of vital statistics of the district.
Etymology of local place-names.
Class lists.

The cover-design should be made much of and, while preserving sufficient likeness in the succeeding issues to suggest continuity, may be regarded as a first-rate subject for broad and simple decorative treatment. The design may be cut in linoleum or wood and printed from, or a stencil may be cut and worked.

Inset illustrations may be done in black or colours by means of a duplicator: simple designs for embroidery, etc., may be outlined by the duplicator and then hand-tinted by a class in the art lesson.

Etchings may be cut in hard leather. The design is laid on the leather and traced. The traced lines are then cut with the sharp obtuse-edged knife used by leather workers. Printers' ink is then rubbed with a soft pad into the face of the leather; this is wiped lightly with a cloth, the ink remaining in the incised lines. A sheet of soft India paper is laid over the face of the leather, a sheet of blotting-paper and some thick, soft cloth pads put over this, and the whole is run through a mangle. An etching will be the result.

Mezzotints of simple subjects may be similarly produced. The face of the leather is roughed up by scratching, and the high lights of the subject to be reproduced are smoothed down. The same treatment as for the etching is followed in printing.

The most satisfactory illustrations are provided by wood-block printing. The pattern or picture to be printed is left in relief, the ground being cut away to a depth of about one-sixth of an inch. Prints from wood-blocks are taken off on damped Japanese paper—the blocks having been painted with tube water-colours mixed with a little rice-flour paste.

The editing is best left in the hands of three or four seniors, each responsible for a department: (*a*) articles—scientific; (*b*) ditto—literary; (*c*) art; (*d*) advertisements, etc. S. C.

MAGAZINE, THE ELEMENTARY SCHOOL.—A school magazine is an important link between the school and the outside world. No school is too small to possess its own magazine; many of the larger institutions produce really good periodicals. Some favour the publication of a quarterly magazine, but a monthly issue is generally preferable. The subscription is, of course, fixed by the cost of production: in elementary schools, one penny seems to be most usual.

Manuscript Magazines. This type is the only one possible in a small school. As every copy has to be produced by hand by means of the Cyclostyle or some other copying apparatus, the paper is generally of small size. The cover, which may be varied for each issue, should be on coloured paper different from the contents. It may easily be illustrated. There is generally at least one member of the school staff who is skilful in making outline drawings, and his services should be freely enlisted. Inks of different colours add to the attractiveness of a magazine of this kind.

Magazines with Insets. These consist of a children's magazine in a special school wrapper, and resemble in this particular a parish magazine. This type of school magazine is generally the most popular, because besides containing school matter, it contains stories and other matter in the inset.

At the present time, owing to the increased prices of periodicals, there is scarcely one that might be used as an inset to make the magazine a financial success. The only way to cover expenses would be to raise the price of the school magazine to at least threepence. This would affect the circulation.

Owing to the cost of insets and the great increase in printing, at the present time it is difficult to make this type of school magazine pay expenses. Parish magazines are still carried on in this way successfully, but the kind of inset they contain is not one that would appeal to school children.

The Printed Magazine, without Inset. This, of course, is the best form of school magazine, but much work is needed to make it pay for itself. This can be done only by securing advertisements from local tradesmen or from bigger advertisers. The principle to be followed is to make one page of advertisements pay for itself and one page of school matter. If this can be done, the magazine is self-supporting. The advertisements may be made, with the permission of the advertisers, an attractive feature of the magazine.

CANADA is the place for Bacon; **DENMARK** sends us Butter; **RUSSIA** supplies us with Eggs. **THE BEST** of the above may be had from SMITH, HIGH STREET.	**"MUSIC HATH CHARMS to soothe the savage breast,"** sang the poet No doubt he was referring to the **MUSIC** to be obtained at THE MUSICAL SUPPLY ASSOCIATION, THE PARADE.
There is no such place as **HOME, SWEET HOME** without our **FURNITURE.** BLACK & SONS, HIGH STREET.	**NAPOLEON'S SOLDIERS suffered because of Bad Boots.** He should have bought them from BROWN, CHURCH ROAD.

The ingenious Advertisement Manager can easily evolve all kinds of attractive "ads." which will be read.

Contents. Do not make the magazine too "*schooly*." Insert paragraphs which will interest parents as well as children, such as items of local interest, comments on current events, notes on anniversaries, etc. The loan of blocks may sometimes be obtained on application to publishers. Contributions from pupils should frequently be inserted. In schools of the better type, much of the work in connection with the school magazine may be left in the hands of the elder pupils; but in the ordinary elementary school, one of the masters should have control.

As an aid to the use of the School Library, the magazine may be made very valuable. F. G.

MAGNETISM AND ELECTRICITY, HOW TO TEACH.—It is impossible, even after twenty years' experience of teaching, to state in more than the most general terms a method of teaching Magnetism and Electricity which will commend itself to the majority of teachers. The procedure followed will depend so much upon such circumstances as the general standard of the pupils' knowledge, facilities in the way of apparatus and laboratory accommodation, and the personality of the teacher, that

to give a detailed recipe for success is but to court failure. As a preliminary, there is first to be settled the important question: What is the object for which Magnetism and Electricity is to be taught? Indeed, it is on this point that a large amount of controversy has been focused, only to demonstrate a diversity of aim inimical to general success. Limiting our attention to the case of scholars in secondary and other higher-grade schools, what do we find? Generally, it is pleasant to note, the merely bread-and-butter view does not loom too largely, as is only proper at this stage, where the stimulation of the mental faculties, and the cultivation of proper habits of thought and of a love of knowledge—the learning how to learn, in fact—should be the main considerations. But too often one finds the subject taught as if every student were to become a professional physicist or electrician.

Narrow, One-sided, Academic Methods. On the practical side, the efforts of the class are devoted almost entirely to methods of making accurate measurements; while qualitative work calculated to develop habits of accurate observation, description, and deduction receives scant attention. Further, except in a few of the best equipped schools, little practice is afforded in the construction of simple apparatus, and thereby are lost good opportunities for educating and memorizing through manual work, and for the cultivation of manipulative skill. In justice to the teachers, it must be said that most school authorities are loth in the extreme to spend money on a physical workshop, although its advantages as a means of exciting interest in a subject are obvious. Having made a piece of apparatus, even the most inert pupil will be more ready to attempt to understand the principles of its action. Besides, is there a better way of learning the properties of the materials used?—a most important item in the equipment of any experimenter. If experience in accurate measurement is obtained only at the expense of these other sides of the subject, then it is too dearly bought.

Corresponding defects, in the opinion of the writer, are to be found in the theoretical teaching. The treatment is too detailed in character; too much stress is laid on a strictly logical development; the subject is too largely what Sir Napier Shaw, late Director of the Meteorological Office, calls "laboratory science," as contrasted with large scale, natural phenomena, or with more descriptive work less completely dealt with, but better calculated to excite and hold the present and future interest of the members of the class. Why should the more recent and striking discoveries in electricity go unmentioned because the underlying theory cannot be wholly explained at this stage? Frequently because it does not pay in examinations.

A Broader Treatment Suggested. Let us look at it from the point of view of one who would like to see a wider diffusion of scientific knowledge and interest among the educated classes of the community, and let us see whether this also cannot be secured by adopting the standpoint indicated above. How is it that classical studies hold their hitherto pre-eminent position in our curricula? Largely because parents and those in authority in educational circles have themselves been brought up on classical diet, and are, in a great measure, ignorant alike of the methods, scope, or educational value of scientific studies. Until that ignorance is dispelled there is little hope of real reform.

There are, it seems, two ways of ensuring that science shall come to its own in our system of education. One is to show its importance—necessity, in fact—in our industries. Such an argument is best applied to effect an improvement in technical education; in schools it would tend to eclipse the educational value of an experimental science like magnetism and electricity.

A better way of securing for the subject of electricity the prominence it deserves in our time-tables and syllabuses, and, at the same time, of raising its educational value in later life, is to make certain that the boys of the present, who in the future will become politicians, business men, and governors of teaching institutions, shall themselves become interested in the progress of scientific discovery; shall, in future years, be able to read with understanding semi-popular works on recent electrical advances; and shall come to regard the subject as not merely of technical importance to the community, but also as a source of intellectual interest to the non-specialist. Surely no science is better qualified to excite the interest of an educated person than a rapidly-growing one like electricity: a subject, moreover, which is constantly developing new and powerful links with other sciences.

To secure these advantages will entail considerable changes in our examinations and text-books, and will make more demands on the personality of the teacher. On the theoretical side, it will be necessary to allow less time for the mathematical developments to which the subject so easily lends itself, and to give more to general and less detailed description of recent discoveries and applications. This will require the teacher himself to be interested in events that have happened since he graduated, and the requisite opportunity for the necessary reading must be afforded him. He should endeavour to make his lessons a history of electrical discovery; coupling, as far as possible, great advances with the names of the workers responsible for them, and showing how the discovery originated, where this can be simply done, and what were the difficulties surmounted. Attention should also be paid to the applications of electricity to other branches of science, such as biology, chemistry, and meteorology; and to common applications in everyday life. For example, in magnetism, to the magneto of the petrol engine, the separation of ores, and the extraction of pieces of shrapnel from wounds. Or in electrostatics, when speaking of electrical repulsions, explain how it is that such forces hinder the settlement of finely divided mud and how sea-water brings about this settlement in river waters, with the consequent formation of mud-banks and deltas. Under such a scheme, the reproach would be removed that the names of our great British electricians excite no interest outside the circle of their fellow-workers. The consequent changes in the teaching of practical electricity, if such a scheme were in operation, have already been indicated.

Some Defects of Teaching and their Remedies. Lest such ideas should be regarded as too Utopian to be of present use, I hasten to add a few observations on the more orthodox methods. One great defect of present electrical teaching is the fact that many students are allowed to begin the subject without a sufficient knowledge of elementary mechanics. It would be much better to wait until such a knowledge has been acquired rather than, as is frequently done by medical students especially, to continue to use terms to which only the haziest meanings can be attached. Another point upon

which there is not general agreement is how, following magnetism, the subject of current electricity is best introduced. Is it better to interpolate a little matter on electrostatics and potential as a means of introducing the units of E.M.F., energy, etc. ? or is it preferable to begin at once with the peculiar properties shown by zinc and copper plates immersed in dilute acid ? The latter method is, perhaps, more popular and fits in better with such a scheme as has been sketched above. The present writer, however, always finds the ideas of work done and E.M.F. rather elusive when introduced in this way, and for that reason a couple of lessons on electrostatics precede those on current electricity. In practical work, the use of detailed instructions is to be deprecated. Let the work to be done be explained at the blackboard and require the students to work from their own notes. Such a course trains them in the taking of proper notes and prevents them from becoming the unthinking, inert machines, whose chief object seems to be the copying of elaborate notes concerning an experiment which they have not taken the trouble to understand. In conclusion, the present writer may say that his chief difficulty in the laboratory is to get students to take their rough notes in such a form that they can understand them after an interval of a few days. R. S. W.

MAITLAND, AGNES CATHERINE (1850–1906). —Second daughter of David John Maitland, of Chipperkyle, Galloway, by his wife Matilda Leathes Mortlock. In her fifth year the family moved from London to Liverpool, where she received her education, and early interested herself in the education of girls, and in particular in the study and teaching of domestic economy. Miss Maitland's ability and administrative talent had greatly impressed those who knew her work in Liverpool; and in 1889, the Principalship of Somerville Hall, vacant by the resignation of the first principal (Miss Madeleine Shaw-Lefevre), was offered to her and accepted. In her new office, Miss Maitland found herself confronted with urgent problems. There was, first, the need for the material expansion of the college, the lack both of a sufficiency of students' rooms, and of the larger public ones (*i.e.* library, common rooms, and dining-hall); and to meet these needs, no endowment and an income only sufficient to cover expenses. Yet during her principalship the number of the college rose to eighty-five, the largest dwelling block was completed, the older one entirely remodelled and enlarged; porters' lodges were built; and very greatly owing to her own personal exertions, funds were raised sufficient to allow of the erection of a fine library building in 1903–1904.

Her more permanent claim to the grateful recollection of the college, however, lies in her solution of the other and more vital problems that confronted her.

1. Within the Hall the growth of numbers and the trend of modern life were producing a certain restlessness among the students, and creating a demand more or less consciously formulated for greater independence and more organized self-government. Between a principal of narrow autocratic temperament and this new stirring, friction might easily have developed. Here, most fortunately for the college, came in Miss Maitland's personality—her strong liberal principles, her wholehearted trust in her students, and her clear perception of the educative value of self-government. With unwearied patience and forbearance, and, when necessary, with a discreet self-effacement, she guided the movement into lawful channels and helped the student community to organize itself on lines that leave for its members a measure of self-government that plays no unimportant part in their university training.

2. Miss Maitland's handling of the other problems of organization exemplifies these same qualities, and brings out even more clearly her intelligent foresight of the necessary line of development; her constructive ability; and her willingness to curtail her own power by delegation of authority, when that was to the good of the whole.

(*a*) Somerville had begun life as a simple hall of residence; and, to secure for it the status of college, its educational activity needed development. With a clear perception of the importance of this, Miss Maitland pressed for tutorial appointments whenever increase in numbers rendered it at all possible, and showed herself continually solicitous to secure for them the right position in the college.

(*b*) To profit to the full by the loyalty of the old students, some more definite connection was necessary between them and the present college. With the help of the then president of the college (Professor Pelham) a scheme was devised whereby old students, under certain easy conditions, are given a share in the government of the college, with the right to elect the president of the college and half the members of the council. The college thus received a constitution that has since been adopted by several other women's colleges.

Publications. (*a*) Cookery books: *The Rudiments of Cookery: a Manual for Use in Schools and Homes* (35th thousand, 1910); *Afternoon Tea Book* (1887; 3rd edit., 1905); *Cookery Primer for School and Home Use*, 1888; *Cottage Lectures*, 1889; *What Shall We Have for Breakfast* (1889; 2nd edit., 1901) (*b*) Stories for girls: *Elsie, a Lowland Sketch* (1875) *Madge Hilton, or Left to Themselves* (1884; 2nd edit., 1890); *Rhoda: a novel* (1886); *Nellie O'Neil* (1889; 2nd edit., 1910).

[Cf. *Dictionary of National Biography*, Second Supplement, II.] M. K. P.

MAITLAND, FREDERIC WILLIAM (1850–1906) —jurist; the most brilliant exponent of the modern English school of legal history; Reader in English law at Cambridge, 1884; founder of the Selden Society, 1887; Downing Professor of the Laws of England, 1888; Literary Director of the Selden Society, 1895; Ford Lecturer at Oxford, 1897; Hon. D.C.L. Oxford, 1899; Rede Lecturer at Cambridge 1901; Fellow of British Academy, and Hon. Fellow of Trinity College, Cambridge (both in 1902) Bencher of Lincoln's Inn, 1903.

It is no disparagement of the brilliant little group of English and American jurists who, in the last quarter of the nineteenth century, brought about a real revival of the scientific study of English law to say that, of them all, Frederic William Maitland has left the most vivid impression of his personality on the present generation of English lawyers.

In the technical sense of the words, Maitland was a scholar, rather than a teacher. So far as the writer is aware, he never formulated any definite theories of education. He was an admirable lecturer; while his health permitted, he performed the academic duties of his Chair with perfect efficiency. But the real attractions of his personality were his absorbing enthusiasm in his

subject, the insight which could make the dry bones of legal history vibrate with life, the generosity with which he placed at the disposal of others his stores of learning, the sympathy with which he guided amid pitfalls the blundering footsteps of the tyro. Only two of his books are text-books in the technical sense; and they were both published after his death, and without his concurrence. Those who, without the knowledge necessary to follow Maitland's more technical works, desire to realize the charm of his style, cannot do better than read the published version of his Rede Lecture, entitled *English Law and the Renaissance*.

Work as an Author. Maitland commenced as an author in 1884, with *The Pleas of the Crown for the County of Gloucester . . . in the Year of Grace*, 1221. The Gloucester Plea Rolls brought him (after an almost contemporary failure to obtain a similar post at Oxford) the offer of the Readership in English Law at Cambridge. Without a regret, he turned his back on the prospects of professional eminence; took up his abode at Cambridge; soon afterwards contracted a singularly happy marriage; in 1888 was elected to the Downing Professorship of the Laws of England; and then settled down to an uninterrupted course of prolific study, till his too early death in the winter of 1906–1907.

In the year 1884, Professor Vinogradoff, a Russian historian, was shown, in the British Museum, a MS. which his acumen led him to believe was the raw material out of which Bracton, the great English lawyer of the thirteenth century, had fashioned his epoch-making work on the Laws of England. It appeared to be a collection of notes taken from the Plea Rolls of the first twenty-four years of Henry III. It fell to Maitland to edit the MS., with an Introduction which should explain its origin and nature, and render its contents accessible to scholars. This task he achieved with triumphant success in *Bracton's Note Book*; and his Introduction, which is a masterpiece of learning and argument, stamped him as a scholar of world-wide renown.

Eight years later, in 1895, in conjunction with Sir Frederick Pollock (who, however, modestly disclaims more than a small share in the actual execution of the work), Maitland produced a general *History of English Law before the Time of Edward I*, in two large volumes—a work altogether on a higher plane of scholarship and style than any of a similar kind which had preceded it. It is not too much to say that its publication was an event of international importance in the world of legal scholarship, and that it raised this country to a definitely higher rank in the estimation of foreign jurists.

Though he reached, perhaps, the summit of his fame with the *History*, Maitland continued to pour out a series of works, any one of which would have been deemed no inadequate result of the life-work of an ordinary scholar. In 1897 appeared *Domesday Book and Beyond*, an attempt to solve some of the knotty problems raised by the great Survey; in the following year, *Township and Borough*, a study of the origins of English economic life. The latter year saw also the publication of a delightful polemic, distinguished alike for its learning, its wit, and its courtesy, in which Maitland tilts at the peculiarly English theory that the Anglican Church before the Reformation submitted only to such of the Canon Law as it chose to accept (*Roman Canon Law in the Church of England*). In 1900 appeared, under the title of *Political Theories of the Middle Age*, a translation by Maitland of a portion of Otto von Gierke's great study of *Genossenschaftsrecht*, preceded by a brilliant introduction from the translator's pen. And, meanwhile, Maitland had been editing for the Selden Society an invaluable series of Year Books and other monuments of English legal history, and contributing to various magazines a number of articles which have, happily, been rescued from oblivion in *Three Volumes of Collected Papers*.

E. JENKS.

MAKE-BELIEVE IN EDUCATION.—By "make-believe" we understand the power all human beings have, in greater or less degree, to imagine themselves and their surroundings other than they are. How does this power help our individual powers to develop, and to make us of greater use to our fellow-creatures (*i.e.* to *educate* us)?

In the first place, "make-believe" is of value to the child because it leads to abundant physical exercise; and, secondly, it helps him to a realization of his environment, and of self in relation to that environment. When he pretends to be pony, cat, dog, tiger, a wave of the sea, or some inanimate object, he not only takes vigorous exercise as he trots to and fro, but he is realizing for himself more and more of the world in which he lives.

"Make-believe" serves also as an escape from the monotonous round of everyday life, and brings the child back fresh to face it. It is one of his means of re-creation. It helps him to meet cheerfully and bravely the dull and difficult. Robert Louis Stevenson found cold mutton palatable when he imagined himself a hunter eating venison.

Of still greater value is the "make-believe" that sets the child on the path of hero or heroine. He has now begun to look forward. He pictures himself as doing noble deeds; as resembling Perseus, or Joan of Arc, or Christ; and this leads him to frame ideals of his own manhood or womanhood, and in due course to get and to become what he truly expects and admires in life.

Above all, "make-believe" is at the basis of sympathy. The true sympathizer has the power of projecting his personality in imagination into that of the rejoicer or the sufferer. The child, in his imaginative plays, as he acts now one part and now another, is preparing himself unconsciously to sympathize with his fellow-men later on.

Undoubtedly, excessive "make-believe" needs watchful care. William James' advice always holds good, viz., "turn to use the emotional outflow." Let the child who imagines himself the succourer of others do some small act of real helpfulness. Let responsibility go hand in hand with imaginative games or books, and we shall find that "make-believe" will lead to that imaginative power, which, as Ruskin says, "gives inheritance of the past, grasp of the present, and authority over the future."

A. WOODS.

END OF VOLUME II.