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EDUCATION AT THE CROSSROADS

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IN this essay I have inevitably repeated a good many things that I had already said in public, and in some passages I have repeated them in the same words. I hope that any reader who is troubled by these echoes will forgive my lack of originality.

CONTENTS

PAGE

CHAPTER I

UNIVERSITIES AND TECHNICAL COLLEGES 1

CHAPTER II

THE UNIVERSITIES AND THE SCHOOLS: RECENT TENDENCIES 8

CHAPTER III

THE UNIVERSITIES AND THE SCHOOLS: A PLEA FOR A UNIVERSITY POLICY 26

CHAPTER IV

TECHNICAL EDUCATION 53

CHAPTER V

THE IDEA OF A LOCAL COLLEGE 66

CHAPTER VI

UNIVERSITIES AND LOCAL COLLEGES AS PARTNERS . . . 91

EDUCATION AT THE CROSSROADS

CHAPTER I

UNIVERSITIES AND TECHNICAL COLLEGES

IT is a safe rule that an ex-Minister should, in general, refrain from writing books about the department for which he has been responsible. This essay may be held to violate the letter, but not, I hope, the spirit of this rule. It is not concerned with the questions which agitate Parliaments and claim the attention of successive Presidents of the Board of Education. There is, indeed, no need for a treatise on these questions. The work of the Board will go on and its success is not in doubt. We know pretty accurately what the structure of our education will be a few years hence. We shall have our primary schools up to the age of eleven. At that age about one in five of the children will go on to a secondary school offering a course of education which covers the whole seven years between the primary school and the university and taking pupils who are prepared to stay at least until the age of sixteen. The other four-fifths will go on to one of three types of school : the selective central school providing at least a full four years' course ; the non-selective senior

school providing a three or four years' course; the junior technical, trade or commercial school which aims at providing a course of training for particular industries. In all these schools there will be a continuous improvement in material conditions: in the quality of the buildings, the size of the classes and the standard of staffing and equipment. There will, moreover, be an increasingly close connection between these schools and the two great branches of higher education, the universities and the technical colleges. It will gradually become the usual thing for a pupil who leaves school not later than sixteen to pass directly into a part-time course at a technical school or college, or into a "continuation" class preparatory to such a course, as naturally as the pupil who stays beyond that age at a secondary or public school passes on to the university. The school-leaving age may or may not be raised by compulsion, but it will in any case tend steadily to rise. Young persons who have left school may or may not be compelled to attend continuation classes, but attendance at such classes will in any case be required by an increasing number of employers. In a word, we shall fairly rapidly complete the structure of our education and questions of detail as to the precise methods of construction can safely be left to official publications.

But there is one serious question or set of questions with which no official publication can deal. The whole point of the reform now in progress is to give to our educational system the continuity which it has lacked in the past. Every school is to regard itself as preparing

its pupils for a higher stage of education ; every institution of higher education is to regard itself as setting a standard for the schools below it ; every pupil is to regard himself as pursuing a connected course of study which will, if he so desires, carry him from childhood to manhood. It is clear that such a reform throws an overwhelming responsibility on the institutions at the upper end of this connected course ; that is to say, on the universities and the technical colleges. It is they who are to set the standards for the schools, and everything will depend upon the manner in which they discharge this duty. Hitherto they have exerted little or no influence on the education of the great bulk of our population. The technical colleges have, broadly speaking, had no organic connection at all with any grade of school ; they have not drawn their students direct from the elementary or from the secondary school, but have picked them up from the shop, the factory and the street. The universities have had for centuries a close connection with secondary education and have exerted a powerful influence upon it, but, in setting standards for the ordinary secondary schools of to-day, they are dealing only with a comparatively small number of selected students. The elementary schools have been little affected by such standards, because preparation for the secondary school has necessarily played only a small part in their work. It is only where there is real continuity in curriculum and teaching, in the public and preparatory schools, that university influence has permeated the whole process of education, and the real significance of the present

reforms is that they tend to give to the standards set by universities and technical colleges the same weight in the elementary school as university standards have had in the preparatory school.

This change is a far-reaching one. The evils of the haphazard system under which the bulk of our population has been educated up to now are evident enough, but at least it has left the school teacher free to work out the salvation of his pupils according to his own ideas and his own knowledge of their needs. He is now losing some of this freedom. He can well afford to do so if, in return, his teaching is to be given new point and purpose. Nevertheless, he is exchanging the evils of purposelessness for the dangers of standardisation. What sort of standards will our universities and our technical colleges set to our schools during the next twenty years ?

The answer to this question cannot and should not come from the Board of Education. The universities are independent. Not only does the Board of Education have no voice in their affairs ; not only does the University Grants Committee carefully refrain from attaching specific conditions to the exchequer grants which it dispenses to them ; but it is also an accepted rule that even Royal Commissions, appointed from time to time to investigate the constitution and administration of universities, shall not inquire into or report upon questions of university curriculum. These self-denying ordinances are sound, but even if the State were to depart from them it could not in practice exert any determining influence on university standards. It

knows that it cannot exert such an influence even on the technical colleges which it does control. These institutions are financed almost wholly out of public funds ; most of them are actually owned by public bodies ; but the range of their teaching is so wide and the requirements of their students so varied that it is impossible for any outside authority to regulate their work or impose standards upon them. Both universities and technical colleges have their future in their own hands and upon the future they make for themselves will now depend, in a very real sense, the future of every school in the country.

Moreover, the future of the technical colleges themselves will to a great extent depend upon the co-operation which they receive from the universities. During the last hundred years the rapid widening of the field of human knowledge and the creation by the State of a system of national education have together led to the establishment of a number of new institutions of higher education for special purposes, such as technical schools and colleges and training colleges for teachers. It is inevitable that these younger institutions should tend, as they come to maturity, to gravitate into the orbit of the universities, which have formed and embodied the educational ideals of Christendom for so many centuries. The younger institutions have, indeed, functions and problems very different from those of a university ; they must retain their independence and should even resist the temptation to imitate university standards. They and the universities should rather aim at pooling their experience and establishing

arrangements for joint consultation on the problems common to them both. This the training colleges for teachers have recently done and the technical colleges have every reason to follow their example. The universities have centuries of experience in the setting of standards for schools, while, in taking up this task, the technical colleges are entering a field almost wholly new to them, in which they will require, not indeed dictation, but advice and guidance. Are the universities ready to give this advice and guidance?

That is a serious question, the most serious in the whole range of our educational problems; but no President of the Board of Education is likely to express his views upon it with any frankness. A Minister with wide administrative powers is at a peculiar disadvantage in dealing with a question which lies just outside the scope of those powers. He has not enough authority to take a positive line, yet he has too much authority to take a purely tentative one. His suggestions have the air of encroachments; an invitation to talk things over may easily sound like a writ of summons. It may not, therefore, be altogether useless that one who has held this uncomfortable position and, in the course of many unofficial consultations, has met with unvarying kindness from those responsible for university policy, but who is now no longer hampered by the possession of an ambiguous authority, should attempt to set down some tentative and wholly irresponsible opinions on the tendencies of university and technical education.

These opinions will, however, be limited in two ways.

They will be confined to England and Wales and to the education of men. Scottish education is in some respects different and would require separate treatment. The education of women, be it said at once, is as important as the education of men, but in so far as it raises special problems, in so far as women are not competing with men in the paths of education which men have long marked out for themselves, it can only be dealt with by someone specially qualified to discuss those problems. This essay does not pretend to be an exhaustive treatise on national education, but if it omits these two important considerations it will, I hope, contain nothing which conflicts with them.

CHAPTER II

THE UNIVERSITIES AND THE SCHOOLS: RECENT TENDENCIES

AS we have said, the universities have centuries of experience in the setting of standards for schools. But in recent years their method of doing so has undergone a remarkable change. That change can best be seen in the class of school on which, as already noticed, the influence of the universities has been greatest—in the public schools.

Twenty-five years ago most public school boys passed at a fairly leisurely pace through a course of general education until, at about the age of eighteen, they passed the entrance examination for one of the universities. At the university most of them continued the same course of general education for another year. Only after passing the intermediate examination of their university at about the age of nineteen did they choose a specialised course for a degree and only then did many of them have to consider in any serious way the connection between their studies and their future work in life.

To-day these boys have very different tasks and opportunities. At about the age of sixteen they are asked to pass the examination for the "school certificate." By obtaining certain "credits" in this examination

they secure exemption from the university entrance examination. During their last two years at school they are therefore already, in a sense, members of a university. In so far as the university intermediate examination permits or requires specialisation, they can begin to specialise at once. They can either work directly for that examination or for the " higher school certificate " examination which is recognised by some universities as partly equivalent to their own intermediate examination. The tendency is for universities to convert their intermediate examinations into " preliminary " examinations in a degree subject, so that there is a direct incentive to specialisation for a degree at school.

The effect of this change is twofold: it tends to give substance and purpose to the work of the middle forms of the public school, but it also tends to force on boys of sixteen or seventeen, while still at school, a choice of special studies which may to a great extent determine the whole course of their university education. These tendencies may be good or bad, but they are certainly important, and the curious thing about them is that they are not the result of any deliberate policy on the part either of the universities or of the public schools themselves. The two certificate examinations were not invented by the universities but by the Board of Education; they were invented to meet the needs, not of the old public schools, but of the new secondary school system built up under the Education Act of 1902; and they were invented for the purpose, not of encouraging specialisation, but of counteracting it.

The secondary schools are, like the public schools, the inheritors of the old grammar school tradition and they have developed on the same lines and with the same purpose; but their pupils are poorer, most of them stay at school for a shorter time, and all of them, including those who go to a university, have to aim at getting immediate work as soon as they have finished their course of education. Consequently, as the new secondary schools developed, they tended to work to a multiplicity of special examinations, according to the taste and fancy of their head masters and the immediate needs of their pupils. Moreover, the great majority of their pupils could only hope to enter the university if they secured a scholarship, and the scholarship examinations of Oxford and Cambridge colleges therefore acquired an importance in these schools which they never had in the public schools. It must always be remembered that, while the universities have exerted a far greater influence on the public schools than on the secondary schools, any particular standard set by a university tends to operate far more violently on the secondary schools than on the public schools. The public schools are accustomed to the universities; they know them intimately; they take them with the necessary grain of salt. They have long ago taken the measure of the college scholarship examinations. It is generally true that the more candidates a school sends up for such examinations, the less does it "cram" those candidates. The new secondary schools had to establish their ability to win these scholarships, and they have done so; but in the process

they allowed and encouraged their older pupils to indulge in an excessive amount of specialisation. This specialisation was, perhaps, all the more dangerous because the character of the college scholarships was gradually beginning to change with the growth of the science departments of the universities. Specialisation for the old type of college scholarship was, with a few exceptions, such as mathematical scholarships, only, after all, specialisation in one of the "humanities," and involved no very great departure from a general course of education based on the "humanities." The newer science scholarships involved a different kind and a different degree of specialisation.

It was to counteract these tendencies that the Board of Education devised two general school examinations, the first as a test of general education at about the age of sixteen, and the second to ensure that any specialised course of education after that age should at least include a certain range and diversity of studies. These examinations were confided to the care of examining boards representing the universities, because it was obviously desirable that the standards set for the schools should be standards approved by the universities. It was no part of the plan that the universities should use these examinations for their own purposes, but this is what they have done, without, perhaps, considering very closely the effect of their action.

In order to judge what the effect has been, it is necessary to consider what the "standard-setting" function of a university should be. Standards which profoundly influence the whole system of national

education can be set by purely examining bodies like the Civil Service Commission or the Institute of Chartered Accountants; but this is clearly not the function of a university. Again, standards may be set by specialised teaching institutions which aim at giving a " finishing " education in particular subjects and which admit only men who have already reached a certain standard in those subjects. It would be easy to convert a university into a mere congeries of institutions of this kind, each of which would set its own standard in history, languages, chemistry, medicine, engineering, and so forth. We all know that such a development would be disastrous. Universities may, and do in fact, include institutions of this kind ; but a university has a much broader function, to which the special functions of its member institutions, its medical schools or its colleges of technology, must be subordinated. Its function is nothing less than to turn boys into men.

If it is to discharge this function it must be careful of two things. On the one hand it must not waste its energies on childish things, and it must therefore require that its students shall have completed the stage of education proper to boyhood before leaving school. But, on the other hand, it must also keep in its own hands the whole stage of education proper to manhood and, to that end, it must require that the important decisions incidental to the transition between the two stages shall, so far as possible, be taken under the advice and guidance of its own teachers. The first of these two things can be secured, and generally used to be secured, by an entrance examination passed shortly before

admission to the university and designed as a test of general education. The second can be secured, and generally used to be secured, by a university intermediate examination passed two or three terms after admission to the university and designed as a further test of general education, continued under the guidance of university tutors. The question which now confronts us is whether these things can be secured by an entrance examination passed two years before admission to the university and by intermediate examinations which are intended to serve as preliminary examinations in a special degree subject.

There is much to be said on both sides of this question. There is certainly much to be said for the greater variety of subjects taught to-day in the higher forms of the secondary and public schools and the greater range of choice open to their pupils between sixteen and eighteen. A certain degree of specialisation at that age is certainly to be preferred to the kind of lingering, or even loitering, along a familiar round of subjects in which too many boys used to spend the last year or two of their public school life. Moreover, such lingering, even if it were educationally justifiable for any boy, would be impossible for the boys of this generation. Secondary education is no longer what it used to be to many public school boys, the ordinary routine of a gentleman's education in which a certain number of years must be spent. Even to the boy at the public school, and still more of course to the boy at other secondary schools, school and university education to-day is, for economic reasons, at best a

purposeful adventure and at worst a necessary process to be completed as soon as possible. Any boy to-day who is worth his salt will refuse to mark time and, especially if he is the son of wage-earning parents, will prefer to leave school rather than eat what he feels is the bread of idleness. Even if his impatience is mistaken, the sense of responsibility which makes him impatient is precisely the quality which education should foster. For that reason mere maintenance allowances will not meet his need. He must feel that he is making progress, and most boys of sixteen or seventeen will only feel this if they are encouraged to get their teeth into some congenial subject.

So far, so good. What is not good is that a boy of this age should be encouraged to regard his chosen subject as a degree subject. He ought not to be made to feel that by starting to specialise in it at school he can more easily and quickly get a degree in it at the university and that for the next four or five years he will not be called on to learn much else. The idea that higher education means "learning more and more about less and less" is a dangerous discovery to make at the age of sixteen. It may be even more dangerous than marking time. And its practical results are already apparent.

To begin with, it is obvious that the range of choice open to a schoolboy must be more restricted than that open to an undergraduate. A school, however much it may extend its accommodation and diversify its curriculum, cannot expand itself into a miniature university. There has been much talk recently about

the shortage of biologists and a committee representing the universities and the schools has been appointed at the instance of the Colonial Office, the Ministry of Agriculture and the Board of Education to inquire into the reasons for this shortage. But one reason is obvious. A boy who begins to specialise in a science subject at school has every motive for choosing chemistry or physics in preference to biology. It is not only that biological teaching in the schools is weak. That might, and doubtless will, be remedied. It is rather that biology is an advanced subject as compared with other science subjects. A good biological training must be based on a solid foundation of chemistry, but, if early specialisation pays, a boy will naturally stick to chemistry as his degree subject, having once started it, rather than take up a new subject like biology.

In fact, most boys will not only wish to avoid taking up a new subject when they come up to the university ; they will also wish to avoid taking up a new subject after passing the examination for the school certificate and they will therefore tend to specialise in one of the subjects which they have taken for that examination. At least at the new universities, it may almost be said that a student can get an Honours degree by reaching a not very exacting standard in one or two of the subjects which he began to learn on entering the secondary school. In a sense this is not a new phenomenon. In the old days of classical education it was natural for the public school boy to continue as degree subjects the Greek and Latin which he had learnt from his earliest years. This tendency was, however, counter-

acted by the fact that "Greats" at Oxford was not the easiest but almost the most difficult of degree courses. To-day, on the contrary, the subjects which compose the first stage of a secondary schoolboy's education are also the subjects in which, on the whole, an Honours degree can most easily be obtained.

This, then, is the first result of the practice into which we have drifted, that a boy who sets out degree-hunting too early runs the risk of pursuing the wrong animal. But at least, it may be said, this early choice, even of an unworthy quarry, gives a boy the chance of equipping himself betimes with the weapons of the chase. Now, it is quite true that this lack of equipment was a serious objection to the old system. An Oxford undergraduate for instance, who decided, after passing "Mods," to read for a degree in Modern History was apt to wake up too late to his ignorance of modern languages, to find that he could understand Tacitus but not Taine. It is disconcerting, when you set out deer stalking, to find that your only equipment for the purpose is a thorough-bred hunter from the shires. If the present system tended to correct this evil it would certainly have great advantages. But unfortunately it does not work in that way. If a boy's mind is set on a degree, it is set on an examination, and he will think only, or chiefly, of the things which will contribute directly to success in that examination. No one can honestly tell him that a student who derives his knowledge of the Second French Empire from de la Gorce has an appreciably better chance of getting first class honours than one who derives it from the *Cambridge Modern History*. In

fact, it is to be feared that the present system works rather the other way, that it tends to send up to the university students with the textbook mind who find it almost as difficult to read an English historical masterpiece as a French one.

This brings us to the most serious defect in modern university education, a defect which cannot, indeed, be wholly attributed to the system we are discussing, but which that system does nothing to correct and may even be said to intensify. University teachers to-day are constantly complaining that their students do not know how to read for themselves. Our schools are, of course, sending up to the universities as many good scholars, in the best sense of the word, as ever, and this criticism does not apply to them. But the soundness of any system of education must be judged by the quality of its average product, by what it is able to do for the average man. The process of selection for the university at the secondary school is infinitely more stringent than it was at the old public school; it is more stringent to-day at the public school than it used to be. The average standard of ability among undergraduates ought therefore to be rising, both in the old universities and in the new. In fact, however, is it not true that the ex-elementary school boy who comes to the university from the secondary school with a scholarship is often less well equipped to profit from his university education than was the ordinary unselected public school boy twenty-five years ago who scraped into the university with a barely sufficient knowledge of Greek and Latin and had no higher ambition than a

"pass" degree? And is it not true that the point at which the ex-elementary school boy's equipment fails is his handling of books?

In its origin this difficulty is an economic one. Such a boy has often never known what it was to own any book except a school prize. With this exception the world of books has meant to him only the school textbook, the few shabby bookshelves of an embryo school library, and the lending library book returned as soon as read and never seen again. His home contains, perhaps, not a single book, not even a Bible. The public school boy from his earliest years has at least always lived with books; he usually has a taste for reading, though it may be a very bad one; to him reading has become a habit, though sometimes a very bad habit. Our schools and universities to-day have to deal with students who have no such taste, who have never had the chance of acquiring this habit. Moreover, they have, even to-day, little chance of acquiring that other habit, indispensable to the university student, of finding their way about a library. Many of them live, indeed, within easy reach of a public library, but few such libraries, if any, have a juvenile or students' section in which a boy may gradually learn the gentle art of browsing.

Few people realise how wide a range of ideas is closed to the student who has thus missed familiarity with books. It is not only that he finds it difficult to struggle through a long narrative or a closely reasoned exposition. It is not only that he has not learnt to skim or skip or to sit down with two or three books to compare and

collate. Far worse, the idea of a bad book is strange to him. He has no doubt gathered from political controversy the knowledge that men may deliberately make the worse appear the better reason in print, but he is apt to be startled into helplessness when he learns that hundreds of books to be found in the best libraries, written by honest men, and learned men to boot, are vitiated by prejudice, bad judgment, bad selection and presentation of facts, or by downright mistakes and misstatements. Not realising the need for constant discrimination, the instinct of discrimination which every scholar must acquire has hardly been born in him. Worse still, he does not know that even good books must be read as a whole, that in nine cases out of ten any single passage in them will contain no more than a half-truth which must be balanced or completed by other passages. Daily journalism has accustomed him to live on snippets and to think in headlines, and this habit may well have been confirmed in him by the "selected extracts" of school textbooks. "Distilled books are, like common distilled waters, flashy things," but we all know how commonly to-day, in the very things which every educated man should think out for himself, thought is blotted out by some proverbial fallacy, prefixed by the words: "We now know," or "Science teaches us," or "No one any longer believes."

But worst of all, perhaps, the student of whom we are thinking has no conception of the connection between general reading and special studies. He has not discovered that nothing human is alien to any branch of

the humanities, that ideas are not always to be met with on the beaten paths along which he goes gathering facts, whereas random wandering among books may bring him back to his special study with new understanding of its meaning. Imagine, for instance, a man studying modern history with no other appreciation of the idea of " Church and State " than he can gather from standard histories, together with a few extracts from the polemics of the sixteenth and seventeenth centuries. Or imagine a student of pure science who must depend upon laboratories and lecture-rooms to make him acquainted with the idea indicated by Bacon's antithesis that " the knowledge of ourselves . . . , *as it is the end and term of natural philosophy in the intention of man*, so notwithstanding it is but a portion of natural philosophy in the continent of nature." These are ideas without which any study of history, any investigation of nature, must be meaningless, but which cannot be appreciated through that study or that investigation alone. And they are only two of the " values," to use the modern jargon, of which a man must be intelligently conscious before he approaches any serious study of human action or natural laws, however profoundly that study may subsequently lead him to modify his valuations. Knowledge of these values does not, of course, come only from books ; perhaps, indeed, no later reading can fully compensate for the lack of that early initiation into such ideas which many children, in poor homes as well as in rich, have derived from the conversation of their parents. It is one of our chief handicaps to-day that, in the transition

from a traditional culture to organised education, home conversation of this kind has become less common and has been too often replaced by echoes of club or street corner politics. But, however this may be, in the modern world at any rate a man who has not learnt to move easily among books will never learn to move easily among ideas.

In a word, too many undergraduates to-day do not come to the university to read for a degree, but to be lectured into one. If this crippling defect in the student's equipment is not the fault of our schools and universities, it is a defect which it is their first duty to remedy. They ought to concentrate all their energy, all their experience, all their thought upon this point first of all. Instead of this, they are drifting into a system which tends to put a premium on the defect and to elevate it into a virtue. The poor student is, after all, not a new phenomenon, and it seems probable that the poor student twenty-five years ago had a greater familiarity with books than his successor to-day. Having less guidance, he had to wander. He often collected a curious little library of his own from old bookshops, an institution of which the present generation of secondary schoolboys and university students seems scarcely to have heard. By laying ourselves out to give his successor a better chance we have constructed metalled highroads for him from which only the exceptionally adventurous will wish to stray.

All this has often been said before. It is not the purpose of this essay to reiterate familiar complaints, but to suggest practical remedies. There is, however,

one further complaint which must be made, and that the most serious. The universities are profoundly dissatisfied with the present tendencies, and, moreover, they know pretty clearly what is wrong. They have, for instance, roundly condemned the old system of training teachers, under which intending teachers were earmarked as such at an early age at school and were launched from that moment on a special course of education. They have been anxious to co-operate in the recent steps that have been taken to reform this system. But, having directed their attention to this problem, they have realised the alarming fact that what they condemn in the intending teacher is, in another form, coming to be the rule for all secondary school pupils who are being prepared for the university. Every such pupil is now tempted to earmark himself, while still at school, for a particular course of education. Moreover—and at this point the situation becomes positively ludicrous—it is being found that unless an intending teacher is earmarked as such at sixteen he runs the risk of earmarking himself for a specialised degree course which will render him positively unfit to teach anything except his speciality. The problem is, or soon may be, no longer how to ensure that the intending school teacher shall be caught up into the main stream of university life and education, but how to dig for him at the university a special channel, broader if somewhat shallower than the all too narrow canals which lead to an honours degree. It is becoming evident that if the secondary schools and the more advanced central schools are to be staffed in the

future from the universities by earmarked physicists, chemists, and historians, while other senior schools continue to be staffed from the training colleges by earmarked teachers, it is the latter type of school rather than the former that may come to represent the traditions of a liberal education. Absurd as such a result would be, it may actually happen. The fact is that, not only in the education of intending teachers, but in education generally, the universities have been tending to forget the ordinary student who will have to earn his living and do his work in the world, not in a highly specialised profession or in a highly specialised line of research, but in some commercial or industrial undertaking where he will have to rely upon his general intelligence and on his ability to deal with his fellow-men. Even a specialised profession such as medicine is beginning to find that modern education tempts the student of no more than average brain to turn himself into a second-rate specialist instead of developing the qualities of judgment and human understanding which might make him a first-rate general practitioner.

All this the universities are keenly aware of, but, knowing it, they have no means of working out a university policy. Collectively they have no adequate common organs for deliberation and joint action ; individually their constitutions and the conflicting views of their faculties render any substantial change of policy a difficult and thankless task. And the very tendencies which they desire to correct are making their task daily more difficult. The university teacher, at any rate in the newer universities, has too many lectures to deliver

and too many students to tutor. The strain of dealing with students who demand that every inch of their subjects shall be covered by lectures and who have little idea of reading for themselves leaves him little time for considerations of university policy. He is doing a great work; he can legitimately feel that, whatever the defects of the system under which he labours, he is exerting a profoundly liberalising influence on the life of his university city and neighbouring communities. He may well be tempted to content himself with this. Moreover, commanding as the position of the universities has always been in our national education, the conscious planning of educational policy has, perhaps for that very reason, never been a part of their tradition. They have been a little like Francis Thompson's moon—

> "Which though it nothing does but shine,
> Moves all the labouring surges of the world."

But the time for mere inactive attraction of this kind is past. Conscious planning by the State has thrust out into those surges the breakwater of a new school system. Without any conscious planning of their own the universities can continue, by their mere existence, to sway the tides of school education, but in that case the tides are likely to have a curious effect on the national coast-line.

The real call to action at this moment lies in the fact that the situation is still easily remediable. Our secondary schools, as an American inquiry has recently reminded us, may still claim to be the best in the world,

better in many ways to-day than ever before. Our universities can still claim to set an example to those of other nations in the standard and methods of their undergraduate teaching. Their prestige in this country never stood higher, they have never had a finer body of schoolmasters with whom to co-operate, or so wide a field from which to select their students. No fundamental reconstruction is required; we have only to ensure the retention of the great advantages we already possess by a few remedial measures which are well within our power and for which opinion is already ripe.

CHAPTER III

THE UNIVERSITIES AND THE SCHOOLS: A PLEA FOR A UNIVERSITY POLICY

WHEN we pass from complaints to remedies the first point to realise is that the standards set by universities must be something more than examination standards. Reconsideration of our examination system, however necessary, is not enough. The most important standard set by the university to a secondary school is the university-trained schoolmaster himself. The old type of public schoolmaster, whatever his defects, was steeped in the tradition of the old universities; he knew his way about them; he was, or could easily be, in close natural touch with college authorities. If anything, the danger was that the relationship was too close, too much of a small mutual admiration society. The position of the secondary schoolmaster to-day is very different. He may come from any one of a dozen universities; he must be ready to prepare his pupils for at least four; his local university, Oxford, Cambridge and London. The head master of a Lancashire school with a London B.Sc. degree who is preparing a classical or history student for Trinity or Christ Church must make a distinct effort if he is to get into touch with the tutors of those colleges. He is naturally tempted to make no

further inquiries than are necessary to get his pupil accepted by the college and to push him through the scholarship examination. As a matter of fact, schoolmasters do not succumb to this temptation. Many of them have a knowledge of the universities of the country which is both extensive and peculiar; nearly all of them aspire to such knowledge. They find university teachers kind and responsive when approached; but do university teachers make a sufficient effort to meet the schoolmaster at least half-way?

It is difficult to answer this question. There is so much active goodwill on both sides that it seems ungracious to criticise; but it may be suggested that this goodwill is a little restricted in its operation. In the old universities it takes the form of a pleasant sort of family relationship between the college tutor and the head master of a particular school who was once his pupil. Such relationships are of the utmost value, but are they not a little out of proportion with the peculiar function of Oxford and Cambridge—the function of selecting the very best students from hundreds of secondary schools? In the newer universities this family relationship, if it exists at all, tends to be a relationship, not so much with the university itself as with the university department of education. The system of a four years' course for intending teachers, subsidised by special State grants to the university department of education, tends to make that department the representative of the university, not only in dealing with undergraduates who aspire to be teachers, but in maintaining personal relations with graduates who have

become teachers. In most secondary schools the great majority of pupils whom the head master is sending on to the local university will probably be intending teachers and it is on the professor of education that he will tend to rely for advice.

The fact is that, when we are dealing with so big an educational system, personal goodwill and the chances of personal relationships are not sufficient to establish real cultural touch between school and university. This is a matter in which it is impossible to lay down rules ; it would obviously be useless to attempt to devise an elaborate system of intercommunication. But two things seem to be desirable : that there should be a more deliberate policy of intercommunication between the associations of schoolmasters and the associations of university teachers, and that there should be a wider development of "refresher" courses at the universities for secondary schoolmasters. Beyond this one can do little more than insist on the fact that no system of university examinations can be satisfactory unless it is interpreted through the medium of a real university atmosphere in the schools.

On one point, however, a definite recommendation can be made. The university department of education should be put into its true place as a postgraduate department. The intending teacher, during the years when he is studying for a degree, should not only be offered, as he is offered to-day, full partnership in the life of his university, but he should, so to speak, be forcibly prevented from taking refuge with other intending teachers in a watertight compartment supervised

by the professor of education. Proposals are now before the universities for a change in the system of State grants which would facilitate this reform, and its importance cannot be exaggerated. Socially, the university union is, no doubt, already tending to draw the intending teacher into the main stream of university life, but academically he still pursues too much a path of his own, the more so as the "Arts" degree for which he often studies is one which, in some universities, is taken by hardly anyone except an intending teacher. For that reason the severance of his undergraduate course from his postgraduate training will not, of itself, solve the problem; but it is the first essential step towards a solution.

In a perfect world universities might perhaps set their standards exclusively through the teaching of the schoolmasters they have trained. But this is not a perfect world, and we must therefore face the necessary evil of university examinations. There is the more need to do this because these necessary examinations are bound to have a more potent effect on the non-residential secondary schools of to-day than on the old residential public schools. Oxford and Cambridge do not perhaps sufficiently realise this. In a residential school the inevitable crudities of any examination system can be softened by a university atmosphere conveyed through the masters; but, difficult though it may be exactly to define the difference, such an atmosphere can rarely have the same influence in a non-residential school. The closest touch between teachers in universities and schools cannot therefore absolve

us from the task of getting the university examination system as nearly right as possible. We have pointed out what we regard as some of the defects of the existing system. The remedies are simple, though to some people they may appear drastic.

First and foremost, the universities should cease to accept the school certificate as dispensing the student from a university entrance examination. They should, as a general rule, require all students to pass an entrance test shortly before they come into residence. There are several alternative ways of arranging this. The universities can ignore the school certificate examination altogether and make their own entrance examination the same for all. Or they can treat the school certificate examination and their own entrance examination as successive stages of one entrance test. It would, indeed, be too much to require that all students should pass both examinations ; but a pass, with or without credits, in the school certificate examination might be accepted as exempting students from certain parts of the university entrance examination. Or, again, the universities might recognise the higher certificate, instead of the school certificate, as the equivalent of their own entrance examination, on the understanding that the higher certificate examination would be adapted to this purpose. But whatever expedient is adopted, the essential thing is that the universities should satisfy themselves that, however much a student may have specialised in his last two years at school, he comes into residence at the university as an educated man, or rather, perhaps, as an educated boy, and not merely as

a specialist. For this reason, no earlier success in the school certificate should exempt him from a later examination in certain subjects designed as a test of general education.

Secondly, the universities should cease to recognise the higher certificate as equivalent to any part of their intermediate examinations and those examinations should be so framed as to require an undergraduate to continue, in some degree, a course of general education during his first year of residence, in addition to his special studies in his degree subject.

Thirdly, the undergraduate who contemplates a career requiring general intelligence, mental alertness, judgment and administrative ability, rather than special knowledge, should be offered degree courses suited to his needs. Such courses should lead to an honours degree for those who have the necessary ability, but an honours degree should not be regarded as the only worthy aim of any "man of parts." Valuable as are experiments in new honours courses, such as the Oxford "Modern Greats," the universities should consider the more fundamental question whether they are not in danger of falling too much under the tyranny of what can only be called the "honours craze." The assumption that every undergraduate of ordinary ability should take an honours degree not only tends to strain and therefore twist the capacities of many students, but it also tends to lower the honours standard, especially in those courses which are regarded as the easiest paths to a degree. Moreover, the students who are harmed by the craze are by no means always those who are destined to be

no more than the educated hewers of wood and drawers of water in the world's work. They may include many men of great practical ability. Some universities are already considering the provision of pass degree courses suitable for intending teachers in connection with the reorganisation of teachers' training. They should consider whether what they realise is good for teachers may not be equally good for many other students and whether the future of university education does not in some degree lie in the direction of giving a new dignity and purpose to pass degrees.

Of course, there will be the old objection that the world outside will always, other things being equal, give preference to the honours graduate as a candidate for employment. The answer is that the prestige of the universities is sufficient to ensure that anything which they recognise as showing that a man has profited by his education and has done good work will be so recognised by the world outside, provided that they take the trouble to make their judgment known. Already the business world pays much more attention to the recommendations of the Cambridge Appointments Board than to degree results and it would be well if public authorities imitated the business world in this respect. One practice ought certainly to cease: that of making a school teacher's salary and prospects partly depend on the possession of an honours degree. Of all conceivable methods of regulating teachers' salaries, this is assuredly the worst.

There remains one question of great difficulty on which it would be rash to express any definite opinion.

Granted that the great majority of honours degree courses must involve a high degree of specialisation, do not existing courses carry specialisation too far? This question arises particularly in regard to science courses, and the answer largely depends upon a consideration of one peculiar characteristic of English university education. That characteristic is our comparative neglect of post-graduate education. Our whole bent of mind has been to turn out, in the shortest possible time compatible with real education, a graduate who can take up his work in the world. It is that bent of mind which has made us pre-eminent in the world as the educators of the undergraduate. But if, as seems certain, the development of natural science requires an ever-increasing degree of specialisation—and if, as seems possible, there is a growing, if somewhat exaggerated, need for specialisation in certain other subjects, such as economics—then these demands can only be met by a lengthening of university education both in the undergraduate and the postgraduate stages. The long and gradual tendency to reduce the old full four-years university course for honours students to three years will have to be reversed, and the undergraduate stage will have to be followed, as the normal thing for many students, by a postgraduate stage of intensive specialisation.

There are, of course, two obvious retorts to these recommendations. The first is this: "On your own showing, one of the root difficulties of modern education is the poverty of the student. He must needs get his degree as soon as possible; he must aim at finding

work immediately after he has taken it. Yet all your recommendations tend to prolong the agony of his education. In this last two years at school he is to remember that he is only a schoolboy. In his first year at the university he is to be kept back from concentrating too exclusively on his degree. You suggest indeed that, in certain circumstances, he should be encouraged to take a pass degree, for which three years at the university will presumably be sufficient; but if he aims at a good honours degree he is to be ready to spend four years in getting it, and even then he may have to spend another year in post-graduate study. Do you really contemplate that the son of working-class parents is going to stay at the university until he is twenty-two or twenty-three?"

Now, the first reply to this is that, if the undergraduate stage of university education has to be lengthened, it will not be because the student has to devote more of his time at school and college to perfecting his general education, but because his efficiency as a specialist in a particular department of a given branch of knowledge depends on his acquaintance with that branch of knowledge as a whole. There are, in fact, two kinds of specialisation, and it is necessary to distinguish between them. It is one thing to say that a boy should not specialise too deeply in biology until his mind and memory have been exercised on things in general. If there is any force in that statement, it means that a man who has been thus exercised will learn biology more easily and quickly, as well as more thoroughly, than the early specialist. It must therefore

by no means be assumed that the proper requirements of a general education will necessitate a lengthening of university courses. But it is another thing to say that a man will not be a good specialist in tropical plant biology unless he has also a good knowledge of the whole field of biology. This means that the increasing departmentalisation of scientific studies has not really narrowed the field of a good scientific training, but has rather widened it, and it is this fact that raises the problem of the length of university education.

If a lengthening of university courses is thus required, not in order to attain some vague and doubtful ideal of a general education, but in order to turn out really efficient specialists, we must emphatically face that need and our system of scholarships must be expanded accordingly. Here we touch on a point which, unlike those with which we have been dealing hitherto, immediately affects the Board of Education and other government departments, but it is so often neglected that a word must be said about it. At present, apart from special arrangements made by such departments as the Colonial Office and India Office in connection with recruitment for the public services, we are spending out of the rates and taxes about £650,000 a year on assisting students at the universities. But nearly the whole of this large sum of money is being devoted either to the training of students ear-marked in advance for the teaching profession, which absorbs about 45 per cent. of it, or to undergraduates who are taking a degree after not more than three years' residence. Though scholarships provided out of public funds can

be extended to four years, such extension is comparatively rare. With the exception of a few thousand pounds, spent mainly by the Department of Scientific and Industrial Research on research scholarships, we make no provision for post-graduate students other than intending teachers. This scholarship system, though it cannot be regarded as the cause, is the all too faithful reflection of a dangerously truncated scheme of education. The poor scholar, having triumphantly secured a good honours degree in the shortest possible time, finds himself stranded at the age of twenty-one. He cannot afford to wait for a good job or to study for a year on the chance of passing a competitive examination for some branch of the civil service. He must turn his degree into money at once. Usually the surest and easiest way of doing that is to enter the teaching profession. If that is too distasteful, he must take the first job that offers itself. The result is a tragedy. The community has given him every opportunity of education except the opportunity to use his education effectively in its service. He is disillusioned, and the community loses the return which might have more than compensated it for its expenditure upon him.

If we are to spend more money on education, this is the first direction in which we ought to spend it. We should aim at so revising our scholarship system that any student whose education requires it and whose abilities justify it should, without difficulty and as a normal thing, be able to prolong his undergraduate course to four years, and should then have ample opportunities to spend a further year, either in research

or in study required for a competitive examination. Such a reformed scholarship system could, of course, only be administered on a basis of personal knowledge of the student. For that reason it should be administered mainly by the universities themselves. What we need is not more State or local authority scholarships, governed by general and more or less fixed regulations, but more university scholarships, provided out of public funds but awarded by the universities themselves according to the needs and abilities of the individual student, as those needs and abilities develop in the course of his university education.

The administration by the universities of funds sufficient to meet the personal needs of their students is also the only cure for an evil which we shall encounter in an acute form when we come to consider the technical colleges, but from which universities suffer in some degree. A poor student is often only able to stay at a university by virtue of a maintenance allowance or an additional scholarship paid to him, directly or through the university, by the local authority in whose area he resides. If, during his university course, he moves into another area he may lose this allowance or scholarship. A provincial university, especially, may have financial arrangements with some local authorities but not with others, and poor students who happen to reside in the area of a " non-contracting " authority may find themselves barred from access to a university education. This is a gross defect in our scholarship arrangements which demands immediate remedy.

Before passing from this subject of the proper length

of a school and university course under modern conditions it may perhaps be permissible to express an heretical doubt whether eighteen should necessarily be regarded as the normal age for the passage from school to university for all students. If it is desirable that a man should take up his active work in life at twenty-one rather than at twenty-two or at twenty rather than at twenty-one it is probably better to shorten his school life rather than his university life. There is a good deal to be said for allowing a boy to go up to the university at seventeen, especially a boy who has not led the comparatively sheltered life of the "upper class" home and the public school and has been at the secondary school ever since the age of eleven. Even the public school boy seems, since the War, to be showing a marked tendency to grow weary of school life and work before he reaches the age of eighteen. To put it in another way, it may well be that eighteen is the proper age for the final transition from general education to specialisation, and if we are right in thinking that this transition should take place at the university and should be marked by the passage of the university intermediate examination, then it is worth consideration whether the last year of school life should not, for a good many boys, be transferred to the university. But this is not a point on which general rules can be laid down for all boys, or for all schools, or even for all universities.

The second retort which the critic may make is the old unanswerable one : "What do you mean by a general education ? What is this mysterious course of study which you are so anxious should be, in some

measure, tested by the university entrance and intermediate examinations ?" Of course, strictly speaking, whatever a general education may be, it is something that cannot be tested by examination. It used to mean, among other things, such a general acquaintance with the whole field of human knowledge that a man could find his way intelligently about any part of that field with the aid of a good library. Nowadays, that is too much to ask ; for instance, even a casual tourist excursion into the domain of modern physics requires a mathematical equipment too elaborate for general use. It does, however, still mean that kind of idea of the geography of human knowledge which prevents a man from looking for knowledge in the wrong place or mistaking a closed valley for a pass across the mountains, and which enables him to relate his knowledge to life. He must not, for instance, confuse anthropology with sociology or assume that the physiological origin of the human race is the key to its history. But all this is far beyond the range of examiners. Even further beyond their range are the two qualities which must be regarded as the chief aims of a general education, suppleness of mind and understanding of men. After all, a general education means any education which will train a man's mind to master facts and think originally about them and will enable him to enter into the thoughts and feelings of his fellow-men. But what examination, or indeed what curriculum, can hope even approximately to ensure originality of thought or human sympathy ?

At any rate, the writer has no contribution to make

to the solution of this hoary problem. He prefers to take lower ground and to approach the ideal of a general education through severely practical considerations. If a man is to be of any use in life he must know how to tackle a new job, to see and develop its possibilities and to work with other men. But he will hardly learn how to do all this at school or college. At best, his mind will acquire a bent that way, and he will come out of college, not running contentedly in a groove, but eager for new work and new experience. It is only in contact with such new work and experience that his capacities will develop. All he can really hope to bring from school and college to his work is the mental equipment which will enable him to get to grips with it. We know that the best equipment of all is a prehensile mind ; but if we are in doubt how to produce that valuable organ let us consider what specific mental tools he will probably find most useful.

The most obvious tool will, of course, be such technical knowledge of his job as he may have acquired in his degree course. But the amount of knowledge so acquired will not carry him very far and there are many jobs for which no degree will give him any technical preparation. The man who has taken his degree in law or chemistry or engineering has only laid the foundation of his technical knowledge and the soundness even of that foundation will largely depend on the nature of the mental tools which he used when he began to lay it ; while the man who, on leaving the university, finds himself engaged in selling cotton piece goods or running a line of tramp steamers must start, technically

speaking, almost from scratch. What, then, are the branches of knowledge which a man will most generally find useful in acquiring or developing technical knowledge ?

He will need an elementary knowledge of a wide range of subjects, such as mathematics, economics and finance, physics and chemistry, history and geography. But it will generally be no more than elementary knowledge, capable of being expanded at need. An undergraduate beginning to read for a law or science degree at nineteen will not suffer very much from having allowed his history or his mathematics to rust for three years since he passed the school certificate examination. A man entering an export business at twenty-one will not suffer much from having at first only a boy's knowledge of the geography of South America or China. But there is one generally useful branch of knowledge in which he will find that an elementary foundation is not enough, and that is a knowledge of language—knowledge of his own language, of at least one foreign language and of how to set about learning other foreign languages. Here a boy's knowledge will not only be insufficient ; it will be nearly useless. A man who has dropped the study of a language while he was still a boy, with a boy's thoughts and a boy's power of self-expression, will usually find, when he returns to it, that he has outgrown his old knowledge of it, that he can no more use it as a means of communication with grown men than he can wear his old school blazer. This does not, of course, apply to the man who has been practically bilingual during his boyhood up to the age of sixteen,

but it will be found to apply generally to all school teaching of foreign languages.

That teaching in English schools has been much criticised, but its poor results are largely due to its interruption at an early age. This is, in fact, one of the most curious anomalies in English education. Languages were the traditional medium of education throughout Western Europe for centuries. We have, to some extent, preserved the tradition; a "second language" is still regarded as an essential element in higher education; but in preserving the tradition we seem to have missed the substance. Observe three points about the old language education. To begin with, a study of the dead languages called for a pretty severe mental effort in mastering their grammar. Next, the grammar once mastered, the scholar could at a fairly early age begin to use the language with some confidence. Being a dead language, its style was more or less fixed; he could exercise himself in writing it according to fairly clear rules. He became accustomed to compare it with his own tongue and began to acquire, by actual practice, a conception of the different clothing that thoughts put on in different languages and, more important, of the way in which these differences react upon the thoughts themselves. Finally, the scholar who had from an early age been forced to read a great literature which was, for the most part, far above his head, was forced to go on reading it to an age when it began to come alive to him and speak to him as a man with the voices of men. All these points are essential, and especially the last. There must be few people

indeed, whatever their intelligence and taste for literature who, having learnt Greek or Latin from the age of ten and having dropped it altogether at sixteen, care to read, or could read if they cared, a Greek or Latin book, except perhaps the New Testament, or write a Greek or Latin sentence, except perhaps a copybook quotation. Those who have not acquired a man's command of a language have never learnt it at all.

Now, compare this with the " second language " at a secondary school. In nine cases out of ten it is French. French grammar, the mere bones of the language, is, as languages go, an easy one ; the more difficult parts of it, such as the use of the subjunctive, are probably best learnt by ear as the student comes to use the language itself as a living thing. But this is just what a boy will find it difficult to do. If its grammar is easy, its style is extraordinarily difficult, and an Englishman probably rarely begins to appreciate its delicacy, its " frigidity and balance " until he grows up. The boy learning Latin is asked to climb a high fence in order to take active part in a game of football ; the boy learning French is asked to climb a lower fence, but when he gets over he must be content for some time to watch a fencing match the fine points of which he cannot understand. And in most cases he ceases to watch before he understands. He drops the language at a point when he has been hardly introduced to any French literature except textbook extracts, with perhaps, if he is lucky, an Erckmann-Chatrian or two and Tartarin. If he has been exceptionally well taught he may have some colloquial knowledge

of the language, but nothing is more evanescent than colloquial knowledge when the opportunity of using it is interrupted, unless it is accompanied by the power and the habit of reading. And in any case a boy's colloquial knowledge will not carry him far. He cannot really express himself in French, if only for the reason that, at the age of sixteen, he has not yet learnt to express himself in English.

It is probable that languages will always be the best medium of education, because language is man's distinguishing gift and touches the human brain on its most sensitive nerve. That, however, is a disputable point about which we need not stop to argue. But, whatever may be the value of languages in the art of education, they must be taught because of their practical utility, and the teaching of them has this peculiarity, that you cannot stop in the middle of them. As a medium of education, just because of their intimate connection with the human mind, the study of them, once begun, must be continued so long as the mind is growing from adolescence to manhood. As a practical equipment, a language half learnt is valueless; its value lies in its use, and it cannot be used until it is fully mastered. At the very least it must be mastered up to the point at which it can be read and an Englishman who cannot read French as easily as English cannot really read it at all.

This general proposition needs, perhaps, two qualifications. In the first place, it does not necessarily apply to mere grammar. It is arguable that a boy may usefully be taught Latin grammar simply as a mental

exercise and because it will materially assist him to learn some modern languages. It is possible that some such expedient might form the basis of a comprehensive scheme of modern language education. Secondly, it is probable that the study of some languages can be discontinued at an earlier age than others. French is the most " adult " of all languages ; but a boy can acquire a pretty good mastery of German before he grows up, because German seems never quite to have grown up itself. As a medium of school education German has some peculiar advantages. It has a stiff grammar, but the grammar once learnt, a boy with any sense of language can begin at once to read great literature which, unlike Latin or Greek literature, is not above his head, and to write the language with comparative ease. Passable German prose can be constructed, as it were, in blocks piled upon each other, where French has to be shaped and turned and poised. Moreover, having once become accustomed to its construction, a boy can speak German without the sense which afflicts him in French—and afflicts him unfortunately just in proportion as he has an ear for language—that his pronunciation is slipshod and boorish. If he has read Schiller with enjoyment at sixteen, as he easily can do, he will probably be able to lay the language aside for some time and come back to it, as he could not do with French.

There are, of course, many practical reasons why French, rather than German, should be the usual " second language " at a secondary school, though those reasons may not be quite as strong as is sometimes

thought. But this makes it doubly necessary that we should realise that our language teaching is useless if it stops at sixteen—that a language is not a study like mathematics where you can stop at arithmetic before coming to algebra or at algebra before coming to trigonometry, according to the needs of the pupil. To put it brutally, nine-tenths of the time and labour, both of teachers and pupils, spent on French in the secondary schools is at present absolutely wasted. If a boy is not to "keep up" his French either at school, or outside, until he is eighteen he may just as well not learn it at all, for if he drops it at sixteen all that it is likely to do for him, unless he has an exceptional taste for it, is to discourage him from learning any other language.

What is true of foreign languages is true of one's own language. There are many Englishmen to-day who have had all the advantages of a higher education and who yet approach their work in the world with little more than a boy's knowledge and a boy's command of English. We need not repeat what we have already said about the decay of reading, but it should be realised that of all the handicaps from which a man can suffer in trying to tackle a new job, the worst, and at the same time the commonest, is inarticulateness. A man who in his most receptive years has used his own language, both in reading and writing, only within the narrow range of a special subject, will find himself suffering from a kind of mental paralysis when he approaches any new set of facts and ideas.

It is surely this inexpertness in the use of language that largely accounts for the comparative failure of

modern scientific education to produce precisely those qualities of mind which might have been expected from it. Scientists have often extolled the advantages of an education based upon a study of natural laws, as giving a man a sense of responsibility in dealing with facts and teaching him the inexorable relation between causes and effects. We have all heard this view enforced by a Biblical misquotation to the effect that a man should be able to give a reason for the faith that is in him. But the trouble is that facts do not become facts to a man unless he can not only hear and report them, but appropriate them ; that the relation between cause and effect means nothing to a man unless he can learn, not only to demonstrate by experiment that effect A follows cause B, but to reason from one to the other. Otherwise facts become mere formulæ, and half-comprehended formulæ at that. But it is useless to expect a man to reason unless his power of understanding and using language grows with the expansion of his field of thought, and this power will not grow automatically but must be deliberately cultivated. If this cultivation be neglected, experience seems to show that, paradoxical as it may seem, no form of education is so exposed to the danger of removing a man from contact with the facts of life as the study of nature. Its result may well be, and often is, the result of all teaching which deals in second-hand knowledge : to turn out a man greedy of phrases and impatient of facts. The only thing which teaches a man to distrust phrases is the habit of constructing phrases himself to express the facts that he has appropriated to himself

by a course of reasoning. He then finds out both the defects of the reasoning and the imperfection of the expression. We are familiar with the difference between successful experiments under " laboratory conditions " and a proved industrial process ; we know that a new discovery, however well demonstrated, has to leave the laboratory for the factory before it can be shown whether it can be utilised on a commercial scale. It is equally true that scientific knowledge, though hatched in the laboratory, is of little use so long as it stays there. It must rise from the causes and effects which can be demonstrated by test-tubes and retorts to those larger ones which must be inferred by reason, and when it so rises it can only do so on the wings of language.

Without, therefore, entering into any abstruse considerations about educational method and psychology we can conclude that, as a purely practical proposition, the most essential features of a general education between the ages of sixteen and nineteen are English and at least one foreign language. We have, in fact, drifted further away from languages as a medium of education than any other European country. The aim of university entrance and intermediate examinations should be to correct this and to ensure that, whatever else a student knows, he not only knows these languages but can use them as a man of his age should. The chief problem of secondary education is this : to make the study of at least one foreign modern language as systematic, prolonged and central a feature of the curriculum of our schools as the study of ancient languages used to be, at least for all students who

intend to stay at school beyond the age of sixteen. This does not mean that modern languages should be substituted for ancient languages where these are still taught ; nor does it mean that languages should occupy so large a place in the curriculum as " the classics " used to do ; but it does mean that schools and universities should lead a very definite reaction against the undue prominence of science in early higher education and should work out standards for the teaching of modern languages as a vital part of such education.

We shall return to this point as it affects technical colleges when we come to deal with the work of those colleges. What we have said here does not, of course, exhaust the subject. For instance, one of the chief difficulties about English as a subject in a curriculum is its intangibility ; teaching it, still more examining it, is like inventing exercises in smelling or tasting. Almost any study, however sloppy, can be dignified by the name of English, because any study involves the use of English just as any activity involves the use of the five senses. It is worth consideration therefore whether English should not be incarnated, as it were, in some particular course of reading designed as a mental training, such as the philosophy course at Scottish universities. Again, if this emphasis is to be put on languages between sixteen and nineteen, it is worth consideration whether more emphasis should not be put on them in subsequent degree courses—whether the requirements of an honours degree in " arts," as distinct from the pass degree we have advocated, should not include knowledge of two

foreign languages. But these are questions for the teacher, not for the essayist, and our final word must be an appeal to the universities to work out a policy of which they are the only competent architects.

The most desperate need of English education to-day is a common university policy. At the root of all the recommendations we have ventured to make lies the assumption that the universities will act in concert. At present the schools are distracted by what are surely unnecessary divergencies of policy between university and university. All universities, for instance, recognise the school certificate examination for matriculation purposes in some form, but each university requires a different standard and a different set of "credits." No sensible person, indeed, wants every university to have the same laws and the same constitution, for such uniformity would be a certain prelude to petrifaction. But the universities should have, as it were, a common foreign policy—a common frontier with the schools, undisturbed by boundary disputes and by the existence of a different set of passport regulations for every frontier station. And if their other frontier, that with the adult world, cannot in its nature be so clear and settled, marching as it must with a hundred different professions and occupations, there is one kind of emigrant across that frontier, and that the one most generally in demand, about whose training and qualifications for a passport they should surely have a clear and recognised idea, and that is the emigrant called an educated man.

Moreover, from the point of view of the position of

the British Empire in the world, the lack of any adequate organs of university consultation and joint action has one deplorable result which is too little realised. Education to-day is international; there is a constant demand from the universities of Europe and America for foreign professors. Further afield, there are new universities, such as the University of Cairo, which rely upon foreign professors to staff many of their faculties. Our European neighbours can, and do, easily supply this demand. Their university professors are often State servants who sacrifice no prospects, but rather the reverse, in going anywhere where their governments may send them by arrangement with another government. European governments recognise the export of their national culture as one of the normal, and indeed one of the chief, functions of their universities. We, on the other hand, have never thought it our business to teach other nations; we export irrigation engineers and administrators, but not academicians. Our universities, based as they are, and must continue to be, on the tutorial system, find it difficult, if not impossible, to keep open the places of their teachers who go abroad for three or five years, and no real thought has been devoted to the possibility that the universities of the country might devise some sort of collective guarantee of future employment for men who undertake important foreign service. Thus not only foreign countries, including nations with whom we have or desire to secure special commercial relations, but also the Dominions, British colonies like Ceylon and countries like Egypt for which we have a special responsibility, can only pick up

English university teachers by prolonged and anxious search, and even then by chance. The demand is there ; there has never been a time when there was so much respect abroad for English traditions and methods of education and so widespread a desire to share in them. At such a time it is surely tragic that a nation like Esthonia can adopt English as a compulsory language in its schools but cannot find English teachers and that English university education must be interpreted to the Argentine exclusively through the medium of American professors.

A real cure for this serious national weakness may, indeed, require assistance from the Government, but, if government assistance is not to carry with it government interference, it must be assistance given according to a scheme worked out by the universities on their own initiative. At all points in our educational system it is, in fact, university initiative, initiative by the universities as a federal or confederate body, that is most needed to-day.

CHAPTER IV

TECHNICAL EDUCATION

THE universities have suffered, and are suffering increasingly, from the handicap of being regarded as the sole avenue to the coveted status of educated man. The stream of public school men which has long flowed into them by mere force of gravity as the natural completion of a gentleman's education has been swelled by that larger stream of students who, almost as unthinkingly, desire the same educational advantages which gentlemen are supposed to enjoy. In mere volume this influx is indeed not more than the universities, whose catchment area is the whole nation, should expect to receive ; on the contrary, they must be prepared to deal with a greater flow in the future. But it is one thing to receive a steady natural flow and quite another to be flooded by streams dammed back from their natural outlet by social conventions.

The besetting sin of our nation has been the superstition of the " liberal professions." It was always a sin, but in former days it was not, perhaps, a very dangerous one. At the present time, in our present condition, it may well prove disastrous to us.

For centuries we have been a great nation and a very rich one. Englishmen of all classes have had a higher

standard of living than the corresponding citizens of any other nation of the Old World, and they have enjoyed extraordinary opportunities for leadership in commerce and government. Money and power have thus become, in some sort, the standards of our national life, but the prizes in both directions have, as always, been confined to comparatively few and most of those few have not been obviously distinguished from their fellows by great natural talents. Conscious of this, the great mass of our people have come to claim as their right a larger share in the national wealth and a better chance for the plums of national life, and they have come to regard education as the chief means of satisfying their ambition.

It is futile to criticise this view of education. It is a natural one, and if it is coloured by ambition rather than by the spirit of service, by an insistence on rights rather than by the realisation of duties, that after all is a glasshouse in which we have all lived in our time. But, however natural it may be, this idea of education is hopelessly out of date to-day. Our responsibilities as a nation are as great as ever, but their discharge no longer offers the same opportunities of personal success to the individual citizen. The ordinary Englishman of average ability no longer finds it easy, on the strength of a public school and university education, to govern the peoples of India, to sway Parliament by his eloquence, to satisfy the nation with simple reforms in legislation and administration, or to build up a prosperous business in foreign trade. A public school education, even when backed by more than average abilities, is to-day no guar-

antee against unemployment, let alone a passport to success. There is to-day in all walks of life less scope for successful careers, and at the same time, within the scope that remains, success requires much deeper knowledge, greater skill, more exact training and stronger character. We are still the citizens of a great country, but it is a country in distress. A " boom " philosophy, such as we have inherited from so many years of prosperity, will not help us now. Ours is no longer a country to be enjoyed and exploited for its advantages ; it is a country to be saved.

There is, therefore, nothing more misleading or more dangerous at the present time than to hold out the hope that university education will allay discontent by offering prospects of advancement to working men who, to quote the words of a trade union leader, " are possessed by the urge of ability which is denied outlet by legitimate means." It is, indeed, essential to detect and provide an outlet for really exceptional ability, but the " man of ability " is often merely the kind of person to whom a former generation used to refer as a " man of good parts," the sort of man who used to make such a splash in politics a century ago, and who, in our competitive age, is little more than a drug in the market. The complaint that ability has no outlet, the demand for equality of opportunity, is seldom urged in connection with a profession or craft ; it nearly always refers to general activities in organisation and government, fitness for which is not supposed to depend upon the possession of any particular qualifications. This is how democracy copies the aristocratic super-

13855

stition of the "liberal professions." Formerly, the professions proper to a gentleman were the army and navy, the law, "the Church," diplomacy, and occasionally medicine or teaching. To-day the same superstition is commonly enshrined in the phrase "social service." It is "social service" to be a teacher; it is not social service to be a doctor, unless, indeed, you are a medical officer of health. It is social service to be an organiser of one of the building trades unions; it is not social service to be a bricklayer. It is not social service to grow wheat; it is social service to instruct other people how wheat ought to be grown. The "urge of ability" is thus usually the urge to manage a business, to prescribe rules for an industry, to draw up legislation, and to administer other people's lives.

Now, even in the days of our national prosperity, the "man of good parts" did not find the university a passport to success in such organising occupations. Even then our boom philosophy was sadly out of focus. All university men have had one common experience: we all remember friends at the university who seemed pre-eminently to feel the "urge" of high abilities, whom we picked out as the political leaders of the future, and who have since dropped completely out of sight. The great danger is that the popular search for "opportunities" through university education, and the methods by which the nation is at present seeking to assist that search, may result in multiplying such failures. The discontent which at present seeks an outlet for ability will be nothing to the discontent which we shall arouse if we appear to be offering to such ability

delusive prospects of advancement. It is quite true that commerce and industry need, and need increasingly, a supply of men from the universities qualified for leadership by general education and general abilities. It is quite true that some of our industries have probably suffered severely in the past from lack of such men. But it is equally true that, for the majority of our fellow-countrymen who have the necessary ability, the road to leadership lies through knowledge and practice of a particular industry and through the technical qualifications which such knowledge and practice bring, backed by concurrent courses of education connected with the industry. And it is also true that many of our industries have suffered severely from the lack of any adequate arrangements for such recruitment from the ranks, and from the lack of recruits with the necessary qualifications.

The truth is that there is one other great educational outlet for ability besides the university which we have neglected and allowed to be choked by misuse. That outlet is the technical college. It is surely one of the worst examples of waste in all educational history that these great institutions, which sprang up after the industrial revolution in response to the intense desire of working men for general education and in particular for a share in the new knowledge opened up by science, should have been thrust, as it were, into a corner of our national system of education and treated as, at best, mere useful adjuncts of the workshop and the mine. In their early days their founders spoke hopefully of their future as the universities of the people and, in spite of

neglect and misdirection, they have not been unworthy of those hopes. They number their students by hundreds of thousands ; their range of teaching is wider than that of any university ; they exercise a profound influence on the life and culture of every industrial town and district. Yet they have hardly been regarded by the public, or even by their own students, as in the fullest sense, places of higher education at all. They have been regarded rather as having about the same relationship to a university as the barrack-yard has to the staff college—a place where the rank and file can be trained to perform certain more or less mechanical evolutions which other men will direct to tactical and strategic ends.

One may hope that these misconceptions are now beginning to pass away and that the technical college is about to come into its own. In the organisation of our national education we are now working to a scheme in which the central and senior schools and the junior technical schools, through one or other of which all children will pass, will lead up to the technical colleges and form with them one coherent and graduated course of intermediate and higher education, as coherent as that which leads through the secondary school to the university. The fact that this course will be largely a course of part-time, not full-time, education need not diminish either its continuity or its value. The junior continuation class for boys between fourteen and sixteen will be as much the logical continuation of the senior school as the forms of a secondary school which prepare for the school certificate examination

are the logical continuation of the lower forms of such a school. The senior and advanced classes of a technical college will be as much the logical continuation of the junior continuation class as work for the higher certificate and for a university degree are the logical continuation of work for the school certificate examination. As the new central and senior school system will run alongside the secondary school as one of the two main paths leading from primary to higher education, so the technical college will stand alongside the university as one of the two gateways through which a man will pass from education into life.

But if our technical colleges are to live up to these opportunities they must be treated as what they are, not only places of higher education in the fullest sense, but also, in many ways, the most interesting and potentially the most valuable educational institutions in the modern world. Have we ever considered how little invention there has been in the field of education during the last five hundred years or so? Our curricula have, indeed, changed with the expansion in the field of knowledge. We have differentiated, and are still further differentiating, the intermediate or secondary stage of education from the primary school on the one hand and the university on the other. We have introduced into education the principle of legal compulsion. But, apart perhaps from the Boy Scout movement, would it be far from the truth to say that only in our technical colleges would a visitant from the early sixteenth century encounter a type of educational society wholly unfamiliar to him and only there would he recognise a

power capable of exerting a really new influence on the social life of the nation? This invention has been a recent one and is still, for the most part, in the purely utilitarian stage. It is therefore here, more than in any other part of our educational system, that there is real chance, as well as a real need, for further invention. If there is still any power of social invention in our old civilisation, if we have still something better to do than, in Fichte's phrase, to strew flowers on the highways built by our ancestors, this is the direction in which we must exercise our originality.

For behind this educational problem lies the supreme social problem of the present day. During the last century or so a wholly new type of society has arisen in all civilised countries—a society the great majority of whose members are associated together for the mass production and marketing of commodities on a vast scale. Never before have such large bodies of men and women been organised in corporate units; never before have these units been so complex and, in many respects, so highly organised. But, besides their size and their complexity, there is another even more remarkable thing about all these forms of industrial and commercial association, from the association of scores or hundreds of thousands of manual workers in a particular trade union to the association of manual and clerical workers, salesmen, managers and employers in a particular commercial or industrial enterprise. The really remarkable thing about them is that, for the first time in the history of the world, membership of these associations rests upon no definite or recognisable

qualifications of knowledge, skill, or general education. The status of the old "liberal professions" depends to a great extent upon the standard of educational attainment traditionally required from their members. The prevailing dissatisfaction and unsettlement in our industrial society is surely largely due to the fact that the worker in industry, the value of whose job certainly entitles him to an equal respect, has behind him no such standard and has, therefore, little opportunity of acquiring the inestimable blessing of professional pride.

"Social reform" is a hardworked phrase, but the only real social reform of the present day lies in the restoration and strengthening of the independence of the individual citizen. The true function of education is a creative one—to create new forms of skill and by so doing to confer a higher social status upon occupations which do not at present possess it, or, as is the case in some crafts, have lost or are tending to lose it. By fulfilling that function education can, at one and the same time, enlarge human capacities and change the whole texture of human society. Educational reformers have too often contented themselves in the past with what is really a servile view of education, making our schools the slaves of existing social standards instead of the creators of new ones, and demanding exclusively a development of those parts of our educational system which can admit men to the coveted social status at present belonging to the professions and the middle and higher walks of commerce. It is in the technical colleges that we shall find the opportunity for a more real and a more fundamental reform.

The first step towards such a reform is frankly to recognise that neither the degree nor the kind of specialisation proper to technical education—that is to say, proper to education for a craft or industry or branch of commerce—need put such education at any disadvantage as compared with university education. In fact, of course, many students at technical colleges are engaged in precisely the same studies—for instance, modern languages—as undergraduates at the university, while the teaching given in the technological departments of a university differs in no essential from the technological teaching given in the advanced courses of a technical college. But, apart from the studies which are common to both institutions, the technical college has to deal with the same educational problem as the university and has just as good an opportunity of solving that problem. The aim of all education is to teach men to think, and the method of all higher education is, while encouraging the student's mind to work in all sorts of spheres and on all sorts of subjects, to exercise it intensively on some particular body of knowledge. The virtue of this method is that it trains a man in accurate and consecutive thinking; the danger of it is over-specialisation; but this virtue and this danger do not lie in the kind of subject chosen for special study. The study of pure science as an end in itself may stunt the mind quite as much as the study of the technology of the iron and steel industry. On the other hand, if a man be taught really to think well about any branch of technology he will generally think well about other things also.

Where the general view about technical colleges goes wrong is that it assumes that they aim simply at teaching a man to know his job. They do not, or at least should not; they should aim at teaching a man to think about his job, a very different thing. A man may know a skilled job thoroughly and perform it with amazing efficiency without going through any mental process other than the purely reflex action produced by the impact of certain familar phenomena. Most people, for instance, seem to move to-day with as sure an instinct in the world of wireless sets and internal combustion engines as the cowboy used to move in a world of horses, but with as little real knowledge of mechanics or electricity as the cowboy had of anatomy or biology—and with as little power of understanding a printed explanation of the phenomena which they are so well able to handle in practice. Technical education may, of course, easily become nothing more than a means of introducing a man to a wider range of phenomena producing a greater variety of reflex action, in much the same way as a child is taught to do a gradually increasing variety of sums. The acquisition of these automatic mental habits is, indeed, an essential part of the groundwork of all education; but its place in a course of higher technical education can only be a very subordinate one. The main duty of a technical college, the duty which industry itself expects it to perform, is to teach men to think; and it is as true of the worker in industry as of the members of one of the "liberal" professions that a man who cannot think reasonably well outside

his job cannot really have been taught to think about his job.

If it be asked whether the specialised courses at technical colleges are in fact calculated to teach a man to think, the answer is that the same doubts may well be entertained about them as we have already suggested about the specialised degree courses of universities. The technical colleges have certainly a big task before them in working out standards and methods of education, and, as we shall see, they are likely to find this task in many ways a peculiarly difficult one. But in one respect they have perhaps an advantage over the universities. Although over-specialisation in any subject is bad, there is one peculiar danger about specialisation in pure science, except perhaps biology, and technology. That danger is that these studies deal almost exclusively with quantitative factors and that specialisation in them may deaden the mind to considerations of quality in a way that specialisation in languages or philosophy or history can perhaps never do. This is the chief difficulty which has been encountered in making the study of science as effective an educational instrument as the old "humanities." It is quite possible that this problem may be solved in the teaching of technology at the technical college before it is solved in the teaching either of pure science or of technology at the university. Technical colleges must always and increasingly be dominated, as even the technological departments of a university cannot be, by a consideration of the practical needs of competitive industry and commerce. Practical considerations of this kind do not generally help

education, but in this instance they seem to bring with them a humanistic element which does not exist in the study of pure science. These colleges are dealing with studies the practical end and object of which is the sale of goods to satisfy human tastes and human needs. This is the link between the school of technology, the school of commerce and the school of art, the three great extra-university institutions which exist in every industrial area. In the larger cities these three may be distinct institutions under different heads, but they should be regarded, and the growing tendency is to regard them, as three interdependent departments of one centre of learning. Industrial art and salesmanship may well supply to a balanced course of technical studies the human and qualitative elements that are lacking in the technology of production.

This does not, as we shall see, exhaust the possibilities of the technical college, but we have said enough to show that, at least, there is no inherent reason why technical studies should be treated as belonging to a relatively low grade of education or as offering an inferior outlet to the "urge of ability." We can best develop this thesis by pointing out certain peculiar difficulties which at present restrict the usefulness of these colleges and considering how they may be overcome.

CHAPTER V

THE IDEA OF A LOCAL COLLEGE

THE greatest difficulty confronting the technical college is certainly that of time. Apart from a few full-time students in advanced courses, the technical college has to cater exclusively for men who are earning their living and can spare only a few hours a week for education. Of these, between 80 per cent. and 90 per cent. can only attend classes in the evening, while in Prussia about 90 per cent. and in the United States about 70 per cent. of the technical classes are held during the daytime. Hitherto employers in this country have rarely been willing to allow their young employees time off during the day. In fact, the weakness of the technical college has been that they have been built up too much in response to a demand from below and not enough in response to a demand from above. The demand has been the demand of individual young men and women engaged in commerce and industry to continue their education in order to fit themselves to rise in their employment into positions of management and control. It has not been a demand made by the industry itself for a high standard of training for its workers. Consequently, while both the old and highly developed system of technical education in Prussia and the new and rapidly

developing system of vocational education in the United States cater for the needs of students who attend classes for the purpose of qualifying themselves for the vocation in which they are actually engaged, in this country we are catering mainly for those whose personal ambition to rise beyond that vocation impels them to add to a full day's labour the burden of evening study.

Happily, there are already signs of a change. There is a growing tendency, in some industries at any rate, to encourage and even require attendance at day classes during working hours as an integral part of the apprenticeship arrangements of the industry. On the development of this tendency depends the whole future of the technical education of this country. The experience of every other nation has shown that you cannot educate a man by requiring his mind to run from 7 to 9 p.m. in the same groove in which it has been confined since 8 o'clock in the morning. Occupations, of course, vary in the degree of their "grooviness," and evening classes vary in the degree of their specialisation. It is impossible to lay down a general rule. Great difficulties have to be met in many industries in allowing boys and young men time off during the day. But it is broadly true that any real improvement of technical education must depend on the conversion of at least a large proportion of our evening classes into day classes.

A second difficulty is the one we have already touched on as to some extent affecting universities, the difficulty arising out of the local character of the technical college. It is generally a municipal institution, financed and

owned by a particular municipality or county council. Half its cost is, indeed, met by grants from the national exchequer, but these grants are now calculated as a percentage of the municipal expenditure, and the municipality naturally regards any expenditure which it incurs as being incurred in the interests of its own ratepayers. If the ratepayers of other areas are to benefit from it, they are expected to pay for the advantages they receive, either directly themselves or through their own local authority. This demand seems the more reasonable because a neighbouring county council which contributes to the cost of a municipal technical college in respect of students residing in the county area can get a grant from the Board of Education equal to half its contribution. Consequently, technical colleges commonly have two different scales of fees—a low one for students residing in its own municipal or county area, and a higher one, often representing the full estimated *per capita* cost of the institution, for students residing in other areas. These latter students can secure admission at the lower fee only if the local authority of the area in which they reside pays a contribution towards the cost of the college fixed by the authority responsible for the college. It is needless to describe the negotiations, the controversies and the deadlocks to which this system leads. County Borough A (this is an actual instance) maintains the only technical college in a region comprising two counties and two other county boroughs. County B and County Borough C make the stipulated contribution to A; residents in them can attend the college at the same

fee as residents in A, and they do in fact attend the college in considerable numbers. County D and County Borough E decline to make any contribution; residents in them must pay the higher fee and consequently there are hardly any students from these areas in the college. The college needs more students, both on grounds of education and on grounds of economical working; it would pay A to reduce the fees to residents in D and E, but A cannot do so for fear of losing the contributions paid by B and C.

This absurd situation arises in regard to secondary schools as well as technical colleges and it is the result—a most unexpected result—of the system of percentage grants. So long as a local authority received a contribution from the national exchequer in the form of a *per capita* grant in respect of each student, every student was welcomed because he brought with him money from the State as well as any fee which he might be able to pay. Now he brings no money from the State and, moreover, half the fee which he pays goes to reduce the grant from the State. Unless, therefore, he is prepared to pay something like the full cost of his tuition he tends to be regarded as an interloper, sponging upon a municipality upon which he has no claim. This system is bad enough when applied to secondary schools, as may be seen in London; but it is madness when applied to great colleges which are the natural centres of higher education for large populations in wide industrial regions where new factories, new housing and modern conditions of transport have long ago overflowed the boundaries between municipalities and counties.

It is, in fact, wholly wrong that these colleges should be financed by the same method as a local institution like a school. They should rather be financed as the universities are financed, by a block grant made by the State to the governing body of the college itself, for use in the interests of all the people of the industrial region which it serves, and by similar block grants made by the local authorities in that region. This has nothing to do with the controversial question as to the relative merits of " block " or " percentage " grants for education generally. Admittedly, a " percentage " grant can only be paid to a local authority, and a great college should not be regarded as simply one department of a particular local authority's educational activities. It should be a self-governing institution, with a character and a bank account of its own.

Indeed, apart from the evil of differential fees, it is probable that the exclusively municipal character of technical colleges is largely responsible for the suspicion with which they are still regarded by many Englishmen who traditionally associate the idea of higher education with a certain standard of academic independence. This is a hard saying. It seems ungracious to suggest that a municipality like Leicester, which has taken so wise and active an interest in its technical college, with such striking success, would be well advised to resign some of its control over its offspring and join with the State and other local authorities in giving it an endowment which will enable it to stand on its own feet. As a matter of fact, municipal control can be, and often is, exercised in a way perfectly compatible with

academic freedom. The real trouble is that the sphere of a great college must be wider than any area of local government and that co-operation between local authorities is, if anything, more difficult than co-operation between nations. The suspicion of municipal control would not exist among the general public if it did not appear to exist among local authorities themselves—if, for instance, a county council which joyfully awards scholarships to the nearest provincial university did not often show some reluctance to award a scholarship to the municipal college of art three streets away in the same city. What is needed is not so much a change of substance in the relations between technical colleges and municipalities as a change in form; the acquisition by the colleges of a status which will enable them to speak in their own name, fix their own fees and award their own scholarships or maintenance allowances.

This change is likely to be accelerated by the de-rating of industrial premises under the Local Government Act. It is inconceivable that the industries directly served by the local technical college should in future be content to contribute to its maintenance and development only to the extent of their reduced rates under the Act. They will doubtless wish to make direct contributions, and technical colleges will thus tend to assume the character of institutions endowed from various sources and the composition of their governing bodies will be modified accordingly. Municipalities should not resist, but should encourage, a change of this kind, and it is earnestly to be hoped that in-

dustrialists will be quick to seize the opportunity thus offered to them.

These difficulties, great as they are, can be remedied by co-operation between technical colleges and industry and by changes in the administrative technique of the Board of Education and local authorities. But there is another difficulty, more serious because more fundamental, which seems to be inherent in the kind of work which these colleges have to do and for which it is therefore not easy to prescribe a remedy. This difficulty is that technical colleges are in constant danger of being swamped by relatively elementary work. They have always had to meet the demand of individual students for a wide range of miscellaneous teaching in all sorts of subjects. They now have increasingly to meet the same kind of demand from all sorts of trades and industries. The first result of the new realisation by employers of the value and possibilities of technical education is that the colleges are daily being asked by employers' associations to start new classes for their employees. This tendency has been particularly noticeable recently in various branches of retail trade—department stores, grocery, the meat trade and so on. The colleges find themselves regarded as the universal dispensers of all useful knowledge. On the other hand, it is only in a very few of the most highly organised industries that the young worker is encouraged to carry his studies to a really advanced stage. Even in those industries advanced technological studies do not much enhance the student's prospect of a successful career. Hitherto the function of a college in the eyes

of employers has been, at least on its technological side, to turn out efficient workers who can at best expect to become the non-commissioned officers of industry. Its highest product has been the blue-print engineer and the routine chemist. In nearly all industries the road to management and control lies through the office side; it is the clerk, not the man at the machine, who carries the marshal's baton in his knapsack; yet it is the man at the machine, rather than the clerk, who comes to the technical college for instruction. The clerk may take a commercial course; where there is a separate school of commerce the clerk naturally forms the backbone of its clientele; but even so the courses which he takes still aim at little more than to turn out efficient salesmen or office accountants. In the same way the school of art, on its industrial side, is expected to supply industry with routine designers, not with art advisers or original craftsmen.

It is surely for this reason that, if one may be permitted a rather dangerous generalisation, there is usually a certain "non-adult" atmosphere about a technical college. A technological department of a university, starting on the high ground of university education, tends gradually to attract industry on to the same ground, and meanwhile it can, without degrading the academic standard of its education, come down the slope to meet the practical needs of the employer half-way. The technical college, on the other hand, must start level with the practical needs of the employer and can only ascend if it carries the employer with it almost step by step. The great bulk of the work of

a technical college must probably always be concerned with students between the ages of (say) sixteen and nineteen and the work of the " senior " courses in which these students are engaged will consequently be sixth form work rather than work of a university standard ; but there should be a recognised path, well trodden by a few at least, leading from these courses to really advanced studies.

Realising this need, some colleges are tempted to supply it by encouraging their abler students to work for the external degrees of London University. One or two go further and would like to convert themselves into " university colleges " with the hope that they may eventually become universities. A few local authorities, following the same idea, but apparently despairing of their technical colleges as real centres of higher education, have set up, or are trying to set up, new " university colleges " alongside of them. We shall have something more to say about these experiments in a moment ; it is enough here to point out that they can at any rate afford no general solution of the problem we are considering. Whatever may be the merits of external degrees, their warmest advocates will admit that they are a *pis aller*. It cannot be a sound ideal for any great institution that its best teaching should be governed by standards over which it has no control, and that its best students should be working for examinations set by another institution in whose academic life they have no part. A " university college " has therefore little meaning except as a half-way house to full university status, and, whatever may be thought of the

ambition of certain cities to become the home of a new university, it is clear that this ambition can be cherished only by a very few. The true solution of the problem lies rather in the direction of emphasising the individuality and the independence of technical colleges themselves. We should seek to do this in two ways: by extending their work so as to respond to the growing demands of industry and by attracting within their orbit other non-university forms of higher education.

Experience has already shown that where an industry does demand, and set a definite value upon, a higher standard of technical education the technical colleges are able to respond to that demand. The diplomas of the Wigan Mining and Technical College, for instance, need not, so far as coal mining is concerned, fear comparison with the degrees or diplomas of any university school of mines in this country or abroad. This is, no doubt, an exceptional instance, for the mining industry stands at present almost alone both in the definiteness of the qualifications it requires for positions of management and in the opportunities it offers to the rank and file of its workers to secure those qualifications and fill those positions. The special character of the mining industry will, perhaps, always put it in a class by itself in this respect, but there is a growing tendency in all highly organised industries to offer more opportunity to the rank and file and, for that purpose, to define in some degree at any rate the qualifications which they should possess for positions of responsibility. The Federation of British Industries has recently

indicated the need for advanced courses of training for "production engineers," including instruction in "the technique of production . . . selling and distribution and the interlocking of these three aspects with costing and other statistics leading to management and administration." Such courses would obviously require considerable periods of full-time study.

It is, in fact, evident that the modern tendency of industry to organise itself in large and complicated units must create a demand for a new type of skilled administrator, not only in the central management of such units, but also in a large number of subordinate but highly responsible positions. As this tendency has become accentuated in recent years "big business" has increasingly sought this type of administrator, or the educated raw material out of which he can be made, from the same source from which the State has long drawn its supply of public administrators, from the public schools and the universities. It is, however, becoming clear, not only that this source of supply is limited, but also that the material obtained from it is not necessarily the most suitable for all kinds of administration in all kinds of business. Technical colleges have at this moment a great opportunity to win recognition as alternative sources of supply, and for this purpose to work out higher courses of all-round business training and scientific management.

The first essential step in this direction is the one to which we have already referred—the linking up of the schools of technology, commerce and art in each locality into one federated centre of learning. Though

these are three distinct departments of education, they converge to form the tripod upon which all higher business training must rest. The close relation between technological and commercial courses is obvious, but a word should be said about the art schools.

Art education has, of course, its own peculiar problems and there are some industries into which considerations of art can hardly enter, yet it is generally true that both art and industry have suffered seriously by the divorce between art and technology. Teachers of art have long desired to prove the value of art to industry, but their attempts at proof have been too much confined to crafts rather than industries and have therefore been most successful in those industries, like the furnishing trades, where the craft element is still strong. The " arts and crafts " movement, as an alternative to the " fine arts " tradition, has really perhaps led them away from industry rather than towards it, for the tradition was itself a revolt against mechanical industry rather than an attempt to reconcile it with art. The art schools have, in fact, never faced the necessity of making terms with the machine. They have tended to fall between two stools. They have neither joined with the school of technology to give an all-round training to the workshop apprentice as such, nor have they organised themselves as a distinct set of schools and colleges to provide a graduated ladder of elementary, intermediate and higher education for the art student as such. Each school has been too anxious to assure the citizens and the industries of its town that it can teach all the arts in all their stages and consequently

no college in England, outside London, has acquired anything like the position which the Edinburgh and Glasgow Colleges of Art occupy in Scotland as widely recognised centres of higher art teaching. London must, no doubt, always be the centre to which, in the last resort, all art schools and colleges in England will look for the final training of their best students ; but the Royal College of Art and the Slade ought to be regarded by provincial schools rather as post-graduate institutions and the larger provincial colleges should be recognised as centres to which the smaller schools should send their best students, in the first instance, to complete, as it were, the undergraduate stage of their training. The provincial colleges have, however, never been developed in this way and, consequently, the danger is that our art schools may fail to supply either of the two things that a big industrial firm is likely to need—either the independent artist who can be called in to advise it or the staff designer thoroughly acquainted with its conditions.

And if industry and art have suffered from the divorce between art and technology, they have suffered perhaps even more from the divorce between art and salesmanship. There is no industry into which art considerations enter which has not experienced the lowering effect of that kind of salesmanship which misreports the public taste because its own taste is untrained. Such salesmanship exerts a constant and steady pressure downwards on the standards of industrial art and the art school which holds aloof from the school of commerce, or is held at arm's length by it,

forfeits one of the greatest opportunities of education which ought to be open to it.

These are, of course, only broad generalisations. There are many technical schools where art takes its proper place ; there are many art schools which aim not unsuccessfully at combining a sound fundamental training in the fine arts with the rendering of practical service to industry. What is needed is that we should adopt as a general rule the policy which they have followed with success and should express that policy in outward form by establishing an organic connection and recognised methods of co-operation between these three departments of technical education.

In working out higher courses of business training, however, technical colleges will need to remember that the most important qualification for positions of responsibility will always be a willingness to take responsibility. This is the old qualification which the public schools were supposed, and on the whole rightly supposed, to give a man, but the public schools possess no secret of imparting this gift which is not shared by all good secondary schools and which may not be shared by any place of education which sets itself to develop the individuality of its students in association with their fellows. But for this purpose two things are necessary : a corporate life in which the student, quite apart from his class work, can find his own level and play his own part, and a scheme of education which, by encouraging him to think for himself, gives him a reasonable confidence in his own judgment.

Now, the technical college has the advantage of

dealing with students who are already at work in the world and are therefore, in some sort, men of the world. It suffers, on the other hand, from the disadvantage that the world of the workshop is a small and conventional world where every peg has its hole and the position of every hole is determined by necessity and fixed rule. No course of technical education is likely, in itself, to counteract this influence; indeed, such courses, undertaken in close co-operation with the industry, will usually have a little of the workshop atmosphere. If a technical college is to develop the individuality of its students it must have a life of its own outside the classroom and the laboratory. It must, for instance, have something corresponding to a students' union; it must take some corporate interest in athletics; its premises must be open for other purposes than that of passing education out across the counter.

This is, of course, a platitude recognised by all technical colleges. But, except perhaps in a few of the largest colleges, the creation of such a corporate life is difficult, partly because of the inadequacy of the college buildings, partly because the only time when its students could come to it for purposes other than work is the few evening hours into which, under present conditions, it has to cram all its teaching, but mainly because there is too little variety of interest and experience among its students. Most of those who attend its classes for any length of time come from the same workshop, or the same kind of workshop, for the purpose of learning how better to fit themselves for the workshop. Even students from different kinds

of workshops, the student in the mechanical engineering course and the student in the cotton spinning course, are likely, at that age, to have much the same interests and aims. We may indeed expect a gradual improvement in this respect as education becomes more continuous, as boys come to the college straight from the central, senior or secondary school as the natural continuation of their school education, instead of coming from the workshop some years after they have left the elementary school in order to make a new start in education. But this improvement will not lead to much unless it is accompanied by a widening in the range of technical college education. Already institutions like the Regent Street Polytechnic, which aims at teaching a great variety of subjects, or like the Working Men's College, which offers opportunities for more academic study, show a much greater power of developing a corporate life of their own than the ordinary run of technical colleges. A student to whom the technical college has given an appetite for education should, when he has completed the apprenticeship course arranged for him between the college and the industry, find some opportunity in the college for satisfying that appetite by higher studies, irrespective of whether those studies will immediately and directly improve his prospects or his efficiency in his work.

The federation of schools of technology, commerce, and art may go some way to open avenues of this kind, but there is another direction in which technical colleges have now a great opportunity to widen the range of their teaching.

In recent years, thanks to the labours of the Workers' Educational Association and other bodies, and to the university extension movement, there has grown up a whole system of evening education for adults, not connected with the ordinary work of any school or college or with the requirements of any trade or profession, and devoted mainly to " academic " subjects such as history, literature, psychology, economics and political science, and even ancient languages. This system, commonly known by the vague name " adult education," includes a variety of activities ranging from single lectures to classes taking a three years' course of advanced study under the direction of university tutors. It is important for our purpose to consider the function of this kind of education and how this function can best be discharged.

Its function is a very definite one. The ideal aimed at by any organised system of schools and colleges is that, by the time a man comes to take his place as a fully active member of the community, he shall have received such a training of the mind and such a general idea of the extent of the field of human knowledge as will enable him thereafter, broadly speaking, to continue his own education for himself. For the majority of intelligent human beings this is not an impossible ideal, given sufficient access to books, social contact with their fellows and leisure for reading, thought and conversation. But there will always remain a certain number of people, and these not necessarily the least intelligent, who come to manhood without their education having been carried to the point where they can educate them-

selves without a certain amount of formal advice and guidance. The further education of many of these people may be of great importance not only to themselves but to the community ; for their natural capacity for a life of action and for the leadership of men, or their proficiency in the technique of their profession, may be carrying them into positions of responsibility which their general mental training has not prepared them adequately to fill. It is the function of adult education to supply the guidance which such men need.

Obviously these are often the very men with whom the technical college is dealing on the technical side and it is often their lack of general mental training which limits their prospects of that success in life for which their natural abilities and their technical training would fit them. They have, however, hitherto had to seek the guidance they need in general education outside the technical college, and they have had considerable difficulty in finding it. Successful as the adult educational movement has been, it is experiencing an increasing difficulty in arranging for a sufficient supply of tutors with the necessary qualifications.

The reason for this difficulty is not far to seek. Foreigners sometimes accuse Englishmen of not caring about education. That is a slander ; but what is true is that Englishmen are very diffident about teaching. In contrast to most foreign nations, our instinct is that at twenty-one a man is a man and that thereafter it is almost an impertinence to try to give him any formal teaching. We have already referred to the comparative neglect by English universities of post-graduate work, and it is this

diffidence about teaching grown-up men which largely accounts for that neglect. The foreign student coming to an English university for post-graduate research expects to attach himself firmly to a professor and often finds himself hunting elusive dons who assume that he is quite as well educated as they are. To a considerable extent, therefore, the adult education movement, in seeking to create a supply of tutors for adult classes, is swimming against the current of the national instinct.

This does not, perhaps, so much apply to the three-year tutorial classes. The universities will probably always be able to supply qualified tutors for the limited number of such classes which will be in existence at any one time. But the bulk of the work of adult education, and certainly not the least valuable part of it, will always be concerned with less systematic and, if one may be allowed the word, more desultory studies. It is indeed desultory study which so many of our fellow citizens most need—that roaming in the field of knowledge which teaches us its extent, brings us up every now and then against its limits and, above all, accustoms us to lose ourselves in regions where our inherited assumptions or customary habits of thought no longer seem to help us.

The guidance required for such roving studies will probably never be secured by organised recruiting, because the recruits will not come forward. But the average educated Englishman who is too diffident to constitute himself a guide will readily offer himself as a companion if the opportunity for such companionship arises naturally out of his social surroundings. Take,

for instance, one department of the adult education movement, the Women's Institutes. What would happen to them if their work depended mainly upon the visits of qualified teachers in certain handicrafts? They are strong because the individual institute is an intensely local thing. The weakness of other branches of the movement is that they have not the same local roots and consequently lack that natural absorptive power which belongs to really local institutions.

If these are the difficulties of enlisting the services of part-time tutors for evening classes, the difficulty of securing whole-timers is even greater. A certain number of whole-time tutors is necessary, but it is vain to suppose that first-class men whose profession is teaching will take up adult tutoring as anything else but a stop-gap job, whatever salaries are offered, so long as adult tutoring means teaching a kaleidoscopic succession of unconnected classes. All teachers have to face the discouragement of perpetually seeing new faces and losing sight of the old ones, but most teachers find the antidote to this discouragement in working for a school or college where each succeeding generation of scholars or students leaves its mark, and where the teacher can therefore still trace the effect of his work, even after the last of the individuals whom he has actually taught has left its walls. It is this that will always attract the best teachers; we can no more expect them to spend their lives in teaching isolated classes of working men than we can expect them to spend their lives in private tutoring in the houses of rich men. Some first-class men may take up the work,

just as some first-class men take up cramming for the army ; but as a general rule we shall only attract good adult tutors if we connect adult education closely with a place of learning, possessing a constitution and a continuous corporate life of its own, and make the tutor a member of the staff of that institution.

Now, the technical college is such an institution, and it is, moreover, an institution with strong local roots. It already enjoys the support and enlists the keen interest of all sections of the local community connected with local trades and industries. In many cases it already aspires to extend its activities beyond the sphere of purely technical education. Unfortunately, as we have seen, these aspirations tend, at present, to take the form of a hankering for " university college " status. The ambition for this kind of status is, of course, very human and natural, but it arises from the mistake of supposing that the kind of intellectual enlightenment needed by the industrial worker who aspires to positions of responsibility, and the humanising influence needed by our great centres of population at this stage of their development, can best be given by an institution which prepares a certain number of students for the external degrees of the University of London and hopes, in the long run, to become a degree-giving body itself. University degrees, whether internal or external, have really no connection whatever with the bulk of the work either of a technical college or of adult classes. We have already hinted that the " degree craze " may well become one of the most dangerous enemies of sound education in this country, as it has been in

America—that, in fact, the modern tendency to specialisation in degree courses from the age of sixteen is producing a good many university graduates who are themselves very urgently in need of a little adult education, a certain amount of tutorial guidance and even of tutorial correction. A great French historian has recently said of the Minister who brought the Bourbon monarchy to final ruin a century ago: "He was an educated man, but of that kind of education which tempts one to erect altars to ignorance." That kind of education often lurks to-day under the label of a B.A. or B.Sc.

The truth surely is, not that a degree-preparing or degree-giving body is specially fitted to be a centre of vigorous local life nourished by intellectual interests, but, on the contrary, that the work of creating such a centre is the best, and indeed the only, path by which a local technical college can fit itself eventually to become a university, if future developments render that desirable. Let such a college regard itself, by all means, as a kind of "hall" of the neighbouring university, but let it set local adult education, both technical and general, in the forefront of its programme and be content for the present to regard any degree work that comes its way as little more than a by-product of its various activities.

This, then, is surely the true future of the technical college. It should be a "Local College" in the fullest sense, the centre, not only of all studies, technological, commercial and artistic directly required by local industries, but also of all those more academic studies at

present carried on in detached adult classes. It will find that these two lines of activity not only do not conflict, but are strictly complementary. Already some employers who encourage their men to attend evening classes seem to prefer that these classes should teach general subjects, realising no doubt the danger to which we have referred, that young men with ambitions may strain and stale themselves by an excessive amount of evening study closely related to their work during the day. Moreover, a good many employers who allow their men time off during the day to attend technical classes make it a condition that they should also attend evening classes in their own time. We may well look forward to a time when this will become the established practice and when the more directly technical side of any course of study will be taken during the day and the evening period devoted, at least partly, to more general education. The tutorial classes will supply to the technical college just what it needs in this direction, varied intellectual interests, graduated courses of education carried to an advanced stage, and a tradition of disinterested study. On the other hand, these classes will find in the technical college what they at present lack, a local habitation in which their traditions may become permanently embodied and which may attract to them the first-class teachers whom they need.

It is tempting to dwell in imagination on the future possibilities of such "local colleges." They will have to bring originality to the task, but surely the power of social invention has not entirely left us. If they wish to adopt a larger title than that of "technical college,"

they will no doubt return to the example of those earlier colleges—Owens and Mason—which did give birth to great universities and will call themselves by a well-known local name. This is what Middlesbrough has recently done in founding Constantine College. They will seek to adapt the old collegiate idea, the form of society handed down to us in different forms in our universities and in the Inns of Court, to the needs of that wider and looser community of learners which is growing up in our industrial areas. They will seek to spend the money which is already being sporadically voted year by year for new technical school buildings in such a way as to give those buildings a more hospitable appearance. The architectural skill which in America has succeeded in giving nobility to those colossal Globe-Wernicke nightmares that are called public libraries need surely not shrink from the task of embodying engineering laboratories, craft workshops and science lecture-rooms in a building which shall seem to extend a welcome to all those who are interested, even in a leisurely or hesitating fashion, in the things of the mind. It may even be suggested to municipalities that such buildings might often provide at less cost a more imposing civic centre than a new City Hall. Again, we who have gradually developed the old college common-room into the students' union to meet the needs of non-residential universities will surely not find it beyond our power to devise a new kind of students' union for these local colleges, with conditions of membership easy enough to attract not only those who are pursuing regular courses of technical study but many

more who have a taste for some measure of intellectual companionship. The extraordinary success of the Men's Institutes organised by the London County Council shows how great is the potential demand for this kind of companionship ; and anyone who has had the good fortune to attend a dinner of the Working Men's College must realise how naturally and easily the common-room atmosphere, once created, can draw together men of various social classes and different walks of life. In such an atmosphere shall we not find that the classes and study groups that are now laboriously organised by the adult education movement will crystallise out more easily and naturally and that technical education will discover the secret, not only of supplementing workshop practice by theoretical technical training, but also of giving the student what the workshop cannot give and may take away—self-reliance and independence of thought ? After all, one of the qualities which have gone to make the greatness of industry in this country and the loss of which we are in the habit of deploring, is the adaptability of the British workman. It must be one of the chief aims of any technical education worthy of the name to preserve or restore this quality.

CHAPTER VI

UNIVERSITIES AND LOCAL COLLEGES AS PARTNERS

IT is evident that any development on the lines proposed in the last chapter must throw a great responsibility upon the teachers in technical institutions, and especially upon their principals. The staffing of such institutions is one of the most difficult problems in the whole field of educational administration. There must be no amateurishness about their technical teaching. Teachers must be intimately acquainted, not only with the theory of their subject, but with actual conditions of manufacture and sale. They must keep constantly abreast of new developments in manufacturing processes and machinery. At the same time they must be able to teach, and their teaching must be fully up to the standard required by an institution of higher education. It is no criticism of the very able, successful and devoted body of men who now staff these colleges to say that, of necessity, they are always in danger of falling between these two stools. There is only one general safeguard against this danger—that teachers should be recruited from the widest possible field, that they should be men of the world, either the world of industry or the world

of educated men, and if possible of both. There can be no one method of recruitment. Some of the best teachers at work to-day are men who have had very little formal education but who combine a thorough knowledge of a particular industry with a natural genius for teaching. The tendency which must be resisted is the tendency for these institutions to feed upon themselves. The idea of becoming a technical teacher is naturally tempting to the student from the workshop who wishes to carry his technical studies to an advanced stage, but who sees no particular prospect that such advanced studies will open a career for him in his industry. It is entirely right that a certain number of technical teachers should be recruited by this method, but as a general rule it is not likely to produce the best teachers. Some of the lack of confidence in technical colleges shown by industrialists is due to the belief that they exist largely for the purpose of training technical teachers. This belief is, indeed, mistaken, but it cannot be denied that there has been some ground for it, especially in the case of art schools. Certainly this method of recruitment cannot be relied on to produce the men required for the headship of local colleges. It should be clearly recognised that such a headship is a post of the same order as the headship of a college at Oxford or Cambridge or even of a university, requiring, in general, high academic qualifications as well as a capacity to understand the needs of industry, and giving scope to the very best talents.

But the conversion of the technical colleges into local

colleges setting standards for the schools below them, serving the growing needs of industry and providing varied opportunities of higher education in the fullest sense to their students, requires something more than originality and imaginative leadership on the part of the principals and teachers of those colleges themselves. It requires also the co-operation of the universities. We shall not attempt to define the scope or suggest the methods of such co-operation. The scope will be found to widen out as time goes on and the methods can only be worked out in practice. But we shall try to indicate three directions in which such co-operation should be immediately begun.

The simplest of these is co-operation in bringing adult classes into the sphere of the local college. These classes have been built up under the ægis of the universities. This has been the essence of the revival of the adult education movement in the last twenty years or so and the influence and prestige of the universities is as necessary as ever to the soundness and success of that movement. Adult classes may, and in our view should, find a home in the local college, except, no doubt, in university cities where the university can itself provide a home for them; but the universities should continue to play a leading part in guiding their development. Methods of co-operation to this end can easily be worked out; but they need working out, and for this purpose it is essential that the universities should be ready to meet the technical colleges as institutions of higher education on an equal footing with themselves.

This recognition of technical colleges by the universities as equals is even more necessary when we come to consider the other directions in which co-operation between the two is immediately necessary. These are co-operation in working out courses of education for students up to the age of eighteen or nineteen and co-operation in providing opportunities of higher technical training for part-time students of university age.

We have suggested that the nation is losing much of the benefit which it should derive from the secondary schools because the course of general education offered to pupils in those schools is cut prematurely short at the age of sixteen. We have argued that languages are an essential part of such a course, but that the study of languages, if it is to be effective either for practical purposes or as a mental training, must be continued at least up to the age of eighteen. If these contentions are valid, one of the main duties of the local college must be to offer to that great majority of secondary school boys who leave school at sixteen opportunities of continuing their course of secondary education, especially in languages, for another two years on a part-time basis. This involves a change in the whole conception of the function of technical colleges. Hitherto they have offered to supply teaching in any of a number of subjects which a student may demand. This they must continue to do, for no one would suggest that they should refuse to teach plumbing or hairdressing unless the student will also take a language course. But in addition to thus supplying the particular article

demanded by the student or by industry, they must now also offer something in the nature of a standard curriculum. They already offer such a curriculum in the junior continuation class for boys between fourteen and sixteen; they must now extend this curriculum up to the age of eighteen and make it, in a very real sense, the foundation of their specialist teaching or the pivot on which such teaching will turn. This is a necessary consequence of the whole effort to make education continuous and to treat the technical college as the natural sequel to the school.

But this means that the local college of the future must assume the same kind of responsibility towards the secondary school as now falls upon the universities. Hitherto the universities have, naturally enough, set their standards to the secondary school without considering the inevitable effect of those standards when translated into terms of a truncated course of education, broken off at sixteen. The technical college has been left, as it were, to pick up the pieces as best it can. We cannot any longer content ourselves with such a system. It is useless for the university to say that it does not aspire to set any standard for the secondary schoolboy who does not intend to matriculate. The secondary school, though it knows well that 90 per cent. or more of its pupils will not enter the university, is bound to assume that any one of them may do so if his abilities develop in that direction. The university matriculation standard must therefore exercise a profound influence throughout the secondary school and it must become the joint duty of the university and the

local college to see that the boy who has worked to that standard at school until he reaches the age of sixteen does not lose way or find himself obliged to jettison his mental cargo if he passes at that age from the school into part-time education. The local college must be recognised as equally interested with the university in the standards set to the schools and, consequently, as partner with the university in setting them. This will involve systematic consultation in regard to the whole range of school curriculum, and the first point with which such consultation should deal is the question of modern languages.

If the universities are thus asked to recognise the interest of the local colleges in the curriculum of the secondary school, they will find that they, in their turn, will acquire, through the local college, an interest in and a responsibility for the curriculum of the central and the senior school, which have hitherto been wholly outside their sphere. Any standard course of education offered by a local college to ex-secondary school boys between the ages of sixteen and eighteen must exert a powerful influence, either directly or through the junior continuation class, on the central or senior school. Recently a curious situation has been developing as between the secondary school on the one hand and the new central and senior schools on the other. The secondary schools, and particularly the smaller ones which rarely send a pupil on to the university, have been growing more and more discontented with the effect of the "second language" requirement on their pupils and have begun to press for a leaving examination

which does not call for a "second language." Concurrently, the new senior schools, anxious for a status in no way inferior to that of the secondary schools, have tended to adopt a "second language" as an important part of their curriculum. This tendency is not confined to schools like the London central schools, where modern language teaching has a definite purpose as a training for commercial employment and reaches a high standard; it extends to small schools whose pupils leave at fifteen or earlier. The only possible way of reconciliation between these conflicting tendencies lies in the recognition of the fact that the utility of language teaching depends upon its continuation up to about the age of eighteen. This means that the place of language teaching in the education of the secondary, central or senior school boy who is not going to stay at school beyond the age of fifteen or sixteen will depend upon the place of such teaching in the standard courses devised by the local college, if any, to which he will have access when he leaves school. Until such standard courses are worked out in consultation with the universities, the place of languages in education between the ages of eleven and sixteen in various types of schools will remain the sport of personal predilections and language teaching will remain unsatisfactory. When, on the other hand, such courses are worked out, it will almost certainly be found necessary to offer at least two alternative courses, one including the study of a "second language" and the other not. It will then become evident that the passage from the school, whatever its type, to the local college must be corre-

spondingly marked by two alternative examinations; and schools, parents and pupils will gradually learn to exercise their choice between these examinations according to the opportunities opened up at the local college by the standard course to which the chosen examination leads.

But if schools, parents and pupils are thus to learn to look ahead and treat the local college and its standard courses as an avenue to higher opportunities, such a college must offer a real prospect of such opportunities to its students. We have pointed out that the technical courses at present offered to the workshop apprentice do not usually lead very far. We have sought remedies for this lack of opportunity in a federation of schools of technology with schools of commerce and art and in a close alliance between these three and the adult tutorial class. These are perhaps the only remedies which are easily within our reach at the present time; but they are not enough. The local college can only grow to its full stature if it develops its higher technical side also. Its students must be able to see their way through a course of the highest technical or business training to positions of responsibility in their industry. Prospects of this kind depend more upon the organisation of industry than upon the organisation of education; but there are two directions in which universities and local colleges, if they work together, can make a beginning.

The first of these is the development of schools of higher business administration. In this matter England has lagged far behind the United States and, even

to-day, when a project is on foot to found a school of business administration in the University of London, the promoters of the new enterprise are to be found mainly among the heads of commercial concerns, not among the leaders of productive industry. It is true that a good many features of recent American experiments in business training are, to say the least of it, of doubtful value; but it is even more true that a nation like ours, which leaves the administration of vast industrial enterprises to amateur directors or to managers appointed because they seem to be "the right sort of man," is inviting disaster and is leaving itself defenceless against the criticisms of meddling politicians. Probably the future school of business administration will be a post-graduate department of the university, but it must aim at recruiting the future managers of industry, not only from among university men, but also from among the rank and file of industry through the local college. The time has come when every local University should direct its attention systematically to this problem, in consultation with the industrialists and the local colleges of its area.

But business administration is not the only opportunity of advancement which should be offered to students at local colleges.

Although it is broadly true, as we have said, that the road to responsibility in industry lies through the office rather than the workshop, and, consequently, through courses of higher business training rather than through advanced studies in science and technology, yet there are even now some positions of great import-

ance in industry, which can only be filled by persons with special technical qualifications. The most obvious instance is the research chemist, whose work is daily becoming more vital to the success of industry. Hitherto most firms or associations of firms have been accustomed to look to the local university for recruits to fill these positions. Now, to speak frankly, it is common knowledge that industry is by no means satisfied with the general run of these recruits. Industrialists do not criticise them on the ground that they do not know their job ; on the contrary, the criticism is rather that, knowing their job very well, they do not know how to create new jobs for themselves—that, in fact, they lack precisely that quality of originality which distinguishes research from the routine processes of production. We have suggested that this defect is largely due to premature specialisation, and we have hinted that specialisation in scientific theory at school and university may have a worse effect on the mind than the kind of specialisation in the practical needs of an industry which characterises the technical college. We really need to experiment in two directions : to adopt, on the one hand, some such measures as have been suggested in this essay to counteract the tendency of the secondary school and university student to early specialisation, and, on the other hand, to test the capacity of the part-time student to profit from higher technical training at the university. In order to make this test, the various prospects offered to the part-time student of proved ability should include the possibility of passing over from the local college to the university, either to read

for a degree or to take a course of post-graduate study. Employers should be invited to consider whether, instead of looking for a highly trained staff entirely among men who have passed through a continuous course of whole-time education at school and university up to the age of twenty-one and expecting from the local college little more than the training of efficient foremen and accountants, they should not offer to some of the best of the younger men, who have worked for them for four or five years and have completed an apprenticeship or other course at the local college, an opportunity to attend the university.

This proposal will involve special arrangements. We have already pointed out that the proper development of technical education depends on the growth of the practice of allowing workers in industry time off during the day to attend classes, but the allowance of an hour or two on one or two days in the week is clearly not enough for a course of the highest technical or business training. This requires either full-time study, or at least considerable periods of full-time study alternating with periods of work at the factory. The arrangement of alternating periods of this kind, commonly known as the "sandwich system," already exists in the engineering industry in connection both with technical colleges and, in some instances, with universities, and the future of higher technical or business training for industry probably demands a considerable extension of this system.

Clearly, any arrangements by which students of local

colleges might thus be given the opportunity of study at the university would require the closest co-operation between colleges and universities. It is not desirable, as we have already indicated, that local colleges should resign all higher work to the universities or should come to regard a university degree as the natural goal of the work of their more promising students. It is, however, desirable that there should be a recognised path leading from one institution to the other for certain purposes and that local colleges should be closely associated with the technological and science departments of the universities in all matters affecting the work of both. A relationship of this kind already exists in the special case of the Manchester College of Technology, which is, in fact, partly an independent technical college and partly a department of the university. This instance cannot supply a general model, nor can there be any one type of co-operation generally applicable to all colleges and all universities, but co-operation of one type or another is essential to the proper development of higher technical or business education, as it is to the proper regulation of adolescent education up to the age of eighteen and to the establishment of close relations between the local college and adult classes.

We end, as we began, with an appeal to the universities. Much of the picture we have tried to draw of the possibilities of the local college may appear visionary; in insisting on the ideal of a continuous education offered to all children in the national schools

we have, of course, been running ahead of the facts of the present day. But even so we have only been anticipating. The tendency is there, and if it is to be directed into right channels it is not too early for the universities, on whom such right direction so largely depends, to give these problems their earnest consideration and to work out a national university policy in regard to them. And in one most important respect we have understated rather than overstated the significance of present tendencies. The most remarkable characteristic of present relations between industry and education is that industry is now demanding, as never before, not that schools and colleges and universities should supply it with boys or men who know their job and can be trusted to go on doing that job until the Greek Kalends, but that they should supply it with boys who can learn and can go on learning, and with men who can think and can be trusted to go on thinking. The growing criticism which now comes from industry is not so much that the things which boys or men are taught at school or college or university are not the things which they need to know for the work they have to do, though criticism of this kind is, of course, levelled by many employers at the elementary school. The criticism heard increasingly to-day is the much more serious one that boys and men who come to work after "finishing" their education have indeed finished it—that they are good workers, but that they are as good at sixteen or eighteen or twenty-one, as the case may be, as they ever are afterwards. Employers who are asked by "educationalists" to say what they want from the

schools will hardly think it necessary to say that they want educated men. They assume that, as the ordinary Englishman traditionally assumes it. The danger. the really desperate danger, at the present day is that this is just the one thing that schools and colleges and universities may fail to supply.

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