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TEXT-BOOK OF PSYCHIATRY

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A TEXT-BOOK
OF
PSYCHIATRY
FOR
STUDENTS AND PRACTITIONERS

BY

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TO

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PREFACE TO THE SIXTH EDITION

THE remarkable progress that has occurred in psychiatry in recent years in the teeth of war conditions, and even to a limited extent because of them, has made it desirable to incorporate in this edition much new material and to make some rearrangements.

The chapter on psychoneurotic forms of reaction has now been placed at the beginning of the description of the various reaction-types or syndromes, because they are much more common and come far more often under the care of the general practitioner, and even of the specialist, in his out-patient practice at least, than any other form of mental illness.

The dramatic successes attained by methods of physical treatment, such as those conducted by chemically or electrically induced convulsions and by surgical division of the white matter of the frontal lobes, have prompted us to add a special chapter on these triumphs of empiricism, based as they are on reasoning that paradoxically appears the more faulty, the more their practical successes are examined. These advances must some day prove an effective stimulus to new and more accurate pathophysiological conceptions of brain function and its relation to mental disorder.

Partly for this reason we have again made additions to the discussion on epilepsy, which in some of its manifestations is the nearest approximation we have to a " functional " brain disorder in the strict sense, its symptoms exhibiting the operation of isolated brain processes at a higher level of integration and nearer the mental level than those of any other physical disease.

The section on paranoid states has been moved from the schizophrenic reaction-types to that on paranoic and paranoid reaction-types, thus altering the classification of schizophrenic states, or dementia praecox, as formulated by Kraepelin. Our experience has led us to the view that the states described as paranoid forms of schizophrenia are much more closely allied to the paranoid reaction-types than they are to the other forms of schizophrenia. This similarity affects both symptoms and prognosis, and in consequence we feel that the undergraduate studying such

conditions will get a better idea of the whole paranoid reaction type when it is considered in the way we now suggest.

The present spate of social planning and the greater prominence given to the social aspects of medicine are in harmony with the psychiatric viewpoint that this book, following Adolf Meyer, has sought to represent, viz. that psychiatry is among the most socially oriented of all the many branches of medical science. The social aspects of psychiatry, which are likely to bulk larger in the near future, have therefore received additional commentary in appropriate places throughout the text.

The chapter on war psychiatry, which a reviewer once in the 1930's chided us for retaining, has had to be amplified so as to give those who are entering the Services a bird's-eye view of the problems, as well as of the more essential details.

Psychiatry, or to use its other and more illuminating name, psychological medicine, is indeed a living subject. There is almost nothing human which it does not somewhere touch. It seems that the complete psychiatrist of the future will have to be not only a doctor, but a social anthropologist, a psychologist, at least an elementary statistician, perhaps something of a biochemist and more than a little of a physicist. The young psychiatrist need not be deterred, but may rather think it " blessed in that dawn to be alive ". We hope that when he dips into the book he will share some of the pleasure the authors have had in their endeavour to keep it up to date and in touch with the manifold problems of the consulting room, the home, the school, the work-place, the hospital and human life generally.

D. K. H.
R. D. G.

June 1944

PREFACE TO THE FIRST EDITION

Our aim in this book has been to present psychiatry as a living subject, with important relations not only to general medicine, but to the social problems of everyday life. Recent work in psychopathology has given to the study of mental disorders a human and a scientific interest which was too often lacking before. Most of all, the biological viewpoint of Adolf Meyer and his followers of the American school has seemed to us to shed fresh light on the nature of mental illness, and to offer new hope in its prevention and treatment. This biological hypothesis regards mental illness as the cumulative result of unhealthy reactions of the individual mind to its environment, and seeks to trace in a given case all the factors that go to the production of these reactions. We hope to have shown to some extent in the following pages how much of understanding and interest these and other recent researches have added to psychiatry.

Nomenclature we have sought to make as simple as possible, as we believe that the facts are best expressed in ordinary language, and that the use of technical terms should be restricted to occasions where brevity and convenience demand them. One thing will be apparent to the reader; namely, how much regarding the nature of mental disorder remains unknown. We have presented the facts and the chief interpretations of them, indicating what among the latter seems most likely to be verified. We believe the time has come when mental illness need no longer be regarded as the mysterious preserve of a few specialists, but when a working knowledge of psychiatry is within easy reach of the general practitioner, with all that implies in the way of early recognition, prevention and treatment.

We have made a point of quoting at length clinical records of cases in our own practice, as far as space permits; and this for several reasons. Mental illness is an individual affair. Its symptoms have little meaning apart from the setting in which they occur. This setting includes not only the general mental and physical condition at the time, but the individual's personality, circumstances and history from his earliest days. Hence general descriptions of clinical syndromes, while interesting, are not of

the first importance. What is wanted always is an understanding of the patient as a human being, and of the problems which he is meeting in a morbid way with his "symptoms". It is in accordance with these principles, and with what is called the "dynamic" view, that we have utilised clinical records so extensively.

The clinical material upon which the book is largely based was observed at the Glasgow Royal Mental Hospital; the Henry Phipps Psychiatric Clinic of the Johns Hopkins Hospital, Baltimore; the Psychiatric Institute of the New York State Hospital, Ward's Island, New York; the Cassel Hospital, Penshurst, Kent; and Guy's Hospital.

We have appended only a brief bibliography. To have furnished a comprehensive list of references would have meant much additional space. We must therefore content ourselves with acknowledging our indebtedness to many of the standard text-books and to monographs dealing with special topics. Throughout the text we refer to a number of these, but where we have failed to make acknowledgment we now do so.

D. K. H.
R. D. G.

May 1927

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CHAPTER I

HISTORICAL REVIEW OF THE CARE AND TREATMENT OF MENTAL ILLNESS

MENTAL disorder, in one form or another, has been recognised from time immemorial, but it is only in comparatively recent years that serious attempts have been made to study and understand it. Progress in this branch of medicine has been slow, but the difficulties to be contended with—professional apathy, public prejudice, and the inherent complexity of the subject—have been very great, and the advance which has actually taken place has not been sufficiently recognised. To give perspective to modern psychiatric problems, therefore, we have thought it wise to mention some of the more important landmarks in the social history of psychiatry.

Writers on the history of psychiatry have habitually referred to records in Greek poetry and mythology of episodes of frenzy affecting the Heroes, but it is quite impossible at this date to form a definite opinion of the relationship of these states to mental disorder as it is understood to-day. Early Egyptian papyri contain references to mental disturbances. Thus, about 1500 B.C., it was written of senility that "The heart grows heavy, and remembers not yesterday". This statement may have had a basis, even at that time, in anatomical as well as in psychological observations; Elliot Smith has demonstrated arteriosclerosis in his dissections of mummies. The first authentic cases of mental disorder are recorded in the Books of the Old Testament, where Saul, David and Nebuchadnezzar are famous examples. Epilepsy was the type of mental illness with which the ancients were specially familiar. It was long known to them as the "sacred disease", but Hippocrates, with his customary insight, stated that "The sacred disease (epilepsy) appears to me to be nowise more divine nor more sacred than other diseases, but has a natural cause from which it originates like other

affections. Men regard its nature and cause as divine from ignorance, and wonder because it is not like other diseases." Cambyses, the King of Persia, is a much-quoted example.

An early reference, perhaps the first, to the treatment of the insane is contained in Plato's *Republic* (Bk. xi. c. 13). "If anyone is insane let him not be seen openly in the city, but let the relatives of such a person watch over him at home in the best manner they know of, and if they are negligent let them pay a fine." In the time of Hippocrates, it was the custom for the mentally afflicted to visit the temple of Æsculapius, where sacrifices and prayer were offered. Incantations and purifications seem to have been specially recommended for epilepsy. Hippocrates himself, however, believed that the brain was the organ of mind, and he denied that there was anything occult or mysterious about the occurrence of a mental disorder. Democritus, in his correspondence with Hippocrates, made the curious statement that "Hellebore when given to the sane pours darkness over the mind, but to the insane is very profitable"! Hæmorrhoids and varicose veins were alleged to relieve a disturbed mind. The treatment attributed traditionally to Asclepiades (who flourished in the first century B.C.) was later described in the Christian era by Celsus, who advocated two widely divergent methods. On the one hand, he had a use for such methods as starving, chains and flogging; because under such treatment, it was said, those who had refused food started to eat, and in certain cases the memory was refreshed. On the other hand, he deprecated venesection and the use of fomentations of poppy and hyoscyamus, maintaining that everything possible should be done to divert the melancholic, and commenting favourably on sports, music, reading aloud, rocking in a hammock, and the sound of a waterfall as methods of treatment. Themison, another disciple of Asclepiades, recommended a liberal diet, baths and fomentations. Titus has the invidious distinction of recommending stripes. Cælius Aurelianus is worthy of much praise, for he placed his patients under the best conditions of light, temperature and quiet, and recommended that everything of an exciting character should be excluded. Of particular interest are his references to tactfulness in attendants for the avoidance of antagonism, and to the limited and cautious use of physical restraint. The physician, he said, should not see the patient too frequently, lest his authority be undermined. Theatricals, entertainments, riding, walking and work were all recommended, particularly during the period of convalescence.

Topics of conversation were to be such as would suit the patient's condition. Later, excursions by land and water, and various other distractions, were to be used. He denounced semi-starvation, bleeding, chains and excessive drug therapy. Galen, basing his treatment on the humoral pathology, recommended a just balance between "moisture" and "dryness". Aretæus, probably a contemporary of Galen, advised bleeding to relieve the liver in melancholy, purging by means of aloes, and baths; and, in convalescence, natural hot baths for their sulphur and bitumen.

Mediæval Europe left the treatment of mental illness to priests, and superstitious beliefs in witchcraft and the like flourished. Special reference may be made to contemporary customs in the British Isles. Treatment by herbs, and binding in chains and fetters, are mentioned in old Saxon chronicles. Certain wells were considered to have special virtue. Of these, the most famous were St. Fillans, St. Ronans, Struthill, and a well on a small island on Loch Maree, in Scotland; St. Winifred's Well in Wales; and some in England, particularly in Cornwall. The Valley of Glen-na-Galt in Ireland had more than a local reputation.

Lunacy legislation appeared in England as early as 1320, in Edward II.'s reign, when it was enacted that the property of lunatics should be vested in the Crown. The first place of care for the insane in the British Isles was Bethlem in London, where in the year 1403 six lunatics were confined. It had been founded in 1247 as a priory of the Order of the Star of Bethlem. In 1546, Henry VIII. granted St. Bartholomew's Hospital and Bethlem to the laity, and in 1632, a medical man, Crookes, was appointed governor of Bethlem.

In the seventeenth century, the great Sydenham prescribed for "mania" after long agues a cordial, generous indeed, consisting of Venice treacle (which contained the flesh and blood of vipers, and sixty-one more ingredients), canary wine and honey. This was given three times a day, with rest in bed; even pregnancy was no contra-indication. In addition, Sydenham strongly recommended bleeding in the treatment of "mania", saying, "Young subjects, if of a sanguine habit, are to be bled to the extent of nine ounces on two or three occasions, with three days between each bleeding". A caution was given not to exceed this amount of bleeding; "otherwise idiocy and not recovery will result". The bleeding was followed by a course of purgative pills. In place of venesection, Denis, of Paris, in 1667, introduced the transfusion of blood. This he employed in

the case of a love-sick youth, with fatal results, and an action for damages followed.

In the next century, great indignation was aroused throughout the British Isles by the treatment meted out to King George III., who was subject to periodic attacks of mania. The treatment of his case was largely left in the hands of a Dr. Willis, who had gained considerable reputation by his management of a private house in Lincolnshire, where he cared for approximately 20 patients. In conducting this private home, he allowed maniacal patients much freedom. If they escaped, the wages of the delinquent attendant were withheld until the patient returned. The Royal patient was treated with singularly little respect. No hesitation was evinced in knocking him down. He had to submit to blisters and a strait-jacket. Willis ascribed great value in the King's case to the use of Peruvian bark. There was so much friction between the various physicians who were called to see the King that the House of Lords appointed a Committee to inquire into the matter. It was after this that greater public attention was directed to the condition of the insane throughout the country.

The modern era of the care and treatment of mental illness dates from the end of the eighteenth century, and may be divided into three periods :

1. The period of humane reform, with which are associated the names of Pinel and Esquirol in France, Tuke in England, Fricke in Germany, and Morgagni, Chiarugi and Daguin in Italy.

2. The introduction of non-restraint by Gardiner Hill, Charlesworth and Connolly in England, and in America by Bond, Kirkbride and Rush.

3. The hospital period.

These periods will be dealt with in order, although they necessarily overlap.

Humane Reform.

In 1792, Pinel, who was physician to the Bicêtre Hospital, was given a free hand by the Revolutionary Commune, and liberated in less than a week more than 50 patients, some of whom had been in chains for thirty years. He believed that these patients were unmanageable only because they had been robbed of air and liberty, and the results proved that he was right. He constructed promenades and workshops, and introduced light and air where before was the darkness and stench of dungeons.

His work was continued by his pupil Esquirol, who succeeded Pinel at the Salpêtrière in 1810. Esquirol made great reforms in housing and regimen; travelled all over France to carry out Pinel's ideas; founded no less than ten asylums, and was the first lecturer on psychiatry.

After Esquirol came Ferrus, who received the new title, "Inspecteur-Général du Service des Aliénés". He had the distinction of starting a farm in connection with the Bicêtre, employing only patients on it. From his advocacy resulted the law of 1838 for the establishment of new mental hospitals in every department of France, and the improvement of the existing ones.

Almost simultaneously with these epoch-making reforms in France, the exertions of William Tuke and Lindley Murray in England resulted in the opening of the York Retreat in 1796.

In Germany the modern era began with Fricke, who in Brunswick in 1793 applied humane medical treatment, and greatly reduced mechanical restraint. In 1803, Reil published a volume entitled *Rhapsodies on the Use of Psychic Treatment in Mental Disorder*, and in 1805 appeared the first journal devoted to the study of mental disorders—the *Magazin für Nervenheilkunde*—which was edited by Reil and Kayssler.

The reforms begun in England by Tuke, which resulted in the establishment of the York Retreat, were followed by the introduction of a Bill into Parliament for the better treatment of the insane. This Act, known as "Wynne's Act", was introduced in 1808, and is described as "an Act for the better care and maintenance of lunatics being paupers or criminals in England". Amending Acts were introduced in 1811, 1815, 1819 and 1824, and these have laid the basis for the present lunacy administration of this country. It was not, however, until 1845 that a Lunacy Commission was established in England, and, in 1913, was reorganised as the Board of Control. In 1815, a Committee was appointed to investigate the conditions in "madhouses" in England. The Report of this Committee stated that keepers of houses for the insane admitted a greater number of persons than they were calculated for, there was an insufficient staff, a larger amount of restraint was used than was otherwise necessary, noisy patients were mixed with quiet ones, the certificates on which the patients were received were insufficient, and the visitation of private madhouses was defective. No immediate action followed this Report, but it served the purpose of drawing attention to the grave abuses which existed. For instance, at the York Lunatic Asylum it was found that

there had been great neglect and cruelty. Of 365 patients who had died, the deaths of only 221 had been reported; a patient had been killed, and the body disposed of to avoid an inquest; and two sets of books had been kept. At this time, when Dr. Monro, the Superintendent of Bethlem, was questioned about the treatment, he replied: "Patients are ordered to be bled about the latter end of May, according to the weather. After they have been bled, they take vomits once a week for a certain number of weeks. After that, we purge the patients. That has been the practice invariably for years, long before my time." It is true there were no strait-jackets—irons were held in greater esteem! Patients were chained in a state of nudity to tables. A female patient in a hospital at Bethnal Green was confined in a quondam pig-sty. Male attendants not infrequently had charge of female wards, and the immorality and depravity which existed beggar description.

It was not until 1828 that a Bill was passed which appointed fifteen Commissioners for the Metropolitan District to visit Homes in which the insane were detained. Patients were not to be admitted into them without medical certification, and all admissions, removals and deaths were to be reported to the Commissioners.

A few years previously, in 1823, Sir Alexander Morison, who had been a pupil of Esquirol's, instituted in Edinburgh a course of nine systematic lectures in psychiatry; in 1826 a supplementary course was given in London. Morison, therefore, can be ranked as the first teacher of systematic psychiatry in Great Britain.

In America the humanisation of conditions in mental hospitals was associated with the names of Doctors Bond, Kirkbride and Rush, and the reforms instituted there were in line with what was happening in France and England. The otherwise enlightened Rush published a book called *Observations on the Diseases of the Mind*, in which he advocated copious bleeding, low diet, purges, calomel and opium, but these methods were discarded by his successors, and "supporting treatment" was generally favoured.

Abolition of Restraint.

This period was initiated in 1837 by Gardiner Hill and Charlesworth at the Lincoln Asylum. In 1829, in the Lincoln Asylum, there were 72 patients. Of these, 39 were constantly restrained, and the total number of hours of restraint was 20,424 per annum. Under the régime of Hill and Charlesworth, of

130 patients only 2 were under restraint for a total period of twenty-eight hours per annum. In subsequent years, mechanical restraint was entirely abolished. The condition of the patients was greatly improved, they became quieter, and accidents and suicides were much less frequent. Connolly at Hanwell became an enthusiastic advocate of non-restraint, and after a period of five years he wrote in one of his reports: "There is no asylum in the world in which all mechanical restraints may not be abolished, not only with perfect safety, but with incalculable advantage". In 1856 he published a book entitled *The Treatment of the Insane without Mechanical Restraint.* The *Edinburgh Review* of 1870 commented on Connolly's work in this way: "To Connolly belongs a still higher crown, not merely for his courage in carrying out a beneficent conception on a large scale and in a conspicuous theatre, but for his genius in extending it. To him, hobbles and chains, handcuffs and muffs, were but material impediments that merely confined the limbs; to get rid of these he spent the best years of his life; but beyond these mechanical fetters he saw there were a hundred fetters to the spirit, which human sympathy, courage and time only could remove."

Perhaps the most striking personality among all the pioneers was Dorothea Lynde Dix. This remarkable woman, handicapped as she was by unsatisfactory home conditions and by poor physical health, nevertheless showed indefatigable energy in investigating the care and treatment of the mentally disordered. In America she was responsible for improving the condition of the existing hospitals and for creating new ones. Altogether she founded approximately thirty-two institutions. "Could all the prisons on new and better plans she carried bills for, and all the almshouses she caused to be thoroughly reconstructed, be added to these, and then all brought vividly before the mind's eye, the impression would be amazing indeed." While in a state of ill-health, Miss Dix paid a visit to Scotland, and visited a number of mental hospitals in and around Edinburgh. Many of these she found to be well conducted, but in others she discovered serious abuses. She met with great opposition, and was dubbed the "American invader". But she persisted in her efforts, and in the course of a few weeks she was responsible for the appointment of a Royal Commission to inquire into the condition of lunatic asylums in Scotland and the existing state of the law of that country in reference to lunatics and lunatic asylums. This Commission was appointed on April 3, 1855, and it was largely as a result of its investigations that parochial

institutions for the care and treatment of the insane were established in Scotland. She thus accomplished in a few months what others had tried in vain to do for years.

Owing to the lack of suitable institutions for the care and treatment of mental cases, a system of colony care arose, which has met with considerable success. The colonies of Gheel and Lierneux in Belgium, the colony established by the brothers Libatte at Clairmont (Oise), twenty miles from Paris, and also colonies in Hanover and Moravia deserve particular attention. The most famous of these colonies is the one at Gheel. The daughter of an Irish king, called Dymphna, fled there and was murdered by her father. Some mentally afflicted persons who witnessed this crime were stated to have recovered their health. A legend quickly grew in that superstitious age, and pilgrimages were organised for the mentally sick. Many of the pilgrims remained to live among the inhabitants, and so formed the first "colony". The colony is largely agricultural, and at the present time, among a population of approximately fifteen thousand, there are some 1500 certified mental patients, who are boarded and cared for in private households. Under this system the patient lives as one of the family, and has no restrictions placed upon his freedom, except that he must be home by eight o'clock in the summer and by four o'clock in the winter, and is not allowed to enter an inn, or be served with alcohol, without special permission. The patient, in the first place, is admitted to a central observation hospital, from which he is sent to a family where he is likely to be suitably looked after. The features of this system which are particularly important are: the personal liberty, the economy, the humanising influence of the association with sane people, the influence for recovery, and the fact that the patient is treated as an individual.

In Scotland, a closely associated form of treatment called the "boarding-out system" has been in use ever since the middle of last century. This system is somewhat different from that which exists at Gheel, owing to the fact that the patients boarded out are not segregated in one colony, but are scattered throughout the country over a wide area. This system is particularly applicable to congenital cases and to harmless, demented patients, but there are certain drawbacks in connection with it which need not be elaborated here. The natural consequence of the humanisation of the care of mental patients, the abolition of restraint, and the provision of increased accommodation has

been the disappearance of the shades of the prison-house, and the appearance of the hospital atmosphere.

The Hospital Period.

In modern times the administration of mental hospitals has been steadily improved, and, although we would point out that we do not consider it will ever be possible to use them as general hospitals are used, yet in their actual management, and in their medical equipment, a good attempt is being made to approach general hospital standards. The object has been to develop the curative side of the treatment of mental illness, and, at the same time, to improve the public attitude towards such hospitals. At the time when the "non-restraint" period came into being, a system of seclusion was substituted, which consisted of treatment in single rooms, often with locked doors, and in padded rooms. This system of single-room treatment is gradually and steadily falling into disuse, an advance rendered possible by increasing both the medical and the nursing staff. In addition to improving the quantity of the personnel, the quality has been improved. This is indirectly due to the employment of female nurses in the male wards, and to having general hospital-trained matrons at the head of the nursing staffs of mental hospitals. The credit should be given in the first place to Dr. Samuel Hitch, who founded the Medico-Psychological Association, and in the same year (1841) introduced female nursing of male patients into the Gloucester General Lunatic Asylum. Dr. Hitch employed the wives of his married charge-attendants to help their husbands in the male wards. Dr. Browne in 1854 started classes for the training of nurses at the Crichton Royal, Dumfries, while in America the systematic training of nurses was instituted at M'Lean Hospital, Boston, Mass., in 1877. Dr. Campbell Clark was the first to appoint a trained hospital nurse to the post of matron (1880), and in the following year he commenced the systematic training of asylum nurses and attendants, and was responsible for the *Handbook for Attendants on the Insane*, which has now been greatly elaborated, but is still used as the official text-book for the examinations of the Medico-Psychological Association. Clouston, Turnbull of Kinross and Robertson have all done much to foster the hospital spirit by the introduction of female nurses in the male wards, and the practice of employing hospital-trained nurses has been adopted not only in Scotland, but also in England and in America. This system has been instrumental in bettering the care of mental

hospital patients, and has undoubtedly tended to foster the hospital spirit. As a matter of experience, it can be said that male patients in a mental hospital for the most part prefer women nurses, and are usually much less troublesome and less excitable when under their care than when under the care of male nurses. We are well aware, however, that male nurses are an absolutely essential part of any mental hospital, because there are always a certain number of male patients who cannot possibly be cared for by women nurses. In addition to improving nursing conditions by day, the night staffs of mental hospitals have been increased to a great extent. It is no longer a question of locked doors or padded rooms. In every modern mental hospital difficult patients should be under observation not only by day but by night. This can be accomplished (and is being accomplished) by more adequate subdivision of patients than heretofore. It is necessary that the mental hospital should be provided with admission wards, wards for acute cases, for hospital cases, and for those who need continued care.

It is now generally agreed that the seeds of many mental disorders are sown in childhood. For this reason, as well as on account of the numerous existence of "nervous" troubles in children, a children's division should form part of every psychiatric clinic. This should comprise an out-patient department, and in-patient accommodation for observation and treatment of the more difficult cases should be attached. A number of "Child Guidance Clinics" have been set up in the U.S.A. and more recently in Britain, mainly separately from hospital or adult clinics. It is preferable that such clinics should be part of a general medical organisation. Experience has proved that there is no difficulty in this, and many advantages. Kanner and others have been greatly impressed by the necessity of developing such departments in relation to pædiatric hospitals.

Medical students are now getting a more comprehensive course of instruction in mental disorders, the introduction of the Diploma in Psychological Medicine having helped to create a better standard; while from the nursing standpoint, the Royal Medico-Psychological Association has done excellent work by its examinations. It is hoped that the standard of nursing will be further raised by the fact that all nursing is now being brought under the General Nursing Council.

While it is important that everything possible should be done from the medical, nursing, laboratory and occupational points of view to make the mental hospital in every sense a place where

sick people can be nursed and satisfactorily looked after, we believe that this period of modern care should concern itself especially with prevention. Every effort should be devoted to building up a system of psychiatric clinics, with accommodation for from 60 to 100 patients, with outdoor departments in connection with general hospitals, and with the provision of a social service department, so that after-care can be properly organised and carried out. We consider that the closer the connection between such a psychiatric clinic and the general hospital, the better. Recent experience has shown that with modern methods of treatment a considerable range of mental illness can be treated in the wards of a general hospital; but this is on the whole to be regarded as a provisional arrangement pending the establishment of specially constructed and equipped psychiatric clinics within general hospitals. The psychiatric clinic should, however, be an integral part of the latter. Mental illness is thus put on a similar footing to physical illness, and the patient can have the advantage of intensive study by experts in general medicine. The general medical staff are benefited educationally by such an arrangement. Experience has already demonstrated the truth of these views in America and the Continent.

Close connection should also be established between the clinic and education authorities, welfare and charitable societies, the courts, and employers of labour.

Collaboration with such bodies is greatly aided by social workers attached to the clinic. These workers should be specially trained in psychiatric social work, for which special courses of training are now being instituted. In addition to aiding collaboration with the social organisations, such workers are of much value in collecting information for the medical staff of the clinic from the patient's home, from school and elsewhere, as well as in helping to carry out the psychiatrist's recommendations.

Social or Community Period.

An Institute of Social Medicine has been established at Oxford University, the purposes of which have been stated as follows:

(1) To investigate the influence of social, genetic, environmental and domestic factors on the incidence of human disease and instability.

(2) To seek and promote measures, other than those usually employed in the practice of remedial medicine, for the protection of the individual and of the community against such forces as

interfere with the full development and maintenance of man's mental and physical capacity.

(3) If required by the University to do so, to make provision in the Institute for the instruction in social medicine of students and practitioners of medicine approved by the Board of the Faculty of Medicine in the University of Oxford.

The development outlined above opens up a new epoch in medicine and emphasises what psychiatry has for so long been doing—treating the individual in his social setting and making allowance for psychological as well as physical factors. This is really an application of the psychobiological conceptions of Adolf Meyer which will be referred to later. It has been shown, for example, that in a group of 174 patients admitted to the Medical Wards of the Johns Hopkins Hospital no less than 66 per cent presented social problems that were related to their illness, while in 36 per cent social and emotional factors were the chief precipitating cause of illness (Canby Robinson, *Clinics*, vol. i, 4, Dec. 1942).

The work of any psychiatrist is in fact nowadays constituted largely by problems connected with family, social and industrial life. To adult education in the art of living and of making adjustments to others the psychiatrist is continually called upon to make contributions.

In the case of nervous and difficult children the collaboration of the educationist is likely to become closer. The " broken home "—that fruitful source of psychological ill-health, both in childhood and in later life—is likely, alas, to be a commoner factor than ever before, not only from the death of a parent but as the result of the disruptions of family life produced by war emergencies, all the more traumatic as they have occurred at crucial periods in the emotional development of the young.

The education of those standing *in loco parentis* is to a great extent a psychiatric matter, which in England is being undertaken by the Provisional National Council for Mental Health in the form of lectures and tuition for those in charge of nurseries, residential schools and hostels for young people. The selection and education of youth leaders obviously has psychiatric aspects ; and not only of these but of all who are destined to hold positions of responsibility in a community. Selection on grounds of character and temperament cannot replace, but it should usually supplement, scholastic tests of admission to responsible professions and positions.

The occurrence of sickness in industry is known to be in no

slight degree a psychiatric concern, for while it may depend on individual and private difficulties it often springs from general factors, producing widespread discontent, a sense of insecurity and fears of disablement. That the numbers of notifications of miner's nystagmus increased steadily after the introduction of compensation laws is an indication, not of any lack of honesty on the part of the great majority of the sufferers, but of the effect of unattractive and dangerous work and poor social conditions upon the mental attitude of the men engaged in it.

The great loss of working hours as a result of industrial accidents, and the large amounts paid in benefit for them, are notorious. The social loss does not stop with the expense involved. M. S. Viteles (*Industrial Psychology*, London, 1933) points to the existence of costs, other than obvious costs such as payment for medical treatment by insurance. To these, he says, must be added the expense of training men to take the place of those who are injured. There is also the slowing-up of work, the financial burden upon public agencies in supporting the families, and so on, as well as the depressing effect on the family prospects because of prolonged ill-health after injury to the bread-winner. Martin Dawson has found that an " unsettled home " from such causes facilitates the development of nervous conditions in children.

The fact that the greater number of accidents occurs among the smaller proportion of individuals is becoming well known. M. Greenwood and H. M. Woods (*Incidence of Industrial Accidents upon Individuals with Special Reference to Multiple Accidents* (1919), Rep. Industr. Fatig. Res. Bd., London, No. 4) came to the conclusion that the proneness to accident among certain individuals is a function of personality and is not determined by any obvious extrinsic factor. In an analysis of the relevant traits of personality, the Metropolitan Life Insurance Company of New York (quoted by M. S. Viteles *loc cit.*, 1933) has shown that nervousness and fear, worry and depression, impulsiveness, irresponsibility and fatiguability together make up 28 per cent of the primary causes of " accident proneness ".

The duty of the psychiatrist lies not least in educating his fellow doctors in these matters, so that they may fulfil psychiatric functions as far as possible. Those who come first into contact with problems of this kind are often in a better position than anyone else to effect a cure. There can have been few branches of medicine in which there has been a greater time-lag as a rule between the appearance of the problem and the initiation of

appropriate treatment. It seems best that psychiatry should extend to the community in these ways, where the ground is already explored and known, before it tries to extend still further and become part of the science of community life, of government, and even of international relations.

CHAPTER II

CLASSIFICATION

THE development of psychiatric thought has been related from the earliest times to the beliefs of religion and folk-lore, and to contemporary medicine, physiology and psychology. But psychiatry has lagged far behind these systems of knowledge. The reason is partly to be found, and partly finds expression, in the lack of a satisfactory method of classification. It is true that even in the time of Hippocrates a few comprehensive types were recognised, namely, so-called " mania ", " melancholia " and " dementia ", but their significance was ill-defined, and for two thousand years little advance was made. It could hardly be otherwise, so long as supernatural agency was invoked to account for mental disorder, and so long as physiology believed in humours, spirits and bizarre localisation of function, and had no constant recognition of the interrelation of mind and brain.

With the beginning of pathological investigation and its correlation with clinical symptoms by Willis in the seventeenth century, by Haslam towards the end of the eighteenth, and by Bayle in his classical description of general paralysis which appeared in 1820, the foundations were laid for a more fruitful psychiatric classification.

The principles adopted for subdivision have been symptomatological, ætiological, psychological and physiological. Often two or more of these have been simultaneously used in the same classification.

Psychological Classifications.

In this method, *a priori* formulations are made usually from current academic psychology, and an attempt is made to fit all cases into the rack thus constructed. Linnæus (1763) was early in this field, and divided his cases into Ideales, Imaginarii, and Pathetici. Arnold (1782) had two main

divisions, Ideal and Notional, or as we should say, disorders of perception and imagination, and conceptual disorders. Crichton (1798) described insanity under the headings of faculties (including attention, etc.), principles (including volition and consciousness) and passions. Pritchard's two divisions (1822) were Moral Insanity and Intellectual Insanity. His "moral insanity" was corrupted into "moral imbecility" or "moral defectiveness" and now is recognised by the term Psychopathic State; it will be considered separately and in detail in another chapter. Heinroth's analysis was more searching, and included disorders of the understanding, disorders of the will or propensities, and mixtures of these. Bucknill and Tuke, following the Scots metaphysicians, had two main divisions, Intellectual and Affective, the latter being subdivided into the moral sentiments and the animal propensities. Ziehen classified mental disorders into those without and those with intellectual defect, and the former into affective and intellectual forms, while the latter are subdivided into congenital and acquired.

The disadvantages of psychological classifications are chiefly these: they are derived from speculation remote from the field of psychopathology; disorders are forced into one psychological category, when they may more correctly belong to several; and they bring together in one group psychoses essentially different (Kraepelin).

Physiological Classifications.

The primary and damning disadvantage of this method is that so little is known of the physiology of normal mental processes, and still less of abnormal ones. Further, the method often involves ill-established hypotheses of localisation. Connolly's is an early example. "All forms of mental disorder are dependent on one of three states of the nervous system: a state of increased or diminished or unequal excitement." Laycock made much use of a hypothetical localisation, *e.g.* he wrote of "disorders of encephalic centres subservient to emotions and sentiments"—"the ideogenic or sensorial substances" of the cerebellum and hemispheres, but he stressed especially the reciprocal influence of body and mind. Tuke (1892) would base his classification on the divisions of sensory, motor and ideational centres, with their corresponding disordered manifestations of hallucinations, paralysis and dementia. Meynert's scheme (1884) was partly dependent on physiological assumptions. His groups were (1) clinical forms

arising from anatomical changes; (2) disorders of nutrition involving (*a*) cortical excitement, mania and melancholia, (*b*) subcortical irritation or feebleness (*e.g.* delusions and hallucinations), and (*c*) disorders of subcortical vascular centres, *e.g.* epilepsy; and (3) intoxications. Wernicke made several sweeping psychophysiological assumptions which were fundamental for his grouping. Making use of the doctrine of specific nerve-energies, he first of all assumed that every content of consciousness was dependent on a definite set of nervous elements. Further, he took his aphasic scheme as the paradigm for mental processes in general, which consist for him in a chain containing a psychosensory, an intrapsychic and a psychomotor element. In mental disorders interruption might occur at any point ("sejunction"), and the function of any element might be either increased or diminished. Accordingly, he arranged the disorders of the associative chain as follows:

Psychosensory sphere.	Intrapsychic sphere.	Psychomotor sphere.
Anæsthesia.	Afunction.	Akinesis.
Hyperæsthesia.	Hyperfunction.	Hyperkinesis.
Paræsthesia.	Parafunction.	Parakinesis.

Wernicke believed in the localisation of memories, and that hallucinations were caused by irritation of the memory-image centres and irradiation thence to perception-cells. His classification depends equally on the above assumptions and on his division of concepts into those of the outside world, of the personality, and of the body—"allopsychic", "autopsychic", and "somatopsychic". Neither his rigid application of the doctrine of specific nerve-energies nor his theories of localisation and sejunction have an established validity.

Ætiological Classifications.

Classification according to cause has obvious disadvantages—the multiplicity of causes and imperfect knowledge of most of them, and the fact that one cause may produce vastly different clinical pictures in different persons, and, conversely, that very various clinical pictures may arise from the same apparent cause. Jacobi was a pioneer in this method, and, in 1830, boldly declared that insanity existed solely as the result of disease in the bodily system.

Morel (1860) described hereditary, toxic, idiopathic and sympathetic insanity, and insanity "from transformation of other diseases". Skae went much further, and his classification has a type of mental disturbance for almost every common physical disorder—gout, phthisis, uterine, ovarian, etc.

Clouston followed Skae's example, and had a number of "more or less important clinical varieties"—anæmic, diabetic, metastatic, and a dozen others.

Tuke made classification easy by enumerating, like Skae, all disorders associated with known organic conditions, and by throwing all the rest into a group covered by "disease of the generative system"—a sweeping ætiological theory which had no more than a coincidental foundation at that time.

British Classification

The Royal Medico-Psychological Association has recently adopted the following grouping:

Classification of Mental Disorders
(Royal Medical Psychological Association)

Part I

A. Oligophrenia (amentia, mental deficiency):
   - (*a*) Idiocy.
   - (*b*) Imbecility.
   - (*c*) Feeble-mindedness (moron).
   - (*d*) Moral deficiency.

B. Neuroses and psychoneuroses:
   - (*a*) Exhaustion states (including neurasthenia).
   - (*b*) Anxiety states.
   - (*c*) Compulsions, obsessions and phobias.
   - (*d*) Hysteria.
   - (*e*) Mixed and other forms.

C. Schizophrenic psychoses:
   - (*a*) Dementia præcox.
     - i. Simple.
     - ii. Hebephrenic.
     - iii. Katatonic.
     - iv. Paranoid.
   - (*b*) Paraphrenia.
   - (*c*) Other forms.

D. Psychopathic constitution (including paranoia).

E. Affective psychoses:
   - (*a*) Manic-depressive psychosis (cylothymia).
     - i. Elation.
     - ii. Depression.
     - iii. Stupor.
   - (*b*) Involutional melancholia.

F. Confusional States.
G. Epileptic psychoses.
H. General Paralysis.
I. Other psychoses associated with organic brain disease.
J. Dementia.
K. Indeterminate types.

Part II. consists of a list of etiological headings.

This scheme can hardly be held to reflect modern psychiatric teaching as fully as might have been achieved. Confusional insanity is not a clinical entity on an equal footing with the other categories of Part I. ; it is nearly always, if not always, a symptom of some one of the other mental disorders. We have never seen a case which could not be more profitably designated as something else. In actual practice there have been grouped under this heading such diverse diseases as alcoholic, toxic and exhaustion states, senile confusion, and dementia præcox. A given case will therefore sometimes fall not only into a category of Part II. but into two categories of Part I. A similar criticism applies to the allocation of dementia to a separate category on an equal footing with, for example, schizophrenia, and the affective psychoses, of either of which a type of dementia is a terminal state.

To those familiar with psychoneurotic reaction types it will seem unfortunate to separate " exhaustion states " and the vague " neurasthenia " from the others, exhaustion again being a symptom which on further analysis will be found to express either an anxiety or a hysterical psychoneurosis or some other form of mental illness.

Paranoia has been included under " psychopathic constitution " as in some older classifications, but the justification for this is more than doubtful.

Symptomatological Classifications.

Kraepelin is the outstanding exponent of this method, and obtained his most valuable inductions from it. Yet even his method involves much ætiology as well. The symptomatological method is essentially the method of clinical psychiatry, and if only for that reason is to be commended ; for it stimulates observation, and, if broadly used, has valuable consequences. It includes the principles of other methods without falling into their errors and becoming involved in their unnecessary assump-

tions. It is true, of course, that in this method, as in Nature generally, there are no hard and fast boundaries, and that a given symptom will appear in several symptom groups; but "the agreement of a great number of cases in certain signs", as Griesinger puts it, is the justification for the construction of an empirical division. If further, not simply a "cross-section" of each case is taken, but a "longitudinal section" also, so that the evolution of the psychosis is taken into account in the symptomatology, a more comprehensive foundation is obtained for classification.

A distinction, first made by Kahlbaum, arises here—that between the fundamental underlying disease and the temporary symptom-complex which it displays. The method of observation which has just been commended enables this distinction to be made, and allows us to speak of episodes arising in the course of a disorder, such as hysterical symptoms in a schizophrenic psychosis, and depressive periods in the course of general paralysis. This distinction of Kahlbaum's has recently been carried further, so that the mental disorder itself is regarded as the expression of a fundamental innate disposition (*e.g.* Bleuler's "schizoid" disposition—see "Personality"). It was Kraepelin who first furnished a systematic symptomatological grouping with special attention to the course and outcome of the various types of disorder. This he accomplished by following them over a long period of years. It has been shown that the delineation of clinical sub-types of certain psychoses on a ymptomatic basis can be borne out by a statistical analysis (T. V. Moore).

American Classification

The following is Kraepelin's classification, as modified by the American Psychiatric Association:

1. *Psychoses due to or associated with infection—*

Syphilis of the Central Nervous System:
Meningo encephalitic type (general paresis).
Meningo vascular type (cerebral syphilis).
With intracranial gumma.
Other types.
With epidemic encephalitis.
With tuberculous meningitis.
With meningitis (unspecified).
With acute chorea (Sydenham's).
With other infectious disease.
Post infectious psychoses.

2. *Psychoses due to intoxication*—
   Due to alcohol:
      Pathological intoxication.
      Delirium tremens.
      Korsakow's psychosis.
      Acute hallucinosis.
      Other types.
   Due to drugs or other exogenous poisons:
      Due to metals.
      Due to gases.
      Due to opium and its derivatives.
      Due to other drugs.
3. *Psychoses due to trauma*—
   Traumatic delirium.
   Post-traumatic personality disorders.
   Post-traumatic mental deterioration.
   Other types.
4. *Psychoses due to disturbance of circulation*—
   With cerebral arteriosclerosis.
   With cerebral embolism.
   With cardio-renal disease.
   Other types.
5. *Psychoses due to convulsive disorders* (epilepsy)—
   Epileptic deterioration.
   Epileptic clouded states.
   Other epileptic types.
6. *Psychoses due to disturbances of metabolism, nutrition or endocrine function*—
   Senile psychoses:
      Simple deterioration.
      Presbyophrenic type.
      Delirious and confused types.
      Depressed and agitated types.
      Paranoid types.
   Involutional psychoses:
      Melancholia.
      Paranoid types.
      Other types.
   With diseases of the endocrine glands.
   Exhaustion delirium.
   Alzheimer's disease.
   With pellagra.
   With other somatic diseases.
7. *Psychoses due to new growth*—
   With intracranial neoplasms.
   With other neoplasms.

8. *Psychoses due to unknown or hereditary causes, but associated with organic changes—*

With multiple sclerosis.
With paralysis agitans.
With Huntington's chorea.
With other brain or nervous diseases.

9. *Psychoses of psychogenic origin or without clearly defined tangible cause or structural change—*

Psychoneuroses :
Anxiety hysteria.
Conversion hysteria :
Anæsthetic type.
Paralytic type.
Hyperkinetic type.
Parasthetic type.
Autonomic type.
Amnesic type.
Mixed hysterical psychoneurosis.
Psychasthenia or compulsive states :
Obsession.
Compulsive tics and spasms.
Phobia.
Mixed compulsive states.
Neurasthenia.
Hypochondriasis.
Reactive depression.
Anxiety state.
Mixed psychoneurosis.
Manic-depressive psychoses :
Manic type.
Depressive type.
Circular type.
Mixed type.
Perplexed type.
Stuporous type.
Other types.
Dementia præcox (schizophrenia) :
Simple type.
Hebephrenic type.
Katatonic type.
Paranoid type.
Other types.
Paranoia.
Paranoid condition.
With psychopathic personality.
With mental deficiency :
Idiot.
Imbecile.
Moron.

10. *Undiagnosed psychoses.*

11. *Without psychosis—*
    Alcoholism.
    Drug addiction.
    Disorders due to epidemic encephalitis.
    Psychopathic personality :
        With pathological sexuality.
        With pathological emotionality.
        With asocial or amoral trends.
        Mixed types.
    Epilepsy.
    Mental deficiency :
        Idiot.
        Imbecile.
        Moron.
    Other non-psychotic diseases or conditions.
    No other condition.

12. *Primary behaviour disorders—*
        Simple adult maladjustment.
    Primary behaviour disorders in children :
        Habit disturbance.
        Conduct disturbance.
        Neurotic traits.

Bleuler has departed to some extent from the Kraepelinian nosology, altering the conception of dementia præcox by including in it everything not manic-depressive, and in accordance with his views he has renamed disorders of this type " schizophrenic ". Kraepelin's method—and consequently his classification—has brought certain disadvantages in its train. This is in part due to his following the Wundtian psychology and its threefold division of mental functions into emotion, thought and volition. Kraepelin's corresponding conceptions are the unity of the triad —depression, retardation of thought and retardation of movement—and the unity of its counterpart—elation, flight of ideas and motor over-activity—as if there were some necessary connection between the components of each of these triads of symptoms. For certain groups of cases of his "manic-depressive" type he has consequently to speak of " mixed forms " when there is no necessary " mixture ", unless his conception of the essential unity of each triad is accepted as fundamental. A greater objection is the implication regarding outcome which is made in cases classified on prognostic principles, and the danger that in the physician's mind relegation to a certain class may also relegate the patient to the category of irrecoverables.

The truth is, that no attempt at psychiatric classification is entirely satisfactory, and consequently that "diagnosis", or the placing of the patient in the appropriate class, is on an unstable foundation. But, fortunately, it is not diagnosis that matters, but the understanding of the disorder, and of the patient who suffers from it—under what circumstances it arose, how it is related to the patient's normal condition, what the disorder means, what light is shed on his problems, and what can be done to help towards a favourable outcome. In Adolf Meyer's words, it is not the patients we are to sort out, but the facts; and while in the following pages the case records will be arranged in groups for the sake of more or less systematic description, the disorders exhibited will be considered as the individual reactions of a specifically endowed, and often constitutionally loaded, organism to the environment.

Nevertheless, classification is useful and even necessary; first, for the student, that he may more readily grasp and arrange his cases; and second, for the compilation of a uniform set of statistics by institutions and administrative authorities, in order to make comparison possible. It seems to us that it would be a great help to British psychiatry if a uniform type of classification were adopted similar to that outlined immediately above. The Royal College of Physicians (England) has recognised this and adopted, in its Nomenclature of Diseases, a classification similar to that which follows here.

Classification: Suggested Scheme

The following is a simple general scheme: Following Meyer, we speak of different types of mental disorder as different *types of reaction*. We use the term "reaction-types" instead of referring to mental diseases, as expressing the point of view which concentrates upon the study of the individual as a psycho-biological organism perpetually called upon to adapt to a social environment. We recognise that in many instances the constitutional element is the important factor, that the environmental influences in a number of cases are of relatively minor importance and that there are all degrees of relative participation of these two factors. But we also recognise that there is an internal environment and that what is regarded as a "constitutional" type of mental disorder may often be the reaction of the mind to inner stimuli to which it finds difficulty in maintaining a healthy adjustment.

1. Affective reaction-types :
   (*a*) Manic-depressive.
   (*b*) Involutional melancholia.
2. Schizophrenic reaction-types.
3. Paranoiac and paranoid reaction-types :
   (*a*) Paranoia.
   (*b*) Paraphrenia.
   (*c*) Paranoid states, with or without hallucinations.
4. Psychopathic states.
5. Organic reaction-types :
   (*a*) Acute (delirium).
   (*b*) Chronic.
6. Epilepsy.
7. Mental deficiency :
8. Psychoneuroses :
   (*a*) Neurasthenia.
   (*b*) Anxiety states.
   (*c*) Hysteria.
   (*d*) Obsessive-compulsive states.
9. Unclassified, *e.g.* some cases of *folie à deux.*

Most of these are capable of further subdivision, as will be shown, where necessary, where the individual mental disorders are described. The subdivisions of the organic group are of special practical importance. They are based less on clinical differentiæ among the organic mental symptoms than on the discoverable cause and on differences in the physical signs.

The organic reaction-types can be subdivided as follows :

A. *Psychoses with toxins or infections :*

Toxins. I. Endogenous—Uræmia, eclampsia, etc.

II. Exogenous—Alcohol :
- Pathological intoxication.
- Delirium tremens.
- Korsakow's psychosis.
- Alcoholic dementia.
- ,, hallucinosis.

Opium (and its derivatives), cocaine, bromides, etc.
Metals—lead, etc.
Gases—carbon monoxide, chloroform, etc.

Infections. I. General—prefebrile, febrile, and post-febrile deliria, from bodily infections.

II. Local brain infections :

Syphilis—(*a*) General paralysis.
(*b*) Cerebral syphilis.
(*c*) Tabes.

Encephalitis : including epidemic encephalitis.

Meningitis, tubercular, meningococcal, etc.

Abscesses.

B. *Psychoses with primary degenerative brain changes :*

Senile dementia.

Presenile psychoses :

(*a*) Alzheimer's disease.
(*b*) Pick's disease.

Arteriosclerotic brain-disease.

Paralysis agitans.

Huntington's chorea.

C. *Psychoses with general metabolic deficiency*

Pellagra.

Myxœdema.

Cretinism.

D. *Psychoses with brain-trauma :*

(*a*) Traumatic delirium.
(*b*) ,, constitution.
(*c*) ,, mental enfeeblement.

E. *Psychoses with organic brain diseases :*

Brain tumour, multiple sclerosis, thrombosis, embolism, etc.

F. *Psychoses with chronic general diseases :*

Cardio-renal disease, pernicious anæmia, etc.

More recently Meyer has constructed a classification round the root word " ergasia ", meaning function, or the total behaviour of the individual. The appropriate descriptive prefix is added, *e.g. merergasia*—the usual psychoneurotic reactions.

Thymergasia—the primary affective disorders, divided into hyperergastic or other active manic states and hypoergastic or depressive retarded states.

Parergasia—the fantastic, incongruous schizophrenic states.

Dysergasia—the toxic delirious states.

Anergasia—with defect traits characteristic of the organic group.

Oligergasia—the group of constitutionally defective states.

Future developments.

It seems likely that the classification of the future as it moves towards a more comprehensive ætiological basis will include conceptions derived from the same sources as all of the classifications hitherto existing.

The types of reaction classified as psychoneurotic, for example, will probably include all those syndromes in which the pathology is essentially the pathology of personal relationships,—in that they result either from a maladaption to contemporary circumstances or a perpetuation of faulty mental attitudes acquired more or less inadvertently in early life.

Another large group will have to consist of the mental disorders in whom a definite structural brain pathology has been revealed. Recent advances in treatment have raised hopes that pathological physiology may be shown to underlie certain conditions, such as manic depressive, involutional and some schizophrenic conditions, which although they may be precipitated by personal factors or accidental physical stresses, are apt to continue in a self-perpetuating way. These are illnesses in which the constitutional element is often particularly evident, and which for that reason alone must be assumed to have a basis in pathological physiology.

The success of electric shock therapy in terminating such processes as constitutional depression, and of prefrontal leucotomy (cutting the frontal-thalmic fibres) in agitated impulsive states, reminds us that the brain, like the heart, is in many ways an electrical organ.

There may even be a possibility of localising the pathophysiological processes, and the fact that a number of mental illnesses of the affective and the schizophrenic series are characterised by periodic and relatively sudden alterations in vegetative conditions such as weight, appetite and sleep suggests that the diencephalon is primarily involved.

Even when all these questions are answered, the fundamental problem of clinical psychiatry will remain the maintenance of individual adaptation to the social environment.

CHAPTER III

ÆTIOLOGY

I. Its Importance.

The most important question in psychiatry is that of causation; the hope of the future lies in the preventive measures that may be deduced from its study.

The economic handicap produced by the present incidence of mental diseases is very great, as a few figures will show; and the social drawbacks are still more extensive. The Report of the Mental Deficiency Committee (1929) estimates the total number of mental defectives in England and Wales certifiable under the Mental Deficiency Act of 1913 at more than 300,000. In addition, it is calculated that 10 per cent of the total population of school age are educationally defective, *i.e.* 600,000 children are backward to an extent that would require special arrangements for their education. The total number of notified mental defectives in England and Wales, in 1938, amounted to 96,109; in Scotland to 5678. A Report of the Board of Control for England and Wales stated that on January 1, 1938, the number of notified insane persons under care was 157,353, and that the total expenditure in connection with them exceeded nine millions. These figures do not include insane persons maintained in poor-law institutions. The average annual increase of the certified insane for the five years ending January 1, 1938, was 1716. In Scotland there were on January 1, 1939, 19,550 insane persons. In comparison with these figures let us consider a recent observation made in the United States. On January 1, 1938, in the various mental hospitals there were 500,198 patients; the annual increase of patients amounts, approximately, to 16,000. It is of interest that it is in the States where adequate provision for mental patients exists that the rate is very much higher than the general average rate for the whole country. For instance, in Massachusetts the rate of resident patients per 100,000 of population was 394, and in New York 378. It is

considered likely that the rate will increase unless some more effective means of preventing mental disease is discovered (Pollock, "Mental Disease in the United States", *State Hos. Bulletin*, May 1925). A recent study confirms the view that there has been a relative, slow increase in mental disease in the U.S.A. in recent years, which cannot be explained on the basis of population growth, improved hospital facilities, etc., but only by the increased complexity and stress of modern life (B. Malzberg, *Psychiat. Quarterly*, 1943, 17, 488).

These figures take little or no account of the incidence of psychoneurotic conditions which form so considerable a proportion of general medical practice. Recent investigations of sickness amongst an insured group suggests that such illness might amount to about 8 per thousand of the population; but this is probably an underestimate (see also Chapter VII). Sydenstricker has estimated the incidence in the Baltimore area as 11 per thousand.

But the social implications are far wider than these figures would indicate, for they do not include the inefficient, the shiftless, the unemployable, the delinquents, criminals and prostitutes, who do not come under supervision or certificate, and among whom mental defect and mental disorder are very common. "Insanity and mental defectiveness, dependency and crime, social maladjustments and unhealthy mental attitudes, are but expressions of a common group of problems that have as their units personalities that have found it impossible to control their mental attitudes and behaviour by reason of a variety of causes" (Barrett). As a specific example of the conditions that obtain, the following results of the mental examination of several hundred consecutive admissions to Sing Sing Prison, New York, in 1916, are worthy of consideration: Of 608 men, 59 per cent were found to be mentally diseased, feeble-minded or otherwise mentally abnormal. The findings of the mental specialist so impressed the New York State authorities that when they reconstructed a new prison it was decided to build a special structure for a psychiatric clinic. It is hoped that this clinic will serve as a centre for the reception, classification, study and treatment of prisoners.

A survey of prisoners has also been carried out by the Rockefeller Foundation, and as many as 10,000 persons in various institutions and different States have been examined. These surveys have shown that as many as 60 per cent of these prisoners are suffering from abnormal mental states that have

a close relationship to their anti-social behaviour.

In connection with the Juvenile Courts, it is stated that out of 781 boys and girls studied in the Juvenile Courts of New York City 69 per cent exhibited abnormal mental conditions. The principal problem is the recidivist, or the repeater in crime. Out of the 608 admissions to Sing Sing Prison, 406, or 66·8 per cent, were found to be recidivists.

These figures are sufficient to show the importance of the topic, and are an indication of how crime and mental disorder and defect are related to one another. We believe that it is desirable to have a mental specialist in association with the Law Courts, particularly when juvenile cases are dealt with, so that if necessary the mental condition of the accused could be investigated, and the proper treatment carried out.

The problem of mental disease has never been adequately tackled, and the problem of prevention, until recently, almost not at all. The existing provision is largely out-of-date, and even in the matter of institutional accommodation there appears to be an urgent need for addition and extension. The question arises whether we are dealing with the problem in the best way; whether it is not steadily growing greater because the right measures are taken too late. It would be no small reward for our labours if it could be shown that by beginning further back, by treating the causes of mental disorder and of its companions and consequences, criminality, vice, alcoholism, poverty, unemployment and the like, we could render unnecessary much of the misery, money-spending and machinery which these disasters presently entail. This desirable goal can only be reached by an intense and systematic study throughout the country in a well-conceived scheme, and with all the means at our command, of the causation of mental disorders. Little or no extra equipment would be required. What is necessary is to point out the way, to obtain co-operation between authorities, and to spread information as to the best means and lines of investigation. Already a step has been taken by the formation of such organisations as the National Council for Mental Hygiene and the Scottish Association for Mental Hygiene. In the United States, where the Mental Hygiene movement owes its origin, and much of its success, to the late Clifford W. Beers, himself once a patient in a mental hospital there, every State in the Union has its mental hygiene committee. Under its auspices, and with the co-operation of out-patient clinics in general hospitals,

judicial authorities, aided by court psychiatrists, education authorities who compile accurate school-records, charitable organisations, poor-law authorities and trained social service workers, a great deal is being done towards the prevention of mental disorder, and the education of the public in matters in which, it is not too much to say, it has hitherto been kept in utter ignorance.

II. Ætiological Investigations.

It is customary to discuss ætiology under a series of headings—as to sex, age, race, climate and what not. This does no harm, so long as it is remembered that such items have no necessarily specific ætiological connection with a given case. A mental disorder is the sum of many conditions, and the end-result of a long chain of processes. The earliest of these may have begun in the unfertilised germ-plasm, another may have operated *in utero*, and the rest may be the reactions of an organism thus handicapped to the aids and obstacles which it subsequently meets in the environment in which it finds itself—the influence of parents and teachers, the difficulties in the path of ambition and the ease as well as the hardness of innumerable situations in life. The first of these factors falls, in the usual scheme, under "heredity", the second under "congenital" and the next under the headings of age, sex, family, etc. But it is the ensemble of all such factors that is the "cause". An examination of our case-records shows that there is never in a given case one single ætiological factor, but always a constellation of them. Moreover, the cause is not a bolt from the blue, nor a mysterious entity destined to implant itself at a certain epoch on unprepared soil; the "cause" is a process—something that moves and shapes itself in the passage of time.

So long as these conceptions are remembered, it does no harm, and it is convenient, to consider separately some of the commoner and more easily categorised factors in the production of mental disorder.

Heredity

The rôle of heredity in relation to mental disorders is of fundamental importance and demands the closest study and investigation. Few definite formulæ can as yet be laid down. But there is evidence that every civilised nation, owing to the economic and social burden of caring for the unfit, is paying more attention to racial qualities. Accurate statistical data are

not easy to obtain. The reasons for this are various. The primary difficulty which all investigators of human heredity have to encounter is the paucity of satisfactory data and the obstacles to their collection. Human families with their long interval between generations and the small number of their members do not lend themselves to studies in heredity. Moreover, it is often necessary to collect data about ancestors on a hearsay basis only. Such terms as nervousness, irritability and so on, especially as given by lay persons, can have little value. Yet, in spite of the inevitable lack of exactitude, we are certain that the hereditary factor is of great importance. We would emphasise the necessity of not merely inquiring about specific types of mental illness but of making an attempt to delineate the family character, *i.e.* the temperamental qualities of the family group. We have been impressed by Lange's work entitled *Crime as Destiny*, which is strongly confirmatory of the earlier work of Galton on similar and dissimilar twins contained in *Enquiries into Human Faculty*. Further work along these lines should prove fruitful in studying hereditary characteristics. Heredity and environment, however, should not be divorced, because frequently they dovetail into one another.

In reference to actual clinical groups, it has become increasingly recognised that the hereditary factor is especially important in certain states of mental defect and that it plays an essential part in many forms of mental illness, notably in manic-depressive and schizophrenic states. Furthermore, it is clear that certain family groups are far more tainted than others. It is also true that the predisposition to mental illness may remain undeveloped ; an exogenous factor is often required. Not every inebriate develops an alcoholic psychosis and not every syphilitic general paralysis. Inherited factors must play some part even in exogenous diseases.

But clinical impressionism is hardly sufficient, and more exact observation is an obvious desideratum.

General Statistical Studies.

In collecting statistics with the hope of formulating more accurately our ideas on heredity, it is well to bear in mind the dictum of Kraepelin: " We must regard the statistics as facts of experience, without finding the expression of a law which must hold in every case ". In a question of this kind, it is essential to control the figures obtained from tainted stocks with data from the families of normal persons. The best general studies

at present available are those of Koller and of Diem, made in 1894 and 1905 respectively. Although made in the same district, they sometimes contradict each other, as von Jauregg's analysis shows. Koller, in comparing 370 psychotic with an equal number of non-psychotic, found hereditary tainting with insanity, nervous diseases, apoplexy, alcoholism, senile dementia, abnormal character and suicide in 76·8 per cent of the former, and 59 per cent of the latter. Psychoses and abnormal character were the important factors; apoplexy, senile dementia and most "nervous diseases" occurred to about the same extent in the two groups. Diem found hereditary stigmata of some kind in 66·9 per cent of 1193 non-psychotic individuals, and in 77 per cent of 2515 psychotic patients, but while 33 per cent of the non-psychotic had parents in some way abnormal, direct inheritance occurred in from 50 per cent to 70 per cent of the psychotic. On the other hand, tainting from more remote members of the family occurred in 34 per cent of the non-psychotic, and 20 per cent to 28 per cent of the psychotic. Hence von Jauregg (facetiously, we hope) remarks that a taint through uncles, aunts and grandparents may be considered as immunising rather than the reverse.

Taking the different disease-types in groups, we find that in manic-depressive insanity Kraepelin found evidence of an inherited taint in 80 per cent of his Heidelberg material. Sümner, in 650 cases of this disorder from the Munich clinic, found a similar percentage (84 per cent), which is higher than the average for the psychoses in general. A psychosis was the commonest type of taint, and accounted for nearly 44 per cent. The other stigmata enumerated by Diem accounted for the remainder of the tainting. Both parents and siblings[1] of manic-depressive cases show psychoses and other abnormalities many times more frequently than the parents and siblings of the non-psychotic.

In dementia præcox, Kraepelin found hereditary abnormalities in 53·8 per cent of 1054 cases, and a directly inherited taint in 33·7 per cent. In the families of dementia præcox patients, it is relatively common to find other psychoses—*e.g.* Rüdin found, in a series of 721 cases, 40 siblings with dementia præcox, and 79 with other psychoses. He found also that every fourth or fifth parent of dementia præcox patients had a mental or nervous disorder of some kind.

In epilepsy, Snell found a hereditary taint in 81 per cent, which is a similar figure to that for the psychotic in general.

[1] Sibling=a convenient term for a member of the same fraternity, whether brother or sister.

The transmission was direct in the high proportion of 59 per cent. The most frequent stigma among the ascendants was some form of nervous disease (28 per cent as compared with only 5 per cent among other psychotics), and alcoholism (26 per cent, which is higher than in any other group). It is, however, rare, according to Rüdin, for alcoholics to have epileptic children; he believes that the alcohol-epilepsy inheritance is usually indirect.

In mental defect (or, in the U.S.A., "feeble-mindedness"),[1] the manifold causation tends to invalidate general statistical methods. But taking feeble-minded persons in the mass, Pierce Bailey showed from a study of 9533 cases that feeble-mindedness in this series surpassed even the epileptic series of Snell in the familial incidence of alcoholism (32 per cent) and nervous diseases (36 per cent). Psychoses were present in the relatives of 30 per cent, which is less than among the psychotic generally. The Brock Report (of the Committee on Sterilisation) showed that of 8841 children of 3733 defective parents, nearly one-quarter had died. Of the 3650 remaining children of whom details were available, between 40 and 45 per cent were definitely subnormal in intelligence (dull or actually defective), the proportion of defectives being higher in the older children. This strongly suggests hereditary factors.

General statistics of this type have the advantage of presenting handy condensations of large masses of material, and of bringing out broad general differences. But to do this, the investigators have often found it necessary (apparently) to sweep into one comprehensive group, and under one name, very diverse conditions, often unrelated to one another, or even to the problem itself—as, for example, using insanity as an entity, and including in it apoplexy; or treating feeble-mindedness as a unit, when its causes and manifestations are so varied. Moreover, the detail from which so much may be learned is overlooked in this massive procedure, and minor differences of considerable significance cancel each other, and are never observed. A biological method of more promise—if it can be properly used—is afforded by the Mendelian method.

Application of Mendelism.

The basic facts of inheritance in the Mendelian sense are now somewhat as follows: Hereditary characters are inde-

[1] "Mental deficiency" in Great Britain is the equivalent term for "feeble-mindedness" in U.S.A., and in U.S.A. the equivalent for "feeble-mindedness" is "moron".

pendent units (unit characters or "genes") which maintain their independence from generation to generation. Certain unit characters are dominant over others, *e.g.* tallness over shortness; that is, when two unit characters, respectively "dominant" and "recessive" to each other, are present together in a zygote (the product of the fusion of male and female germ cell), the resulting mature individual is tall, the character for tallness prevailing, and that for shortness remaining in abeyance. This is the so-called "law of dominance", which may also be explained in this way: "When two organisms of different unit characters are crossed, hybrids result, and these hybrids are all apparently alike, and have the character that is dominant in one of the ascendants". The "law of segregation" adds that if these hybrids of the second generation are bred together, their offspring (of the third generation) will consist of 50 per cent which are like their hybrid parents, 25 per cent like their male grandparents (*i.e.* of pure stock), and 25 per cent like their female grandparents (*i.e.* of pure stock). The carriers of unit characters are the chromosomes. Each chromosome contains many units (genes). The female differs from the male in the possession of two X-chromosomes, whereas the male possesses one X- and a smaller Y-chromosome. Unit characters are *sex-linked* when found only in association with the extra X-chromosome; *sex-limited* when the character although present in both sexes is allowed to appear in only one.

Mendelian studies in human heredity have met with great difficulties of the kind already mentioned, and in the case of mental disorders there has been in addition the question of what constitutes a unit character. Thus in the work of Rosanoff and Orr "neuropathy" is designated a unit character, and is claimed to be inherited according to the Mendelian laws stated above. But we find that "neuropathy" is used as a generic term for a bewildering variety of traits, such as nervousness, irritability, alcoholism, etc. The same criticism applies to the work in this line of Davenport, who included under neuropathy such conditions as apoplexy, Bright's disease, criminality, right on through the alphabet, as Myerson says, to tumour and vagrant! Some of Rosanoff and Orr's results were interesting, however much we may suspect the validity of their general conclusions. In 72 families, representing 206 matings, with 1097 offspring, they found that while neuropathic children might be born to normal parents, a normal child was never born to parents who were both neuropathic. They concluded that "neuropathic"

was recessive to " normal ", and found a very close correspondence between the observed and calculated results — 351 offspring being found " neuropathic ", while the Mendelian proportion should be 355. But there are too many fallacies. In addition to those already indicated, there are the difficulties of " diagnosis at a distance ", and of the damaging effect on statistical ratios, as Myerson points out, of still births, miscarriages and contraception.

It is, of course, well recognised that there is a strong possibility that defective parents will breed a defective stock. The notorious Kallikak family is an apparently overwhelming example of the disastrous results of the propagation of tainted stock; but it is at least possible that the picture in the Kallikak family may be somewhat overdrawn by Goddard, for the evidence used by partially trained field-workers to classify persons as alcoholic, defective, epileptic, and so on, was often of the flimsiest, hearsay description. Martin Kallikak married in 1837. Both he and his wife were normal, and their descendants for six generations were also normal. But Martin Kallikak had an illegitimate child by a girl who was feeble-minded, and the descendants in this line in six generations in the same environment in the same State yielded 222 feeble-minded out of 41 matings.

That the rôle of inheritance may not always be so disastrous as in the case of the Kallikak and Jukes (*v. infra*) families, is shown by a study made at Bleuler's clinic of a family of 1000 persons, covering six generations. On the father's side it was found that in the first generation there was 1 diseased individual; in the second generation there were 8 individuals, of whom 2 were diseased; in the third generation, 38, with 7 diseased; in the fourth generation, 98, with 8 diseased; in the fifth generation, 155, with 3 diseased; and in the sixth generation, 94, with none diseased. On the mother's side a nearly similar state of affairs was found. In the first generation, 1 individual was diseased; in the second generation of 5, none were diseased; in the third, there were 35, with 2 diseased; in the fourth, 98, with 3 diseased; in the fifth, 156, with 12 diseased; and in the sixth, 56, with 1 diseased. These figures show that in the above families there was no tendency to a spread of the disease, but, on the contrary, the number of diseased individuals tended gradually to diminish. The stock tended to mend rather than to end. The more recent observations of Kallmann (*Genetics of Schizophrenia*, New York, 1939) showed that the descendants of schizophrenics were seldom distinguished. There was a tendency to decline in social status in successive generations of families

strongly tainted by schizophrenia. Moreover, the fertility rate of schizophrenic patients was less than half the fertility of the general population. The birth-rate among both schizoid and schizophrenic women was much less than that of normals.

When Mendelian studies are made in reference to the individual psychotic syndromes, instead of "insanity" or "neuropathy" in the lump, some more or less conclusive facts emerge. In manic-depressive insanity it has been found that the percentage incidence of the disorder among the children of manic-depressive parents is higher than would be expected if the manic-depressive factor were recessive (Hoffman). But it is not enough to make it possible to regard the factor as operating simply as a pure dominant. Two theoretical explanations have been advanced, either that two genes are concerned, or that environmental stress or even sometimes a special internal environment ("genotypic milieu") is necessary, as well as the inherited gene.

Rüdin stated that when one parent is manic-depressive, one-third of the children have definite manic-depressive illness, and one-sixth show milder disorders (a cyclothymic temperament, or mild episodes of mood-disorder). But Roll and Entres now put the proportion of children developing the disease at one-third of this (Slater, *Brit. Encycl. Med. Pract.*, 1938, viii, 556).

LIABILITY TO MANIC-DEPRESSIVE INSANITY OF RELATIVES OF MANIC-DEPRESSIVES

Parents	11·5 per cent
Brothers and sisters	9·1 ,,
Children	9·5 ,,
Nephews and nieces	2·3 ,,
Uncles and aunts	5·0 ,,
First cousins	2·5 ,,

The percentage of dementia præcox among the 721 siblings of dementia præcox patients was found by Rüdin to be only 4·48. This suggests a recessive rather than a dominant factor, but is even less than would occur if the latter were simple recessive. That the factor is a recessive of some kind is supported by the facts—first, that it is rare where both parents had dementia præcox for the children to have dementia præcox (if the character were dominant, all or half the children would show dementia præcox); second, the transmission of dementia præcox through two or more generations is very rare; third, dementia præcox usually arises in children of non-dementia præcox parents. With

one parent schizophrenic, 11·9 per cent of the children (ranging from 17 per cent in children of a paranoid to 1·8 per cent in children of a simplex parent) are schizophrenic, and 30·7 per cent of a schizoid temperament. When both parents are schizophrenic, 53 per cent of the offspring are similarly affected, and 29 per cent are psychopaths (Rüdin). When both parents are schizophrenic, therefore, less than two-thirds develop mental illness. Of uniovular twins born of a schizophrenic, in four out of five cases both became schizophrenics. In both these cases, theoretically all the offspring should be schizophrenics, if the gene is a true recessive. It is calculated that both the environment and the genotypic milieu may hinder the appearance of the disease, and that the difference between two-thirds and four-fifths represents the effect of the genotypic milieu acting alone (Slater).

The share of the environmental factors is illustrated by Schulze's finding that the incidence of schizophrenia is less in the families of those who develop schizophrenia after head njury.

Hebephrenic and catatonic forms are twice as heritable as simple and paranoid types (Kallmann). On the other hand, the proportion of schizoid personalities among the descendants of the last group is much greater than in the hebephrenic and catatonic groups.

In feeble-mindedness (*Anglice*, mental deficiency), the actual data obtained, and the figures calculated in accordance with the assumption that feeble-mindedness is a simple Mendelian character and follows a recessive mode of transmission, are according to Goddard in such close agreement, that the assumption may be taken as verified. His methods of collecting medical statistics have been trenchantly criticised by Myerson. The latter is of opinion that feeble-mindedness is not a unit character, that it often depends on actual cerebral injury (Wilmarth reported 75 per cent of 70 autopsies as showing gross cerebral lesion), and that while there is a familial incidence of certain types, this is due to injury to the germ-plasm. For the "subcultural" view, see chapter on "Mental Defect".

A few of the rarer forms of mental defect with outstanding physical peculiarities have been shown to have as their basis a recessive gene—this is certainly established for infantile amaurotic idiocy, and for phenylpyruvic oligophrenia, a condition in which about 1 gm. of an abnormal metabolite is excreted daily. The same is probably true of some cases of cerebral diplegia, microcephaly, and (according to Penrose) some cases of cretinism.

The simplest explanation of the relatively high familial incidence of mental defect is that the genetic causal factors are dominant. Fisher has propounded the hypothesis that variation in mental ability depends on dominant genes whose effect is additive. Hence, for example, when both parents are dull or feeble-minded, one-fourth of the children are likely to be idiots, provided that the dullness of the parents is due to the same dominant gene—which is more likely to happen if the parents be consanguineous (Penrose, *Journal of Mental Science*, 1938, lxxxiv, 693). For the old notion of "progressive degeneracy" to account for the observation that in the family history of idiots there might appear mental disease of various kinds, Penrose substitutes the theory that partially dominant additive factors may be responsible.

"Similar" and "Dissimilar" Heredity.

When the psychosis breeds true to type—*i.e.* when the parent and offspring have the same clinical variety of psychosis, the inheritance is said to be *similar*. Otherwise it is *dissimilar*.

At one time the Munich school under Rüdin's influence did not exclude a possibly polymorphic type of manifestation as the result of the transmission of a general disposition to mental disorders, but the more recent tendency has been to assume that disease-types are due to unit characters which maintain their independence, and that each disease-type distributes its unit qualities to descendants according to Mendelian rules. The result may be a pure disease-type or a mixture of types, *e.g.* of manic-depressive and dementia præcox. It would, therefore, be very difficult to speak accurately of similar and dissimilar heredity, for clinical psychiatry has not yet attained the position of disentangling the components of mixed types with any degree of certainty.

Myerson's studies of 97 families led him to these conclusions:

(1) The paranoid diseases are followed by paranoid states in the descendants, perhaps finally by dementia præcox states.

(2) Manic-depressive diseases are chiefly followed by manic-depressive states. Where they appear to be followed by dementia præcox, there arises the already mentioned question of the differential diagnosis, which is often difficult, between manic-depressive insanity and

dementia præcox. Nevertheless there is an impression that the children of manic-depressives show an abnormal liability to schizophrenia.

(3) Involutional and senile types tend to be followed in the descendants by manic-depressive, paranoid and dementia præcox conditions. This impression probably depends on—

(*a*) Different age of manifestation.

(*b*) Description as involutional or senile, of what is really late schizophrenia.

(4) Dementia præcox in an ancestor tends to be followed by dementia præcox, and more rarely by imbecility. This so-called imbecility may well be a residual of an unrecognised schizophrenic process.

But Myerson's material suffers from its (admitted) numerical limitation (97 families), and from the presentation of it, which smacks a little of the fallacy of the positive instance which elsewhere he himself appreciates.

Clinically dissimilar mental disorders frequently do occur in the same family. Rüdin, in 735 series of siblings, each series with at least 1 dementia præcox, found that only 59 probably came from dementia præcox parents, and that 130 of the parents had psychoses not dementia præcox. Of 81 descendants of 20 old cases of dementia præcox, only 3 had dementia præcox, while there appeared other disorders, such as epilepsy, imbecility, alcoholic psychoses and psychopathic inferiority. The general conclusion is that heredity is often dissimilar, but perhaps less frequently so than appears at first glance, on account of a possible mixing of ancestral types.

As regards the occurrence of psychoses in members of the same generation (so-called "horizontal transmission"), the tendency is for brothers and sisters to have similar disorders (Myerson). This is a point of some practical importance, for if an atypical excitement resembling a manic condition is found in a patient known to have a dementia præcox brother or sister, then there is an additional probability that the disorder in the patient is also dementia præcox. M. Bleuler has shown that the expectation of illness from schizophrenia among siblings of schizophrenics is 4·8 per cent; the frequency of psychopaths among relatives of schizophrenics is also stressed.

Antedating.

It was for long a general belief, fostered especially by Esquirol, Morel and Lombroso, that all types of mental disorder and defect were but the varying manifestations of a common tendency to degeneracy. This is the so-called " polymorphic " theory, which reappeared, as we have seen, in the " Mendelian " studies in the use of " neuropathy " and " insanity " as unit characters. They believed further that this degeneracy appeared with increasing malignancy in succeeding generations, the slighter forms being followed by forms with profound intellectual and emotional enfeeblement, till finally the stock vanished from the earth.

The present-day form of this latter hypothesis (which in its original form was far too sweeping) is known as " anticipation " or " antedating ". Nettleship defined anticipation in hereditary disease as a manifestation of the morbid change at an earlier age either in members of each succeeding generation as a whole, or in successively born children of one parentage. Mott, as a result of his studies, believed that there was " a signal tendency in the insane offspring of insane parents for the insanity to occur at an earlier age, and in a more intense form, in a large proportion of cases ; for the form of insanity (in the offspring) is usually congenital imbecility, epilepsy, or dementia præcox ".

Rüdin found that in 72 cases of schizophrenia in the earliest born the average age among them was 25·8 years, and in 72 cases of the next born the average age was 24·6. He considered the difference insignificant. The anticipation hypothesis has been criticised on several grounds. In estimating its validity, it has to be remembered that the commoner types of mental disorder develop at a comparatively early age ; that it is chiefly those cases which first develop at an abnormally late age that have direct descendants, and that consequently the tendency will be, in a group of diseases normally occurring early, to compare the abnormally late cases of a previous generation with the cases derived from the later generations and occurring at the age which is usual for that disease. There is also the question of earlier recognition of disease in modern days. As for the disease occurring in more intense form in the offspring, the fact that someone is already a parent excludes his having suffered from the more intense forms of mental illness, which commonly set in early. At least one observer, Jolly, has failed to find any evidence of anticipation, and Paterson has critically examined Mott's work and shown that the results depended on fallacies involved

in the collection of material (*Journal of Neurology and Psychopathology*, 1933, xiii, 193).

Sex-transmission.

There are some figures to support the thesis that more mental disorders are transmitted through the female side than through the male. Mott found in 752 instances where 2 in a family were psychotic that there were 44 instances of insanity of father and son, and 104 of mother and daughter; or that the total transmission was 39·3 per cent by the father, and 60·7 per cent by the mother in this series of instances. Gowers, in epilepsy, found that the father was insane in 37 per cent, and the mother in 63 per cent. Myerson found in 664 families mother-daughter transmission commoner than father-daughter transmission; but mother-son and father-son relationships showed about the same incidence. The agreement of these three diverse groups of figures is probably more than accidental. Mott gives the reason for this apparent preponderance of transmission through the female line in the stresses of menstruation, parturition and the menopause. But these are physiological factors, safely survived by women not otherwise predisposed. Mott postulates further a more unstable equilibrium in women, which seems to be begging the question. As to the " enforced suppression by modern social conditions of the reproductive functions, and the maternal instinct of women ", it is precisely in married women, who are at present in question, that this occurs least. Myerson gives figures from the Taunton State Hospital which seem to show that the ratio of married to unmarried women is greater than the ratio of married to unmarried men in three leading psychotic groups (alcoholic psychoses, general paresis and dementia præcox). If this indicates that a higher proportion of unstable women marry than of unstable men (as it would seem to do, since the incidence of mental disorders is about equal in the sexes) then, indeed, " the female of the species is more deadly than the male ". But while this would partly explain the more frequent transmission by the mother than by the father, it does not explain why mother-daughter transmission is more frequent than mother-son.

The Inheritance of Acquired Characters.

The Lamarckian hypothesis that acquired characters may be inherited, which had been compelled to give way before the implications of Weismann's theory of the continuity of the

germ-plasm, has lately received unexpected support from various sources, from Kammerer's work on the transmission of acquired protective colouring, from Pavlow's observations on the inheritance of conditioned reflexes, and McDougall's cognate study of the transmissibility of maze behaviour in white rats, and from Stockard's experiments on the effect of the alcoholisation of guinea-pigs in producing transmissible defects in their descendants. The application to psychiatry of the revived interest which their results have produced lies especially in the rôle of toxic injury to the germ-plasm (" blastophoria ") in the genesis of mental disease and defect, and in the suggestion that somato-psychic modifications environmentally produced may come to be germinally transmitted. It is true that while Stockard's experiments did not demonstrate an acquired inheritance in the Mendelian sense, or that anything that can be called a heritable " character " in that sense is acquired at all, they seemed to show that the germ-plasm may be injured by causes affecting its host, and this injury may be transmitted in a general way through several generations.

There is one characteristic common to all or nearly all of these experimenters' work, that other observers have failed to confirm their findings. Pavlow has withdrawn his own results; McDougall's have been much criticised; and a careful repetition of Stockard's work by Miss Durham has given no confirmation.

In studying the problem of the inheritance of acquired characters in man, especially psychological characters such as behaviour, the subtle and pervading influence of environmental and especially parental conditions has to be always remembered. This was the case, for example, in the eleven-year-old son of an inefficient father who had himself been in hospital with depression and unfounded complaints of bodily illness, and of an over-solicitous mother who had to carry most of the family burdens. He was brought to hospital because he slept badly, woke up in terror, had to be comforted by his mother, and when he scratched his hand feared that he might have blood-poisoning. Just after entering hospital he was hit on the head by a football, and anxiously and frequently inquired if any serious results would ensue. He also wondered what a mark on his hand might mean—would it cause blood-poisoning? Little attention was paid to his anxious queries, and after the first week in hospital he slept well, expressed no fears, and was happier in every way than he had been at home. It is easy to imagine such acquired reactions being transmitted from generation to generation as a tradition, but it remains difficult, in view of the uncertainty

regarding the experimental work quoted, to think of such psychological reactions as becoming truly heritable.

The general conclusions on the inheritance of mental disorders which it seems permissible to draw at present are chiefly these :

The quantitative difference between the inherited total taint in the psychotic and the mentally normal is surprisingly low. There is, however, a considerably greater direct inheritance of actual mental disorder in the psychotic, while in the normal the indirect inheritance of all types (psychoses, organic, nervous conditions, etc.) was greater than in the psychotic.

The hereditary tainting, especially with psychoses, is greater in manic-depressive disorders than in any others.

Certain families show an abnormally high incidence of mental disorder. Mother-daughter transmission is more common than any other. Disorders of the manic-depressive type especially have a familial incidence. Clinically dissimilar types do occur in the same family. An apparently dissimilar type may possibly be produced by the mingling of ancestral types.

Mendelian studies are suggestive. Multiple factors have to be postulated, with summation and interaction of juxtaposed genes in the case of manic-depressive insanity, which is now said to depend on a simple dominant, often not manifesting itself except under environmental stress or favourable metabolic conditions. Schizophrenia appears to follow a recessive course, but not simply so. Some feeble-mindedness is inherited on Mendelian lines, sometimes as dominant, sometimes as recessive.

Alcoholism and nervous diseases are more frequent in the ancestors of congenital defectives than in the antecedents of any other type of mental disease.

While psychopathic parents tend to have psychopathic children, and while the bulk of evidence is in favour of earlier onset of mental illness among descendants, the view previously held that familial "degeneracy" was inevitably progressive was unnecessarily gloomy; and there is evidence that Nature may mend, rather than end, a psychotic strain. A familial tainting of psychoneuroses, of insanity, and of apoplexy, does not necessarily constitute a bad heredity. "A bad stock", as Mott says, "is one where are found a large number of members exhibiting various forms of degeneracy besides insanity, *e.g.* feeble-mindedness, epilepsy, criminality, pauperism, inebriety; in fact, a general low standard, mental and physical, in stem and branches of the family tree, the further growth of which should be cut off."

Negative and Positive Eugenic Programmes.

By negative eugenics is meant the methods whereby a reduction can be effected in those below average, and the measures advocated may be grouped as follows :

(1) Celibacy and sexual abstinence.
(2) Marriage regulations.
(3) Segregation.
(4) Contraception.
(5) Sterilisation.
(6) Abortion.

All reasonable people are coming to appreciate that there are certain persons who as a result of hereditary or environmental factors, or both, are either so mentally defective or so emotionally unstable that they should be discouraged from parenthood, both for their own sake and that of their progeny. In consequence of this it has been advocated that where the person does not himself realise the significance of his disordered state a law should be introduced forbidding the marriage of those likely to transmit undesirable traits. In practice this would mean the establishment of a bureau with the power to grant or withhold marriage certificates. That would inevitably be a cumbrous and costly procedure, and in our opinion the emphasis should be placed more on health, education and propaganda than on legislation.

Segregation in Colonies for Mental Defectives or in Mental Hospitals is an accepted and beneficent mode of caring for the majority of those who are so mentally incapacitated as to be unable to fit into the social milieu. In many cases it means the continuous care of the individual throughout his life, but in other instances treatment may be of a temporary nature resulting in complete recovery medically and socially. Segregation, however, is considerably limited in its application, and for the most part cannot be utilised in relation to the so-called " social problem " or psychopathic group—a group which constitutes the greatest danger to society.

Contraception or birth-control is regarded by the unthinking and vulgar-minded as a means of affording unlimited sexual expression without the fear of parenthood, and as pandering to the selfishness of the individual. It has, however, a much wider significance. It may be true to say that it has been grossly misused, that it has been adopted selfishly by the intelligent and well-to-do, and that in consequence it has been dysgenic rather than eugenic by restricting the birth of those who are worth-

while. Nevertheless the establishment of birth-control clinics is proving one of the most useful of modern health developments. The public are now being informed why for physiological, psychological and sociological reasons pregnancy should be avoided, and on the positive side how pregnancies may be spaced so as to ensure adequate health for both mother and child. Its efficacy depends on careful and intelligent application and, unfortunately, those are just the qualities which are lacking in the mentally defective, psychopathic and unstable members of the community.

Sterilisation has been strongly advocated as a certain and permanent method of preventing the birth of unhealthy children. It is wrong, however, to suppose that any intelligent person regards sterilisation as a sort of infallible cure-all, as a short cut to a eugenic millennium : " it is merely an integral element in any broad and far-sighted programme for dealing with the social problems of civilised society ". If the matter were kept on that basis, if each case was judged on its merits, very few people would raise any objection to its application, but the tendency has been to advocate a much more wholesale application. For instance, a British Departmental Committee (1934) advocated that *voluntary* sterilisation should be legalised in the case of :

(*a*) A person who is mentally defective or who has suffered from mental disorder.
(*b*) A person who suffers from or is believed to be a carrier of a grave physical disability which has been shown to be transmissible.
(*c*) A person who is believed to be likely to transmit mental disorder or defect.

The above proposals are not only extremely wide but extremely vague, and they create the paradoxical situation that the mentally defective and mentally unsound persons who in no other respect can care for themselves, are supposed to be able to arrange for their own destiny, voluntarily, so far as sterilisation is concerned.

In contrast the German enactments are of the most dogmatic and categorical nature. It has been laid down that sterilisation may be effected compulsorily, if necessary, for (1) inborn feeblemindedness ; (2) schizophrenia ; (3) manic-depressive states ; (4) hereditary epilepsy ; (5) Huntington's chorea ; (6) blindness ; (7) deafness ; (8) severe hereditary physical deformity ; (9) severe

alcoholism. In criticism of the above it may be stated that a knowledge regarding hereditary transmission is assumed which does not exist. The most flagrant group is that designated " severe alcoholism ". What may be designated " severe " for one person may be described as " mild " or even " temperate " for another.

In considering the whole matter it might be suggested that the third proposal of the British Committee, which states that sterilisation should be made effective in the case of those who are likely to transmit mental disorder or defect, is the most valuable and important of the lot. Such an arrangement would not limit sterilisation to any particular category, but it would ensure that a case was judged on its merits and that the field was widened to include the psychopathic states. The benefit, however, would be always more individual than racial. The social value of the stock as a whole should never be judged arbitrarily.

In the United States of America sterilisation laws were promulgated in 1910, and are now in operation to a greater or lesser degree in twenty-six States. By far the greater number of sterilisations have been performed in California ; Canada, Switzerland and Denmark have also adopted sterilisation laws.

Abortion, especially in cases of rape and incest, meets with a large measure of public approval. It is also entirely justifiable in those cases where the mother becomes seriously ill mentally during her pregnancy. In Britain it is customary for the family doctor to call for a psychiatrist's opinion before finally allowing the operation. He thereby secures both the patient's welfare and his own reputation.

Positive Eugenic Programme.—A positive eugenic policy aims at increasing the numbers of those above medium intelligence. This may be effected in the following ways :

(1) Family allowance.
(2) Relief from taxation.
(3) Educational opportunities.
(4) Birth-control.
(5) Marriage certificates.

By the employment of the above methods it is reasonable to hope that those individuals with noteworthy heritable qualities may be encouraged to produce bigger families. The matter is one of great racial significance. We know, in a general way, that assortative or selective mating tends to be the rule—like tends

to marry like—defective weds defective, and those who are naturally gifted ally themselves with others of a like quality. For instance, Terman found among gifted children with an I.Q. of 130, or better, that in 53 per cent the fathers were of the professional class; 37 per cent were clerical workers; and 10 per cent were skilled artisans; that is, while the professional class constitute about 2 per cent of the whole population of the state, yet this class produce 50 per cent of the children of high natural endowment. In Germany, while the professional class produce 1·65 children per marriage, the peasant class produce 4·2 children. In London it has been shown that the poorer districts show a much higher birth-rate than the more prosperous ones. Galton's work on *Hereditary Genius*, his study (along with Schuster) of *Noteworthy Families*, and the books by Woods on *Mental and Moral Heredity in Royalty* all prove that "a considerable proportion of the noteworthy members in a population spring from comparatively few families". Furthermore, Galton's investigations in relation to the kinship of the Fellows of the Royal Society, of English Judges, and of groups of illustrious men from every walk of life showed that eminent men have eminent relatives, and that this was not dependent on peculiar or special advantages.

If the above findings are true—and we cannot doubt them—it is obvious that we should utilise every means to encourage the growth and development of healthy families. One method of doing this is by the system known as "Family Allowances" whereby the wage-earner in the family is paid according to the needs and numbers of his family. In certain countries, *e.g.* Italy, France, this has been adopted as a national policy. Nearer home, the Wesleyan Church, since 1906, has paid its missionaries in accordance with the same formula, and the staff of the London School of Economics enjoys a similar dispensation. Such a scheme is worthy of more general acceptance. One of the less controversial proposals in the Beveridge Report is that family allowances should be introduced as part of a national health policy. The suggestion is that 8s. a week should be paid to the parents at the time of the birth of the second child and for every subsequent child. It is recognised that the mere introduction of family allowance will not necessarily have a great effect on the birth-rate but it would add materially to the comfort of the family, and the health of the rising generation.

Much might also be said in favour of preferential taxation to married people; and for increasing educational opportunities

by means of bursaries and scholarships in the case of youths showing exceptional aptitude.

In addition it cannot be too strongly stressed that all specialised methods of improving the stock should be supplemented by an improvement of living conditions, both in relation to the home and the place of employment. Euthenics and eugenics must go hand in hand.

Marriage.

There are people who do ask for help and advice in regard to marriage, but the advice given is usually acted upon only when it coincides with the applicant's own ideas. The main point to determine, however, is whether the individual comes from a good or bad stock, and the only way to decide this is to insist upon having as complete a record as possible of the forbears both of the man and of the woman. Otherwise we do not have the facts on which to base a reasoned opinion. It is unwise to accept what some eugenists term neuropathic or psychopathic, and to regard a history of psychoneuroses, of insanity, and of apoplexy in a family as constituting a bad heredity; the very salt of the earth may spring from such a stock. It is not wise to dogmatise in this matter, but it cannot be answered by drawing up arbitrary laws—rather is it a matter that can only be approached when the public are so enlightened as to realise for themselves the difficulties, the trials and the sorrow which the propagation of defective stock means both to the parents and to the offspring. This is a matter which must be left to the individual conscience, but an attempt should be made to mould opinion to the appreciation of its vast importance. If a wide conception be taken of what is termed the " neuropathic diathesis ", then it is impossible to find a family tree devoid of all trace of nervous or mental disease. If one had to emphasise unduly certain traits which are termed neuropathic and psychopathic, it would be detrimental rather than beneficial. If a person comes from a stock which has not shown any special degenerative traits, in Mott's sense, and if that person has himself attained the age of twenty-five years, then the chances are that if he marries a person equally healthy, the children will be healthy. Even under these circumstances, however, for one reason or another, either on account of devitalisation of the germ-plasm, or on account of accident or infection at the time of birth, children are born showing mental and physical deformities. On the other hand, we must

realise that a person from a poor stock, by mating with a healthy stock, may produce healthy children, and consequently in the process of time there is no reason why a stock should not improve rather than deteriorate. This rehabilitation of poor and defective stock has not received enough consideration, because the tendency for those who have discussed eugenics is to take a fatalistic view, and to attempt to prohibit altogether the marriage of people whom they have classed as suffering from a neuropathic or psychopathic diathesis. What has been said above applies also to the marriage of cousins. When the cousins come from healthy stocks there is no real reason against marriage, but, on the other hand, any defect will become exaggerated, and prolonged inbreeding would no doubt in time accentuate defects.

More specifically it may be stated that manic-depressive patients in certain instances, *e.g.* (1) where there has been a long interval of several years' duration between attacks; (2) where the precipitating factors have been severe, may be allowed to marry, especially when they are marrying into healthy families. Marriage also may be advised even although parenthood is discouraged. Luxenburger's statement, that manic-depressive parents may have children who do not show the genotype for manic-depressive states but only partial characters of great social and eugenic value, is reassuring.

In schizophrenia the position is rather different. The marriage-rate and fertility-rate is small, and the death-rate is high. Nature thus tends to act eugenically by limiting the birth of schizophrenics. Kallmann's investigations have shown that of 1087 probands 562 had no children, and the highest degree of childlessness occurred among male hebephrenics, and male and female catatonics. Furthermore, only 9·3 per cent of the probands had a parent or other direct ancestor who was a proved schizophrenic—although many of the parents showed evidence of conditions suggestive of schizophrenia, psychopathic disorders, alcoholism and suicide. It is only after the most careful consideration that a recovered schizophrenic should be advised to marry, and always with the proviso that parenthood is inadvisable.

Alcoholism

Alcoholism is an immense social problem, although matters have improved of recent years, as the result of improving social conditions. The question of the rôle of alcohol in the production of mental disorders is a very complicated one, and is more specific-

ally this : Knowing that certain clinical syndromes are usually, if not exclusively, associated with alcohol, and knowing that alcoholism is very often a symptom of mental illness, whether and to what extent is alcohol productive of mental disorder *de novo* ? It has always been considered that the responsibility of alcohol in this direction was very great, paralleling its well-known effects in other more easily explored directions. Forel, for example, declares that " in all countries where the alcoholic habit reigns, it accounts for from half to three-quarters of the crimes, a great share of suicides, of mental disorders, of deaths, of diseases generally, of poverty, of vulgar depravity, of sexual excesses and venereal diseases and of dissolution of families. In fifteen large cities of Switzerland, one-third of the male suicides and one-tenth of the deaths in men above twenty years are wholly or essentially referable to alcohol." The worst feature, however, says Forel, is the production of deformed progeny by direct degeneration of the tissues. With regard to the direct production of insanity, alcohol has sometimes been made responsible for as much as 30 per cent of all admissions to asylums. Let us consider the evidence with regard to mental disorders, both in the direct influence of alcohol on the individual, and its indirect effect on his progeny ; and let us briefly take the general psychophysiological experimental work first.

Experimental Work on the Influence of Alcohol on the Normal Man.—It is now generally agreed that alcohol, when it acts at all, is a narcotic and not a stimulant, from the very beginning of its direct action on the central nervous system. The deceptive appearance of stimulation arises from the release of the lower nervous centres from the control of the higher by narcotisation of the latter. Kraepelin found that even small quantities caused a deterioration in judgment, in memory, and in the ability to perform the delicate actions associated with concentration or mental effort. Rivers, in ergographic experiments, in which suggestion was eliminated as far as possible by disguising the alcohol by strong-tasting substances, found that small quantities (5 to 20 c.c.) of absolute alcohol had no effect on the amount or nature of the work performed. With larger doses, the results were very variable, and he concluded that there was some relation between the pleasurable emotional condition produced by alcohol and an increased capacity for muscular work.

So much for the effect of single doses. Where the taking of alcohol over a long period (a lifetime) is concerned, Pearl, as the result of a painstaking statistical study, has stated that the

" moderate " class of drinker has a somewhat higher, the " heavy " class a considerably lower, expectation of life than the average. Mellanby finds that a man of 70 kgm. can oxidise 10 c.c. of alcohol per hour; but although it is in this sense a food, even small doses, as has been shown above, depress the highest cerebral functions.

Alcohol, then, can be utilised as a food in small doses, but even in such doses, if taken alone, it begins to paralyse the central nervous system, beginning at the highest (inhibitory) level, and reducing muscular and mental efficiency. In larger quantities it produces all the well-known symptoms of drunkenness; and if taken in intoxicating doses over a long period of time it probably shortens life.

In considering alcohol in relation to mental disease, there are two main divisions of the problem: (*a*) the relation of alcohol in the progenitor to mental disorder or defect in the child, and (*b*) the rôle of alcohol in the direct production of mental disorder in the individual who takes it. Taking the question of heredity first, we find that even here we are not free from the difficulty that alcohol is so often a symptom of mental instability; an alcoholic parent may have been so by virtue of some other, perhaps transmissible, defect. In the statistics of Koller and Diem (conveniently tabulated by Barrett) this total tainting with alcohol (*i.e.* direct and indirect) in the ancestry of 3515 psychotic patients was 20·9 per cent; while in Diem's 1193 non-psychotics, this total tainting was 21·3 per cent, or approximately the same. But direct tainting, *i.e.* alcoholism in the parents, was twice as frequent, according to Koller, and one and a half times, according to Diem, in the insane as in the sane. In Snell's 352 epileptics, the total alcoholic taint in ancestors was 25·89 per cent, or 4·5 per cent more than in Diem's non-psychotic group; but Rüdin points to the remarkable fact that it is uncommon for an alcoholic parent to have an epileptic child, the inheritance being more usually indirect. He suggests that there may be an epileptic germinal predisposition in these alcoholics. Thus again alcoholism may have to be regarded as a symptom of an unstable disposition. In 650 manic-depressives of Sümner, only 9·8 per cent of the ancestors were alcoholic—a much lower percentage than in Diem's non-psychotics. In Pearce Bailey's 9533 mental defectives, the alcoholic tainting in ancestors was 31·8 per cent. This is a far higher figure than any other, and supports what has long been believed—that alcoholism in the parent is a potent cause of mental defect in the child. But

62 per cent of inebriates in inebriate institutions are congenital mental defectives (Branthwaite), and feeble-mindedness is admittedly to some degree heritable. It therefore seems probable that feeble-mindedness of the parents may have produced much of the alcoholism in them, as well as much of the feeble-mindedness in the children. This is comparable with Myerson's observation that in three families where dementia præcox followed alcoholism in the previous generation, other psychopathic and probably heritable factors were present.

Some striking clinical examples are available, although, being isolated, they do not have the value of a good statistical study. Mott mentions one instance in which a woman had two husbands, the first temperate, by whom she had a family of healthy children and numerous grandchildren, and the other a drunkard (one of a family of drunkards of several generations), by whom she had three children, one suffering from muscular dystrophy, another an epileptic imbecile, and another apparently healthy.

Forel quotes Demme of Berne, who compared the progeny of ten families in which the father, and in a few cases also the mother, were drunkards, with that of ten sober families. The families of drunkards had 57 children. Of these, 12 died very early of weakness, 8 became idiots, 13 epileptics, 5 dwarfs, 5 had malformations or were deaf-mutes, 5 became drunkards with chorea or epilepsy, and only 9 remained normal. The ten sober families had 61 children. Of these, 5 died while young, 2 suffered from chorea, 2 were mentally backward, but not idiots, and 50 remained normal. Forel also cites the case of a drinking woman, Ada Jurke, who had 709 known descendants, of whom 106 were illegitimate, 142 beggars, 64 supported by their township, 181 prostitutes, and 76 convicted criminals (7 of them murderers). But it seems unwarranted to attribute this entirely to the alcoholism of Ada.

As far as the transmission of alcoholism itself is concerned (as distinct from the production by alcohol of disease in a subsequent generation), Mott puts the matter well when he says that "Like does not beget like, but a tendency to like in this respect and an inherited weak will-power and moral sense may be transmitted, whereby the individual is more susceptible to temptation and imitation".

Experimental work in animals, which has the advantage of being more easily controlled than either clinical or statistical evidence, has indicated, but not conclusively, that alcohol affects

the germ-plasm and so increases the mortality and morbidity of succeeding generations, a tendency possibly neutralised in the long run by the selective survival of the toughest individuals.

The evidence as to the influence of ancestral alcoholism on the progeny may be summarised as follows:

Alcoholism is much more common in the parents of the insane than of the sane, but alcoholism in the ancestors generally is about equal in the two classes. The fact that alcohol is often a symptom of mental instability has to be remembered in this connection; and especially where the feeble-minded are concerned, in whom the influence of parental alcoholism has probably been viewed in an exaggerated way. The frequency of alcoholism in the ancestry of epileptics is more likely to be an expression of the same underlying instability that leads to epilepsy than the cause of the latter. Clinical evidence suggests, but not impressively, that alcohol, if long continued, can vitiate the germ-plasm and impair the vitality of the offspring. The experimental evidence that a general impairment so produced may be transmitted over several generations has not been confirmed.

The direct Production of Mental Disorder by Alcohol.—The proportion of "alcoholic psychoses" to total admissions to mental hospitals has been placed at from 10 to 15 per cent. Alcohol was also sometimes made responsible for psychoses not classed as "alcoholic", so that alcohol appeared as the cause in 25 per cent to 30 per cent of cases. But the statistical data were often far from perfect. Thus Bond, in 1901, showed that 181 cases (or 24 per cent of the total admissions under consideration) were attributed to alcoholic excess, but, on further analysis there were only 3 in which no other factor was associated. Out of 84 cases of "alcoholic psychoses", Bond found that one-half suffered from such conditions as imbecility, organic dementia, and so on. They were therefore not principally alcoholic, but their alcoholism was the result of a pre-existing mental disease. The singular inconsistency in the estimation of what is alcoholic in origin, and what is not, is emphasised by Mott. Thus 25·6 per cent of the admissions to Hanwell in 1902 were ascribed to alcohol, while at Claybury, which receives the same type of case, the corresponding figure was 11·2 per cent. But in 1906, alcohol was the assigned cause of 28 per cent of the admissions to Claybury, and at Colney Hatch it was responsible for only 14 per cent. Of 2077 autopsies at Claybury, only 2·7 per cent were diagnosed on admission as "alcoholic"

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or post-alcoholic". Mott was able to obtain only 6 cases of unequivocal alcoholic dementia in over 2000 autopsies, and concluded that cases of alcoholic dementia dying in asylums are rare. "Formerly, a good deal of confusion arose over the fact that many cases of general paralysis occurring in men who were heavy drinkers, or who at the onset of the disease took drink, were called cases of alcoholic dementia" (Mott). For all these reasons, statements that alcoholic mental disorder has diminished in recent years must be accepted with reserve. Thus, the figures from some London County mental hospitals have been held to show that the ratio of post-war (of 1914-18) to pre-war certified alcoholic psychoses was rather less than one-third in women and rather more than one-third in men.

In America alcoholic psychoses showed a steep fall in the year or two following the introduction of prohibition, but have since risen, although not to the pre-prohibition level.

Difficulty in diagnosis persists, but is more limited than formerly. The only characteristic alcoholic psychoses are delirium tremens (which is of brief duration, and usually does not reach a mental hospital), Korsakow's syndrome (which is not common, and accounted for only 2 per cent of admissions, for example, to the New York State hospitals in 1910), and alcoholic dementia. The last is usually not admitted till in a fairly advanced stage, complicated by arteriosclerosis and memory defect. Alcoholic hallucinosis is usually transient, and, when persistent, is considered with some probability to be a type of schizophrenia. Of the alcoholic psychoses then, two, delirium tremens and alcoholic hallucinosis, are transitory (and the latter follows the former in the same case in some instances), and the remaining two form a very small proportion of hospital cases (for alcoholic dementia does not recover, and hence, if present, would appear in greater proportion at autopsy than Mott's figures show). Mott has drawn attention to another piece of evidence in the same direction as the foregoing, namely, that cirrhosis of the liver is very much less frequent in asylums than in general hospitals (1·8 per cent, as compared with 8·6 per cent).

The racial and regional relations of alcohol to insanity are suggestive. Alcoholism is infrequent among the Jews; but no one would deny that the mental morbidity rate is as high as that of most races. Bevan Lewis and Sullivan have demonstrated a regional dissociation of alcohol and insanity. Inland and agricultural communities have the highest ratio of pauperism

and insanity, but the lowest ratio of alcoholism, while the opposite is the case in maritime, mining and manufacturing communities (Lewis). Lancashire, Warwick and Cheshire are very high in the scale of alcoholism, but very low in insanity (Sullivan).

Further evidence of the lack of necessary connection between the incidence of alcoholism and insanity is afforded by a table compiled by Sullivan for England and Wales. (Women only included—as figures for men were not available.)

	Convictions for drunkenness.	Deaths from alcoholism.	Deaths from cirrhosis of liver.	Attempted suicides.	First admissions to mental hospitals.
1913	35,675	719	1655	988	9372
1914	37,311	680	1773	1049	9702
1915	33,211	584	1525	816	9078
1916	21,245	333	1163	436	8850
1917	12,307	222	808	452	8702
1918	7,222	74	579	400	9726

But there is much minor mental disorder, produced transiently in unstable individuals by alcohol, and there are many cases of gradual deterioration (dementia) associated with chronic alcoholism, in which an alcoholic bout may produce a temporary exacerbation of mental symptoms. Sullivan believes that it is in association with these conditions that two-thirds of the homicidal crime in England, rather less than half the sexual crime, and most attempts at suicide occur. He has exaggerated the rôle of alcohol in the attempts at suicide. A glance at the above table does not bear out its preponderating influence, for while alcoholism decreased by 80 per cent, suicide had diminished only by 50 per cent, and the decrease in both was largely dependent on common factors.

The following general conclusions as to the direct influence of alcohol in the production of mental disorders seem permissible.

The rôle of alcohol has been much exaggerated. Alcohol is responsible for only a comparatively small proportion of certifiable cases of mental disorder. Mott gave 10 per cent of mental hospital cases as the probable figure. It may be lower than that, with increasing care in diagnosis and history-taking. In the United States in 1910 cases diagnosed as alcoholic psychoses constituted 10·1 per cent of the total admissions, but in 1922 the percentage had fallen to 3·7 (not entirely the result of prohibition).

There is a considerable number of minor mental conditions,

either of a transient or permanent nature, due to alcohol, which do not reach mental hospitals, but are responsible for much of the homicidal and sexual crimes, and for a considerable proportion of attempted suicides.

Alcohol is more commonly a symptom than a cause of mental disorder of a serious and long-standing kind. Branthwaite (1905) remarks that upwards of 62 per cent of persons committed to reformatories under the Inebriates Act are found to be insane or defective—and "they are not insane as the result of alcohol, but the alcoholism was merely the herald—the only obvious sign of incipient mental disorder". Moreover, "intolerance of the exciting effects of small quantities of alcohol may be considered a fairly certain sign of impaired mental equilibrium" (Branthwaite). "Small quantities of alcohol act as a poison to all those who inherit a lack of highest control" (Mott). It is the neuropathic or psychopathic tendency which is the important factor in determining whether or not a person will become insane, and not especially the amount of alcoholism. Of 89 "alcoholic" cases Stocker claimed that 34 were epileptics before they became alcoholic, 17 were manics, 14 were schizophrenic and 9 were psychoneurotic, leaving 5 undifferentiated. Hence alcoholism is most commonly a symptom, and it may help to precipitate a psychosis unrelated to alcohol, *e.g.* general paralysis.

Venereal Diseases.

Syphilis, like alcohol, may act before birth, or at an early age, and produce mental defect. When acquired in later life, it may cause mental disease of various types.

(*a*) **Congenital Syphilis.**—A certain number of cases of mental defect or disorder in the offspring are the result of syphilis inherited from the parent. Those in whom the mental disease is syphilitic without a doubt are the comparatively uncommon cases of juvenile general paralysis, and cases complicated by cerebral lesion from gross syphilitic brain disease (gumma, endarteritis). But there is a residuum of cases of congenital mental defect, without neurological signs, but with syphilitic stigmata and with or without a positive Wassermann in the blood. The proportion of these among the general population of mental defectives is doubtful. Tredgold quotes a number of observers whose figures of the incidence of syphilis (judged by clinical signs) among congenital mental defect range from 1·17 (Fletcher-Beach) to 4 per cent (Potts). When the Wassermann

reaction is used, the figures obtained range from 1·5 to 55 per cent. Neither of these groups of figures discriminated between cases of mental deficiency with gross cerebral lesion and those without brain lesion either of mesoblastic or parenchymatous type. Gordon found a positive Wassermann in the blood in 31·8 per cent of the former (cases with gross cerebral lesion), and 11·9 per cent of the latter. It will be seen that the Wassermann reaction causes many congenitally defective patients to be classed as syphilitic who would escape notice if clinical observation alone were used (*e.g.* Tredgold's 2·5 per cent). Of Gordon's 66 mental defectives with a positive Wassermann, only 11 had stigmata. On the other hand, Gaskell found that in the families of general paretics, 25 per cent are actively syphilitic, while an equally large number show signs of degenerative physical conformation and psychopathic tendencies, without a positive Wassermann reaction. Penrose has called attention to the unreliability of the criteria of what constitutes a positive Wassermann in borderland reactions.

Evidently a considerable proportion of mental defectives have either physical stigmata or a positive Wassermann, or both, the percentage varying with the type of case statistically analysed, as well as by the chance of selection. While in some of these cases the mental defect can be attributed to syphilis, in many it is of independent origin. Tredgold finds an inherited neuropathic tendency present as well in most.

(*b*) **Acquired Syphilis.**—Syphilis is the primary cause of general paralysis, which constitutes from 5 to 15 per cent of the total admissions to mental hospitals. Mental disorders are not infrequent in cerebrospinal syphilis, which is said to occur in 18 per cent of all syphilitic patients (Henschen), and in tabes dorsalis. Further, syphilis predisposes to arteriosclerotic and senile changes, and, in a more indirect and entirely psychological way, the knowledge of syphilitic infection may result in a psychosis. General paralysis is, however, by far the most frequent of the syphilitic psychoses. Among the non-paretic insane, syphilis is not more common than among the sane (Candler and Mann). In U.S.A. in 1910, 6·4 per cent of the total admissions were general paralysis, while in 1922 the rate had risen to 7·9.

Gonorrhœa.—This form of infection is responsible for a great deal of ill-health. A large proportion of the major operations carried out in women's hospitals are the results of it, and its influence in producing sterility is considerable.

While gonorrhœa and syphilis are responsible for producing

severe physical states of ill-health, their effect in producing anxiety and emotional distress is in many cases overwhelming.

Toxins and Infections

(*a*) Exogenous Chemical Poisons.

Of the chemical nerve-poisons producing mental disturbance, alcohol has already been discussed. There are many others, but their incidence is relatively slight. For example, psychoses due to drugs (principally morphine) and "other exogenous poisons" (metallic and gaseous) contributed only 0·39 per cent of the total admissions to the New York State hospitals over a period of eight years. Morphine and cocaine both produce transient mental disorders, chiefly delirium, and more lasting changes involving the moral as well as the intellectual characteristics. But they produce few enduring and certifiable conditions, for in the U.S.A., where the annual use of opium per head is 33 grains, or many times greater than in any European country, the number of mental cases attributed to opium among 49,640 admissions to the New York State hospitals in eight years was only 154. Drug addiction is remarkably uncommon in the British Isles.

Lead, mercury, arsenic and silver have all produced mental disturbance, the first not uncommonly, and the remainder rarely. Tanquerel recorded 72 cases of mental disease out of a series of 1217 patients with lead poisoning. In poisoning by lead, mercury or arsenic, the mental symptoms result from their directly toxic action on the nervous system (witness the peripheral neuritis of lead and arsenic), while on the rare occasions on which argyria has been associated with mental disturbance, the latter was said to be a reaction of sensitiveness to the discoloration of the skin, and not a toxic effect of the silver. With the increasing care taken in the industrial processes which use these metals and their salts, cases of poisoning by them are now much fewer. The same is true of carbon disulphide, which must have been very deadly when used without precaution, for Laudenheimer records that in one factory in Leipzig, where only 10 persons did vulcanising, 6 cases of psychoses were sent to the Leipzig Psychiatric Clinic in the years from 1885 to 1887.

The commonest gaseous poison is carbon monoxide. It is the most dangerous constituent of coal-gas, and is in a sense a symptom as well as a cause of mental disorder, being often used as a means of suicide. It produces acute transient symptoms,

and, if its action is prolonged, a chronic, irrecoverable organic disorder. The latter is rare; but it is probable that as a cause of so-called "dementia" it is sometimes overlooked.

Drugs

In the whole of the State hospitals of the United States at January 1, 1920, there were only 314 drug habitués, or 0·15 per cent of the total mental cases under treatment at the time. Of 4079 cases at the Psychiatric Clinic at Munich, Kraepelin classified only 0·4 per cent as due to drug addiction. In 1919, a committee appointed by the Secretary of the United States Treasury estimated that the annual use of opium per head was in Italy 1·25 grains, France 3, Holland 3·5, and the United States 33 grains. The committee further estimated that 90 per cent of the United States consumption, which was greater than that of any other country, was used for other than medicinal purposes, and that there were a million drug habitués in the United States. Even if these figures are exaggerated, the proportion of drug addicts who become sufficiently ill mentally to enter mental hospitals is evidently extremely small.

Drug addiction does not lead to outspoken mental disorder to the extent that alcohol does. The habitués undergo a moral rather than an intellectual deterioration, and are regarded by the community as degenerates, who are to be despised and perhaps punished, rather than as mentally ill and requiring treatment and protection from themselves. In general, drug addiction is more commonly a symptom than a primary cause of mental illness. But the contributory effect of a drug habit to general mental instability is very great; and in the later stages a physical (toxic) effect on the neural elements occurs.

Not infrequently the addiction has followed on using the drug for the relief of pain or sleeplessness. In these cases, grave responsibility must often rest on the physician who prescribed the narcotic. Physicians themselves are addicts perhaps more frequently as a class than any others. Among 250 morphine addicts, Oppenheim found that 93 belonged to the medical profession.

The drugs that are known to lead to addiction are various. Opium and its derivatives, especially morphine and heroin, dionin and cocaine are the only drugs that are commonly used by addicts. Paraldehyde, chloroform, chloral, ether, iocaine, cannabis indica, are occasionally used in this way, and barbitu-

rates, in spite of their number and diversity, very rarely. Of these opium and its derivatives and cocaine are by far the most commonly abused. Addiction to any of the others is very rare. Marihuana, which can be grown in almost any backyard, has recently come into prominence in the U.S.A. as a source of addiction, even, it is said, amongst children.

Recent legislation has included the Dangerous Drugs Act of 1920, under Section 7 of which power was given to make regulations for controlling the manufacture, sale, possession and distribution of opium, morphine and heroin. In 1921 regulations were accordingly issued, and in 1921 and 1923 certain amendments were made to these regulations. It has since been enacted in England that substances scheduled in the Pharmacy and Poisons Act (1933), including barbiturates, cannabis indica, and hyoscine, can be dispensed only on prescription including the patient's name and address and the doctor's name, address and qualifications, and stating the total amount prescribed.

(*b*) **Endogenous Chemical Poisons—" Autointoxication ".**

In the beginning of this century it became a fashion in general medicine, with its increasing laboratory bent, to attribute to " autointoxication " (a term which Adami said " no self-respecting practitioner ought to use ") every disease that could not otherwise be satisfactorily accounted for. It is not therefore surprising that practitioners of mental medicine, where the ætiology is so often obscure, and where tangible physical causes have been assiduously sought, frequently murmur (not always diffidently) the blessed word. By autointoxication is usually meant poisoning by the chemical products of processes occurring within the body, usually in the alimentary canal. The processes are assumed to consist in the elaboration of toxins from the food, and food residues, and perhaps also from the intestinal secretions themselves. Normally they are either not absorbed or are destroyed in the liver. It has been lately suggested by Quastel that if certain products of protein break-down do reach the circulating blood in sufficient quantity they may act upon the brain by interfering with oxidisation there in the same fashion as narcotics do. Quastel quotes the close analogy between the symptoms produced by a lack of oxygen, *i.e.* anoxæmia from ascent to high altitudes, *e.g.* in an aeroplane, and those produced by the action of a narcotic. Further similarity has been noted between the symptoms of light narcosis and the reactions found in certain types of mental disorder. Quastel and his co-workers have shown

that all narcotic drugs have the property of inhibiting in the nervous system the oxidation of substances important in carbohydrate metabolism. This effect is only shown on substances involved in carbohydrate metabolism and not on other substances. It should be noted that carbohydrate break-down represents the dominating feature of respiration in the nervous system. It has also been shown that the more powerful the hypnotic activity of the drug the greater is its action in inhibiting the oxidation of substances such as glucose and lactic acid. A number of substances normally produced in the gut by bacterial action have precisely similar effects to those of the narcotics on the oxidation of glucose or lactic acid. These substances are mostly break-down products of tyrosine and tryptophane. It may be noted that mescaline, which is well known for its production of visual hallucinations, has a similar action.

Most of these substances, indol, tyramine, etc., are normally detoxicated in the body, chiefly in the liver by a specific enzyme, but it is probable that in the presence of a disturbance of hepatic function increased amounts of the substances will reach the blood-stream, and it is possible that after some time they might create a condition in the nervous system with accompanying results similar to those produced by anoxæmia or light narcosis, but this remains unproven.

In general, however, studies of the constitution of the serum in the psychoses have so far shown no significant differences from the normal (except in certain types of mental disorder where there is a hyperglycæmia, and in some of the acute organic reaction-types, where there is an acidosis).

What Taylor said in 1907 of the autointoxication hypothesis in the psychoses holds true to-day. "A perusal of the literature bearing upon the subject suggests that it is not the validity or natural probability of the findings that leads to the diagnosis (of autointoxication), but rather a conviction of the insufficiency of the previously offered hypotheses."

(c) Bacterial Toxins.

1. *General Infection.*—Almost any infection may produce mental disturbance. The occurrence of the latter depends not only on a general toxæmia, or on actual brain lesions, but on the make-up of the individual infected. Some people become mentally ill much more readily than others as the result of infection. White relates the case of a youth who became delirious from a mild infection of the finger, when his temperature

was only 99°. The mental reactions occurring in the acute stage of infection are most commonly of the acute organic type—delirium. Rarely there occur other syndromes. We have seen simply extreme talkativeness—" pressure " or " push " of talk—in the acute stage of epidemic encephalitis. The mental after-effects of infection are very varied. As Bonhœffer has demonstrated, there is no exact correspondence between infecting agent and type of mental illness resulting; the same specific fever may produce any one of the ordinary mental syndromes, and conversely the same syndrome may result from any one of the infections. Moreover, no novel mental disorder is produced by any specific infective agent (except, perhaps, the virus of epidemic encephalitis). The disorders resulting belong to types which more commonly develop apart from known infection. Henderson gives the following list of symptom-complexes following infection:

(1) (In the acute stage of infection) delirium, and
(2) (In the chronic stages) an irritable, suspicious, deluded state.
(3) Depressive hallucinosis.
(4) Dull, apathetic, depressed state.
(5) Stupor.
(6) Manic excitement.
(7) Korsakow's syndrome.

2. *Focal Infection.*—With the failure of the autointoxication hypothesis, a bacterial toxæmia has been invoked as the causative agent in all the common groups of mental disorders. The ordinary bacterial inhabitants of the alimentary canal furnish neither ecto- nor, since they do not disintegrate there, endotoxins. It is therefore necessary to suppose either that they invade the tissues, or that bacteria not normally occurring in large numbers in the body enter it, usually via the alimentary tract. There, it is supposed, they settle and produce toxins which are absorbed, or alternatively the bacteria are assumed to enter the circulation and form foci of infection, whence toxins find their way to the nervous system. The experiments of Orr and Rows support this last hypothesis. They placed capsules containing streptococci in the peritoneal cavity of animals, and later observed degenerative changes in the cord, presumably from toxic absorption by the lymphatics. Focal infection has lately been strenuously advocated as the cause of mental disorder. It is a curious fact that while focal sepsis has leapt into prominence as the ætiological factor *par excellence*

in mental illness it has been losing much of its prestige as a cause of physical disease. Logan Turner, for example, recently protested against the wholesale implication of infection of the tonsils as the cause of the "rheumatic" group of diseases. Crowe and Watkins, and also Hunt, all of whom he quotes, showed that after tonsillectomy recurrences of rheumatic infection were almost as frequent as before.

The infected foci which have lately been so confidently blamed for mental illness are the teeth, tonsils, nasal and accessory sinuses, stomach, duodenum, gall-bladder, colon and genito-urinary system (cervix, prostate, kidneys and bladder). The organisms accused are chiefly the streptococcus (various strains) and the Bacillus coli. The teeth and tonsils are said to be the commonest sites, accounting together for about 70 per cent of all mental illnesses in which infection is held to be the cause. To the removal of their offending members is attributed the majority of recoveries. More recently Graves has claimed to demonstrate that the vast majority of psychotic patients have infection of the nasal and para-nasal sinuses. McCowan has found such infection in only 3 per cent of cases, mainly of the type where some physical noxa would be suspected, namely in the infection-exhaustion psychoses. This is in accord with general experience. Cotton claimed a total recovery rate from eradication of septic foci in the psychoses of 86 per cent, instead of the usual 40 per cent.

These foci have been attended to by others, with nothing like these results. In a series of 80 cases of depression, we were unable to demonstrate that more of those without apparent dental or tonsillar infection recovered than those who had evidences of this. Moreover, in physical diseases, no one has approached the percentage of successes obtained by Cotton in mental disorders. Of Logan Turner and Whitton's 23 cases of rheumatism and 11 of chorea which had their tonsils removed, only 50 per cent in all showed no recurrence. Cotton explains failures from tonsillectomy and dental extraction by discovering infection of the gastro-intestinal and genito-urinary tract. In the stomach, for example, he has found streptococci and bacilli coli, and has supposed, therefore, that they are derived from foci of infection in the stomach wall. But Kopeloff has shown that while the number of bacteria ordinarily in the stomach content of a manic patient was 48,000 per c.c., yet if the saliva were excluded in taking the sample of content the number fell to 32 per c.c., which does not suggest infection. With regard to the colon, many have investigated the intestinal flora, and

have obtained no conclusive results. B. coli may be found in unusual abundance in the stools, but there is no evidence of its pathogenicity (Goodall), and streptococci are rarely found in such numbers as to suggest infection. Cotton has sought to overcome these doubts by complement fixation tests in the blood against B. coli and several strains of streptococci. But complement fixation tests in infection by these organisms are not generally considered reliable.

Nevertheless, the claim of a recovery rate which is double the usual commands respect. Kopeloff and Kirby undertook, in the light of Cotton's work, to examine 120 cases divided into two groups as nearly identical as possible. One of these groups received operative treatment for infection of teeth, tonsils and cervix, while the other group had no surgical treatment, and could therefore be considered as a control. The percentage recovery rate for the two groups was the same for the manic-depressive patients (40 per cent). In the dementia præcox cases it was rather less in the operated than in the control group. This is in better accord with general experience than Cotton's results. The latter's case-records are often unconvincing, and there is a lack of controls. Even Ford-Robertson, strenuous advocate of the infective ætiology as he was, felt when describing pneumococci, streptococci and diphtheroid bacillary infection in dementia præcox, that it was necessary to postulate an "inherited defective resistance, especially of the association centres". The infective hypothesis, as thus modified, does not advance matters very far. Attention is usefully drawn to the importance of physical diseases in the psychoses; but to entertain hopes that treatment of these—and these alone—will be almost certainly followed by recovery is almost certainly unjustified. To Clouston, the toxæmic hypotheses seemed overrated, and we find much to agree with in his statements. It seemed to him "unphilosophical to say that mind cannot rank as a causative factor; it seems contrary to plain clinical fact". . . . "To set aside the mental treatment of insanity would be to deprive ourselves of our chief therapeutic resource in many cases." In many cases, he said, mental disease was merely the gradual evolution of the original mental character.

Physical Diseases other than Infection

The rôle of endocrinopathies in the ætiology of mental disorder will be discussed separately. Certain systemic physical

diseases play a part, not always well defined, in the production of mental symptoms. Some of them affect the circulation in, and the nutrition of, the brain, and may do so sufficiently to produce an organic type of mental disturbance, *e.g.* the delirium of heart disease. Arteriosclerosis is, however, the commonest cause of circulatory deficiency in the brain, and can produce both the acute and chronic types of organic mental reaction. Cerebral arteriosclerosis also makes the brain susceptible to the influence of toxins. Pellagra, now known to be a nutritional disturbance, and accompanied by tissue changes in the nervous system, is regularly complicated by mental symptoms. It is rare in this country, but with wider knowledge of its symptomatology it has been lately more often reported. In other countries, especially Italy and the U.S.A., it is more common. Other chronic systemic diseases produce, in a more subtle, psychological way, slighter mental changes, which are partly a reaction to the victim's knowledge of the presence of the disease, and partly a result of his physical weakness and discomfort. Clouston differentiated various "insanities" according to the physical disease which was present—diabetic insanity, gouty insanity, insanity of heart disease, and so on. But there is little justification for this subdivision. As with the acute infections, so with the chronic metabolic and chronic systemic diseases; there is no specificity in the mental syndrome associated with a given physical agent.

Fatigue and Exhaustion

Fatigue, of which exhaustion is the extreme case, was formerly considered to be an important cause of mental illness. "Overwork", especially mental overwork, was thought to lead to fatigue, and fatigue in turn to mental symptoms; whereas more recently it has become customary to regard both overwork and fatigue as themselves symptoms, the outcome of mental instability or actual mental disease. There is no doubt at all that fatigue or actual exhaustion are very frequently complained of, especially by psychoneurotic and by depressed patients. A tendency to overwork himself is characteristic of the anxious person who is not actually ill; and when his anxiety attains morbid intensity the symptom of overwork is exalted into a cause. It is a consoling thought that one's breakdown is the result of too earnest and too continuous effort. War experience supported the newer contention. Bonhœffer, for example, could find no evidence of the occurrence of the so-called "exhaustion

psychosis " as the result of the conditions of warfare. One of us (D. K. H.) was impressed by " the excellent physical condition of the majority of mental and nervous cases examined from the various seats of war ", and did not see a case which could be labelled " exhaustion psychosis ". Farrar concluded that " we have been making too free with the diagnosis ' exhaustion psychosis ' ". But it has to be remembered that the objective signs of fatigue, even in the healthy workman, are very few and uncertain. Further, fatigue and inhibition are very closely connected. In the spinal dog, a reflex which is set in action may inhibit all others, but after a time it diminishes in its inhibitory power, and allows the intervention of another reflex, traversing a slightly different path (Sherrington). Inhibition stands high in the hierarchy of mental as well as of neural phenomena ; and if fatigue impairs its power, in other words, if inhibition may itself become fatigued, fatigue must *ipso facto* furnish opportunities for the appearance of morbid (*i.e.* inappropriate) reactions hitherto restrained. The truth seems to be that to attribute an illness primarily to fatigue is usually to mark one phase in a series of phenomena and to neglect the preceding phases. An examination of a number of patients with various syndromes, in all of which fatigue was prominent, has led us to agree that in them the fatigue was secondary to emotional disturbance. Experimental work (Pavlow's and Cannon's) has well shown the influence of emotion on bodily processes. " The increased output of adrenaline which apparently occurs in various emotions, and the speeding-up of physico-chemical effector reactions, often to a level which exceeds what is advantageous to the organism (as in muscle tremor, acceleration of the heart beyond what is likely to be required for practical purposes by the muscles, and so on), must lead to a prolongation of the recovery period when the crisis is over, and enables us to understand why repeated emotional disturbances must be followed by fatigue, or by actual exhaustion."

In short, clinical and experimental evidence alike suggest that emotional disturbance leads to fatigue, while fatigue allows emotional disturbances to appear, such as irritability and depression. It is true that over-exertion may lead to fatigue and therefore *ex hypothesi* to symptoms, but this has rarely occurred. One of the few instances in the literature is quoted by Janet. Tissié observed that certain bicycle-riders after a six days' ride developed phobias. But simple over-exertion is rare, for the sensation of fatigue is itself a " factor of safety ". It is

not in work that sensations of this kind are constantly disregarded, but usually only in work plus emotional stress, where they are noticed either too much or too little. This situation arises more often during war, when fatigue may show itself as a kind of temporary apathy, consisting in diminished capacity for enjoyment, lessened spontaneity, lack of freshness in the morning and dislike of company.

In general, fatigue facilitates the release of anxiety symptoms and of depression, especially in people of obsessional temperament. Moreover, in people who willy-nilly are chronically overworked, like the housewife, whether of the middle or poorer class, fatigue is more often a precipitant than has usually been suspected.

Trauma

Trauma may produce mental symptoms in one of two ways. Either it causes structural injury to the brain, or it causes emotional disturbances which in one form or another are prolonged for some time. In the first instance the mental reaction is of the organic type, often with certain more subtle changes of " constitution " or personality ; in the second the result is usually a psychoneurosis. In the first group the injury is directly, or indirectly, to the head ; in the second, the seat of injury may be anywhere—or nowhere. The first group are usually called " traumatic psychoses " ; the second " traumatic neuroses ". Clinically, the difficulty arises in determining to what extent in any patient the symptoms are due to organic lesion. The traumatic psychoses are increasing. The number in the New York State hospitals has risen from 17 in 1920 to 81 in 1929. This large difference has probably a definite relation to the increasing use of motor vehicles. Furthermore, Anderson (*Psychiatry in Industry*) found that 55 per cent of a force of 450 motor drivers were 23 years old or younger, and that these contributed 74 per cent of all the accidents of the force. Traumatic psychoneuroses are much more frequent, but they do not, as a rule, enter mental hospitals. They are common in general practice and in out-patient departments of general hospitals. It seems indisputable that their incidence has increased in Britain since the introduction of the Insurance and other Compensation Acts. Thus, from 1908 to 1913, the number of non-fatal accidents to workpeople in England and Wales, with consequent invalidism, rose by 44 per cent, while the number of fatal accidents remained constant.

Mental Factors

These may be divided into two classes, social and intrinsic. The latter are more subtle, being compounded of inner desires and the mental precipitates, as it were, of environmental influences. They will be described under " Psychopathology ". The commonest immediate social factors are financial and business worries, domestic difficulties, dissatisfactions of all kinds, disappointments and worries in the sexual sphere, and deaths of relatives. It is such situations as these that the individual, especially the susceptible individual, finds it difficult to face. He may surmount one difficulty successfully, only to go down before an accumulation of troubles. It is not the situation itself that matters, but what the subject feels about it.

Social Factors

There are certain social factors of a general and pervasive kind which are of particular significance in favouring mental illness, more especially of the so-called minor sort, that is to say of the psychoneurotic conditions which depend so largely on the existence of anxiety.

The first and possibly the most universally operative of these is emotional insecurity in early life. This can arise especially from unsatisfactory emotional relationship between parents and child, which again is naturally influenced by unsatisfactory relationships between the parents themselves. In early life this may produce a nervous child, and the effects can persist into adult life, to produce the nervous adult prone to psychoneurotic reactions, or, especially if there is a constitutional factor of the appropriate kind, to psychotic forms of illness. A feeling on the child's part of a lack of affection on the part of his parents or their substitutes, and a feeling of being unwanted, can produce not only morbid anxiety, but a desire for recompense, or even for revenge, of which the result may be delinquency. Indiscriminate affection, on the other hand, induces a sheltered attitude which is apt to persist as a habit and produce a neurotic or unstable adolescence.

One of the more obvious sources of emotional insecurity of early origin is the so-called " broken home ". This has long been known to favour delinquency in some cases and psychoneuroses in others, and war experience has seemed to show that it predisposes breakdown in face of actual physical danger. It

is of course a complicated matter requiring detailed analysis. The absence of one parent, besides producing a general sense of insecurity from lack of one source of affection, means the absence of an important figure with whom a child can identify himself, as well as—what is sometimes overlooked in theoretical discussions—the absence of a source of training in sound habits. There is also the attitude and personality of the remaining parent to be considered, who may in such circumstances be unhappy or neurotic or unstable.

Since emotional insecurity of some sort or another is a source of anxious habits of mind it might be expected that social conditions wider than the home itself would play a part, and in social conditions one has to include anything from financial insecurity to uncertainty of religious beliefs. Oddly enough, it seems that the very poorest stratum of the population is less affected in this way (Neustatter). An anxious disposition was found to be commoner among the well-to-do than among the poor, and this seemed to be reflected in nervousness among the children, which was least in the poorer classes ; as if it was uncertainty rather than poverty that was important. Among the poorest children there seemed often to exist a state of mind not usually included in psychiatric literature in this connection, namely, apathy and listlessness ; but bad nutrition, lack of sunshine and of the other amenities of life are as accountable for this as lack of hope of better days.

The part played by education in the broad meaning of the word in facilitating psychological disorders in later life has received insufficient study. Education in this sense ranges all the way from upbringing in the nursery and the inculcation of sound habits to the kinds of values imparted by training at school and universities. Too often these values may instil a desire for power. The circumstances of life with power as its object may well be productive of psychological illness ; in fact the Adlerian system of psychology is a study of the consequences in character and in psychoneurotic forms of ill-health of the persistent operation of this desire. Psychoneuroses of this sort have well been called " cultural " neuroses, because they are the product of an essentially competitive type of civilisation. Such values are productive not only of despondency and depression but of chronic anxiety, fear of failure, and of inferiority feelings, which are in fact an expression of a sense of failure to achieve the desired goals, and of such characteristics as habitual criticism of others, which represent an endeavour to " hoist oneself by one's own boot-straps ".

Apart from questions of financial security and of personal progress, mere lack of work, as well as unsuitable work, has been shown to lead to psychoneurotic illness. There is a biological need for activity, the frustration of which alone will produce inner disturbance, certainly boredom, sometimes apathy and sometimes mental illness. In addition, work has other values by giving the worker prestige within a community, without which he becomes uneasy. Reports on the reactions of unemployed men illustrate this. It has to be remembered that unemployment, as Mannheim has pointed out, means a disintegration of the patterns of life which the individual has woven for himself. This may have a catastrophic effect on some individuals, or a more gradual undermining effect on the peace of mind of others.

Other contributory or predisposing causes of a social kind are very difficult to assess. Few things, however, are more striking than the number of lonely people among the out-patients of a department for psychological medicine. Some of these are constitutionally inclined to solitariness, but others have it forced on them, with consequent limitation of interest and dissatisfaction from frustration of natural needs. Our present social organisation, especially that part of it which is comprised in suburban life, does not cater for this. The new housing schemes have recognised it, however, and include community centres for each group of dwelling-houses.

Age

The part played by age in causation is an indirect one, and is a function of the changes in the mental outlook and in the tissues which accompany the passage of the years. Certain stresses fall more particularly in certain age periods, *e.g.* the mental after-effects of syphilitic infection appear most commonly in the decade thirty to forty. Generally speaking, the maximum incidence of mental disorder in males lies between the ages of thirty and forty, and females between twenty-five and thirty-five. After these periods there is a fall, followed by an increase at the involutional period and in the senium. The increasing age of the population shown in the Registrar-General's statistics, gives scope for an increase in the organic (degenerative) mental disorders of later life.

Race

The essential difficulty in making a comparison of mental disorders in different races is that there is no classification of

mental disorders common to different countries. It seems, however, that just as an individual reacts to certain strains or stresses, or toxæmias, by a particular type of mental disorder either in the nature of an excitement, a delusional system, or a delirium, so certain races seem to be more prone to certain types of mental disorders than to others. This subject is of interest not only from a statistical point of view, but more especially because such a comparison might possibly lead to an estimate of the different levels of intelligence, and of the types of reaction which normally predominate in various races.

If we compare the types of mental disorder occurring even in such a small country as Scotland, we find that in rural mental hospitals the type of mental disorder differs to a certain extent from that in urban institutions. This is natural enough, because we would expect that in city districts the influence of alcohol, syphilis, tuberculosis, and other devitalising agents, would be more marked than in the country. In Scotland we seem to see a very much larger number of cases of melancholia than is the case elsewhere; but even in this type of disorder the number of cases occurring in a mental hospital such as Inverness is very much larger than is the case in a city institution. For instance, in the report for 1923 for Inverness District Asylum, 75 cases of melancholia were admitted, out of a total admission rate of 145 patients. At the Glasgow Royal Mental Hospital in 1922, 145 patients were admitted, and less than 30 suffered from melancholia (depressions of manic-depressive and involutional type). These figures give a good indication of the variation in the type of mental disorder even in a very limited area. It is of some interest to record that in cases of mental disorder occurring in the Orkney Islands transferred for observation and treatment to the Royal Edinburgh Hospital for Mental Disorders, the striking feature is the occurrence of a peculiar, dull, bewildered state, which seemed to be common to all of them. Invariably these patients are more difficult to nurse and to care for than the average case in the institution.

It is only in a country such as America that a satisfactory comparison of races can be made, where a mixed population lives under more or less uniform conditions. The average immigrant is perhaps not the best type of the nation from which he springs, yet no doubt the immigrant reflects truly enough many of the natural tendencies. Various statistical studies by Salmon, Pearce Bailey, Kirby and others have brought out some interesting racial comparisons. The Irish,

for example, have at least twice as large a proportion of alcoholic psychoses as any other race, 27 per cent of all Irish admissions being alcoholic psychoses (Kirby). The percentage of senile and arteriosclerotic psychoses among them is also great, being greater than that in any other race in Kirby's series of admissions to Manhattan State Hospital in 1907–8, but lower than that of people of mixed race and of the English in the Massachusetts State Hospital's admissions for 1917–19. On the other hand, Salmon puts the proportional incidence of general paralysis among the Irish lower than among any other race, and the percentage of mental deficiency among them, according to Pearce Bailey, is much lower than the average for the United States as a whole.

The Jews, by contrast, have fewer alcoholic psychoses than any other race, but the percentage of drug addiction among them is twice the average United States rate (Bailey). They have a lower mental deficiency rate than any others, except the Scots and Welsh. With the Italians, they have the highest proportional incidence of dementia præcox among the Massachusetts admissions for 1917–19. It is of considerable interest to note that Goldberg and Malzberg (in a recent study) report that the percentage of general paralysis and alcoholic psychoses among Jews is showing a steady increase. The Italians have proportionately more epileptic psychoses than any other race, and their proportion of mental defectives is 4·3 per cent greater than the average U.S. rate. Alcoholic psychoses were very few among them.

Among people of German descent investigated by Salmon occurred the highest rate of incidence of general paralysis for any race except the negroes; while in them also involutional melancholia and infective-exhaustive conditions were more frequent than among the native stocks of the United States. The American negro has the greatest incidence of general paralysis of any race, but the alcoholic psychoses are fewer among them than among any other stock except the Hebrews. General paralysis is exceptionally rare among American Indians. It has been suggested that this is the result of an acquired racial immunity to the effects of syphilis, the latter having been supposedly endemic in America and brought to Europe in the fifteenth century.

In a group of 580 Scots investigated by Pearce Bailey, the average U.S. rate of incidence of mental disease was exceeded in all types except mental deficiency, in which the rate was

lower than in any other race. Inebriety was high, and alcoholism much exceeded drug-taking. Pearce Bailey associates in general a low percentage of drug addicts with a low mental deficiency rate.

Culture

Among races in a primitive state of culture, such as the natives of Java, Kraepelin found psychoses of the same general type as occur in cultured white populations. Seligman thinks, however, that in primitive peoples such psychoses are principally the effect of contact with white civilisation and the attempt at adjustment to the latter. The question of culture is also important in assessing the import of a delusion. A delusional belief that would be ominous in a Londoner might mean little that was abnormal in a Sandwich Islander, on account of the special superstitions and folk-lore of the latter. This consideration holds, but to a lesser extent, for different cultural strata in the same population.

The type of religion has a pathoplastic effect. Seligman noted among the Japanese that delusions of a religious nature with a sense of guilt were practically absent in Japan, where religion is cheerful and assumes primitive virtue rather than original sin.

Malinowski believes that psychoneuroses are very rare among the Trobrianders in comparison with the inhabitants of neighbouring islands, on account of the family organisation of the former, which is characterised by the virtual absence of anyone in the rôle of father.

Climate

The relation of climate to the incidence of mental disorder is mostly a matter of the infectious agents, especially malaria, associated with tropical and semi-tropical countries. Alcohol is also a frequent contributing factor. Temperature and humidity together are directly responsible for only a small percentage of mental illness. Excessive temperatures have been shown to cause chromatolysis in the brains of animals. When heat-stroke occurs in man, its after-effects are not specific, the type of disorder immediately resulting being of the organic type. As remote effects, one most commonly sees schizophrenic illness, but in these cases the history of heat-stroke is often indefinite and its causative rôle doubtful. Malaria is responsible for the majority of mental disorders attributable directly or indirectly to climatic conditions. Typhoid and dysentery also

contribute. Trypanosomiasis is of more limited distribution. It causes a specific, very pronounced chronic organic type of mental disorder. The influence of these infections is in lowering the general resistance, giving mental instability a chance to show itself, and not in any specificity in their action (except in the case of trypanosomiasis). The difficulty of adaptation to a foreign country and to a society with unfamiliar customs is also a factor in predisposed persons. In British regiments in India the percentage of suicides is very much greater than is the case under home conditions. There is a seasonal variation, it is said, in the incidence of suicide. Weichbordt has given statistics to show that the number of suicides increases in the spring, reaches its acme in May and June, and sinks to its lowest level in December and January.

Sex

Sex has a complicated bearing on the incidence of mental disorders, for the types of stress differ considerably in the two sexes. In the male the effects of alcoholism and syphilis are seen to a far greater extent than in women, and on them also the stress of competition falls more heavily. Women, on the other hand, have to face the stresses of pregnancy, the puerperium and the menopause; but it is probably not the physiological factors involved, but the psychological, and in the puerperium undoubtedly the infective, that are responsible. Despite these differences, the total incidence of mental disorder differs but slightly in the two sexes. Of 232,680 patients in the mental hospitals of the U.S.A. on January 1, 1920, 52 per cent were men and 48 per cent women; but the difference in proportional incidence is greater than the figures would indicate, since the female population of the country exceeds the male. The figures, being those of total population of mental hospitals on a given date, are also affected by the fact that organic degenerative disorders are more rife among men and lead soon to death; while women, suffering chiefly from disorders unaccompanied by gross organic change, survive in greater proportion.

Endocrine Factors

Mental diseases being as yet very imperfectly understood, and their causation more often than not a matter of surmise, it is not surprising that the endocrines should have become

implicated as the principal malefactors. It is another example of the practice of despair in the theory of mental medicine, in which the cause of mental illness is sought always in something other than disorders of mental function. It is, of course, known that certain classes of mental illness depend upon physical changes; but in the vast majority of cases no such definite changes are found, and it is for the latter that the endocrine glands have been called upon chiefly to account. In actual fact, in the present state of our knowledge such definite conclusions as are possible are mainly negative. In patients with gross disease of one or more glands, accompanying mental symptoms have shown no close correspondence to the principal types of mental illness. Again, the possible interrelations of the glandular functions are so numerous, and the various temperamental make-ups associated with them consequently so complicated (assuming that endocrines and temperament are related, which is in need of proof), that it would almost pass the wit of man to compass them. Some suggestive indications nevertheless exist. Kretschmer finds striking characterological relations of eunuchoids to his "schizoid" group, and a significant-looking proportion of glandular dysplasias among his schizophrenics. To relate mental symptom-complexes to morbid gland-complexes in the absence of well-marked disease, is, in our present state of knowledge, equally difficult. It is this complicated difficulty that makes the recognition of related clinical types of physiological make-up and of mental disorder largely speculative. Attempts to define an "adrenal type", a "thyroid type", and so on, have little or no basis in fact. Much more thorough work is needed in this direction, probably on the lines explored by Draper in his work on "constitution".

It is true that investigations have not failed to find pathological changes in the ductless glands in practically all mental diseases. But, as Dunlap and Morse have pointed out, insufficient effort has been made to exclude the influence of intercurrent infections, to compare cases dying in the course of mental disorder with mentally normal persons dying at the same age, and to exclude post-mortem changes.

The most suggestive work on the endocrines in mental illness is that of Mott, who describes a "primary regressive atrophy" in all the principal glands, especially the testes, as well as in the brain cortex, in dementia præcox. According to him there is a generalised failure of vitality in the "master tissues" of the body. Mott's conclusions were founded on an examination of 100 cases.

Dunlap, after a careful elimination of all confusing factors, such as intercurrent infections, age, etc., could find in a very large group of material only 8 cases which seemed to fulfil the necessary conditions. He failed to find any such pathological change as described by Mott in the brain cortex in these cases. Morse had 3 cases fulfilling similar requirements (sudden accidental death in known cases of dementia præcox), and failed to find characteristic changes in the endocrines. In one of them, so far from there being regressive atrophy in the testes, spermatogenesis was marked. In a series totalling 27 cases, Morse concluded: "There is no one uniform condition of the gonads or other endocrines in dementia præcox dependent on the disease process. The main factors which determine the condition of the glands at autopsy are the nature and duration of the terminal disease, the state of the nutrition, and possibly in some instances an underlying defect of development which is expressed in feeble-mindedness or the hypoplastic constitution." The same remarks apply to the pathological anatomy of the endocrines, and of the body generally, described in various other mental disorders not hitherto recognised as having significant physical connections. From the conflict of observation, it is evident that much remains to be done before the endocrine correlations of the principal forms of mental illness can be accepted or refuted. Glandular therapy in mental disease, it may safely be said, has met with little or no success. Of all the cases in which it has been tried, the percentage of favourable results has been so small as to make no more than an accidental connection likely. Meantime, it is well to remember that none of the ductless glands appear to work to full capacity under normal conditions, since from three-fourths to seven-eighths of each gland system may be removed in the healthy animal without producing any deficiency symptoms. Hence the destruction by disease of large portions of the gland tissues need not be assumed as evidence of functional deficiency (Carlson).

Although there is as yet no conclusive evidence of a close relation between degenerative glandular changes and the commonest types of mental illness, the relations between glandular function, normal or perverted, and the activity of the organism, including the mental activity, are evidently very important. The evidence is both experimental and clinical.

Extirpation of almost any of the ductless glands, when it can be successfully performed with survival of the experimental animal, has profound effects. Among the most striking work,

and of especial value because the animals survive long afterwards, is that on the removal and transplantation of the gonads in white rats (Wang). In the female rat, removal of the ovaries abolishes the five-day cycle which corresponds to the menstrual cycle in that animal, and removal of the testes immensely reduces the activity of the male; while transplantation into a castrated animal of the gonads of the opposite sex is said to produce the type of activity corresponding to the sex of the gonads. Richter on the basis of similar experiments with other endocrine glands, believes that the activity-cycle of the rat is rhythmically affected by them also, the periodicity for each gland being characteristic (*Amer. Jour. Psychiat.*, 1941, 97, 878). Experiment has also suggested connections between emotional reactions and the secretion of certain endocrine glands, especially the adrenals, and clinical investigation has tended to confirm this to some extent. The experiments of Cannon are well known, in which emotional disturbances in cats are shown to be accompanied by output of adrenalin, which increases the blood-sugar concentration. It is suggestive that in certain states of pathological anxiety and depression, the blood-sugar concentration is increased (Kooy and Whitelaw). Clinical evidence of the relation of the endocrine glands to mental disease rests on two series of observations: that mental symptoms, in certain instances very definite, accompany gross glandular disease;[1] and that normal mental changes tend to occur about these periods of life—puberty, pregnancy and the climacteric—that are known to be associated with pronounced glandular alterations, especially in the gonads. How far these normal mental changes are associative simply, part of the same general process of ripening and decay, and how far they are dependent on glandular alterations, is a matter on which the clinical evidence derived from disease is suggestive; but very much more work requires to be done before any general understanding of the rôle of glandular malfunction in mental illness can be reached, and especially before endocrine therapy as a whole can rest on any but the most crudely empirical basis.

In the meantime it can hardly be doubted that the matter is very much more complicated than is supposed by many, who

[1] Some recent work has suggested that homosexuality in women in some instances results from the suprarenal disease that produces the physical picture known as suprarenal virilism, or the adrenogenital syndrome. Removal of one suprarenal has, it is claimed, been followed by the appearance of heterosexuality (Broster *et al.*, *The Adrenal Cortex and Intersexuality*, London, 1938).

seem to expect a direct causal relationship between gland disease and mental symptoms. That simple view has not been borne out by observation, and a less naïve type of hypothesis becomes necessary. For example, arrest of development or extirpation of the gonads leads to diminution or absence of sexual urge, and presumably, therefore, there is a diminished tendency to sexual conflicts. Not the glandular disease alone, but the whole personality, has to be taken into account. For example, the patient's reaction to the knowledge that he has a certain disease, *e.g.* diabetes, may in itself be morbid.

Psychosomatic Medicine.

This now popular designation has wide reference. Clinically it includes two general topics : (*a*) those cases where the symptoms referred by the patient to one or other of his physical systems are purely the result of emotional disturbance and (*b*) those where the emotional disturbance has played upon some physical *locus minoris resistentiæ* and precipitated a structural disorder, *e.g.* peptic ulcer. The psychopathology in such conditions is not different from the psychopathology of conditions which do not present themselves in either of those ways, and it is unnecessary to describe it separately.

The importance of the delineation of such disorders under a separate name is the practical one of calling attention to the close relationship of mind and body, and especially of impressing upon doctors in general that many of the symptoms that they have been accustomed to treat along physical lines are really of psychological origin. In the past it has commonly happened that symptoms referred to by the patient as indigestion were accepted as such by the doctor and labelled " dyspepsia ", which was then treated as a disease *sui generis*, although no physical lesion had been demonstrated. Similarly, vague pains were labelled " rheumatism " ; complaints of fatigue were attributed to a " weak heart " or to " anæmia " ; breathlessness was called " asthma " ; localised pain was often disposed of as " neuralgia " or " neuritis ", and complaints both general and vague without discoverable physical causes were labelled " debility ". The attachment of the diagnostic label gave form and substance to the syndrome in the patient's mind, and in this way psychoneurotic invalids who were always complaining, improving a little and always relapsing, were created in considerable numbers. Such chronic conditions might well be called iatrogenic, fostered, if not produced, by the doctor's failure, arising from short-

comings in his medical education, to recognise or even to look for the emotional factors that were upsetting digestion or causing pains or fatigue or what not.

It seems to take a war to bring home these principles in a comprehensive way, since war produces fear or anxiety in most people at some time or another, and it is emotions such as these that are among the commonest causes of the physical discomforts for which medical advice is sought.

It has recently been shown that the blood of individuals in a state of anxiety causes an alteration of the rhythmic contractions of a strip of fresh rabbit intestine suspended in Ringer's solution. The effect suggests the presence in the serum of a cholinergic substance, presumably released by anxiety since the effect disappears when the anxiety subsides (A. T. Milhorat *et al.*, *Proc. Soc. Exp. Biology Med.*, 1943, 53, 25).

" Psychosomatic " conditions are very common; in fact psychogenic, especially psychoneurotic, conditions as a whole present themselves more frequently in a somatic guise than a mental one. Patients come more often with a complaint of palpitation or headache than with irrational fear of crossing the road.

The second group, where some actual physical lesion appears to be activated by psychological tension, is much less common, but it is none the less important, because to treat the lesion and not the whole man may lead to failure.

The literature in this connection has been summarised in *Emotions and Bodily Changes*, by Flanders Dunbar (N.Y., 1935). Investigations have taken four main directions :

(1) To determine in a series of cases the frequency of incidence of emotional events, or of the occurrence of emotional tension at, or just before, the onset of a physical ailment. For example, G. Marañón (quoted by F. Dunbar), in a series of 159 cases of Graves' disease, cited 48 as having emotional shock. C. H. Rogerson, D. H. Hardcastle, and K. Duguid (" A Psychological Approach to the Problem of Asthma and the Asthma-Eczema-Prurigo Syndrome ", *Guy's Hosp. Rep.*, 1935, lxxxv, 289-308), in a series of 23 asthmatic children, who had not responded to physical treatment, showed that they were of the over-anxious type, living often with over-anxious parents.

(2) The detailed analysis of an individual case, to determine the relevance of emotional events (traumata, complexes

and the like) accompanying the physical illness; and the effect of psychotherapy on the latter. Very few studies of this intensive individual kind have been done. N. D. C. Lewis reports success with two cases of hyperthyroidism following a psychoanalytic type of therapy (F. Dunbar, *loc. cit.*).

(3) The enumeration of traits of character and temperament associated with a given disease, *e.g.* peptic ulcer, with which the anxious, over-conscientious type of personality is frequently associated (D. T. Davies and A. T. M. Wilson, "Observations on the Life-history of Chronic Peptic Ulcer", *Lancet*, 1937, ii, 1353-1360).

(4) The analysis (other than the mere enumeration of traits) of the character and temperament of individuals suffering from certain types of physical illness. For example, Rogerson ("The Psychological Factors in Asthma-Prurigo", *Quart. J. Med.*, 1937, vi, 367-394), finds that asthmatic children, however timid they might often appear on the surface, were notable temperamentally for a high degree of aggressiveness; covered in many instances by "reaction-formations" (*e.g.* timidity) against the natural aggressiveness. Recently in the victims of emotional hypertension (*Psychosomatic Medicine*, 1939, i) a similar finding has been made.

In general, it appears that either emotional trauma or continued emotional tension will, in people of a certain temperament, facilitate the appearance of certain organic diseases; but there is probably a local predisposition as well, because people of similar temperament exhibit different localisations of their somatic lesions.

The types of temperament that are mainly concerned appear to be the anxious, over-conscientious types and the covertly aggressive. It appears, in fact, that wherever the temperamental and characterological aspects of physical diseases or peculiar physical dysfunctions are investigated, the traits recorded are very similar. Thus Ryle (*Lancet*, 1939, 297), speaking of the "visceral neuroses", says, "Its victims" (of spastic colon) "are industrious and conscientious", and he mentions emotional signs in 188 out of 321 cases. This is not to say that their temperamental traits are the "causes" of their organic disturbances; but rather that the constitutional pattern shows itself on the one hand in the temperamental and on the other in the physical

sphere ; although doubtless there is also an interaction between the two.

Hitherto, psychiatric studies have tended to take a group of cases of physical disease and study the accompanying temperamental traits. What is wanted in addition is a complementary study of different groups of people arranged according to temperament and of the physical disorders to which they are prone.

No new psychopathological discoveries are to be expected in this field ; but light may be thrown on the relationship of mental to physical illness, and on the possibility of psychogenic functional reversible physical changes becoming permanent, irreversible or even structural. What these studies so far emphasise is the need for treatment purposes of taking account of the whole man, *i.e.* the need for a psychobiological view-point in clinical medicine as well as in psychiatry. What Ryle says of the visceral neuroses is true, sometimes more, sometimes less, of disease in general.

The story of the ' visceral neuroses '—heartburn, spasmodic dysphagia, globus, colonic neuroses, vasovagal neuroses, cardiac neuroses (paroxysmal tachycardia and vasovagal attacks)—is a story of men and women, of personalities and temperaments, of hereditary habits and environments."

CHAPTER IV

METHOD OF EXAMINATION

In the practice of psychological medicine a not infrequent obstacle enters which is not found, or very little found, in other branches of medical practice, namely a relative or total unwillingness on the part of the patient to co-operate. Co-operation may be slight or altogether lacking in many instances, for example in schizophrenia from absorption in an inner world of phantasy, in paranoid psychoses from suspicion, and in manic excitement from sheer inability to sustain attention ; while in other syndromes there may be apparent willingness to co-operate, but inability to do so, for example in profound depression of spirits where thinking is so retarded that the patient may repeatedly open his mouth as if to speak and be unable to utter any more than a syllable.

It is to cases of the psychotic sort that a greater part of the following description of the manner of examination refers. It includes the method of approach to individual patients who are more or less incapable of co-operation in one or other of these ways.

But in those instances of psychological ill-health which are in the great majority, where the patient presents himself for examination and treatment, where he is morbidly anxious or excessively worried and depressed without being robbed of his volition, or still more frequently where he complains of headache, dyspepsia, palpitation or some other discomfort for which no sufficient and relevant physical cause can be found, then the procedure may be summed up as that of taking a detailed *history* along certain lines.

After obtaining a statement of the symptoms in the order in which the patient complains of them, and noting associated qualities such as time, incidence, relation to what the patient does and so on, it is necessary to trace the chronology of their

development. When did the symptoms first appear, and in what circumstances ? It will sometimes be found that the first statement on this point is inadvertently erroneous, and further exploration may show that in fact symptoms of a similar sort existed at some previous date. The history of the development of the symptoms is, however, of importance, principally in relation to the patient's personal history. What were his circumstances at the time the symptoms first appeared or at the time of any recurrence or exacerbation ? The task in fact resolves itself into taking a life-history of the patient as an individual in relation to his home, the people in it, his friends, his married life, his work, his career and so forth. One looks first of all for evidence of external stress existing at or near the onset of symptoms, such as frank anxieties, disappointment in career, other personal frustrations, conflicts with wife or husband or work associates, jealousies and rivalries, from the nursery upwards ; in fact, whatever human beings do and suffer has to be explored by the psychiatrist in relation to the occurrence of symptoms which are presumed to be signs of mental uneasiness or distress.

Where nothing of this sort appears in the history, or nothing that seems to account for the symptoms, either in the external circumstances or, what is much more difficult to ascertain, in the patient's inner attitude to his life and his fellows, then the investigation must be extended, as indeed in some degree in most cases it must be extended for the sake of a proper understanding, into his early life, his relationship to his parents, his brothers and sisters and so forth. An attempt should also be made, primarily on the basis of the life-history, to make an estimate of the patient's temperament and character. Here the examination may follow the same lines as is discussed under " Personality " in the following section of this chapter.

In this way it will be possible to arrive at a provisional formulation which exhibits the symptoms as a reaction to contemporary circumstances, or shows the condition as one of much earlier origin connected with miscarriages of psychological development, starting at an early age and tending to produce feelings of insecurity and inferiority, or faulty attitudes of a more subtle kind ; and on the other hand producing faults of character, such as vanity, tendencies to dodge important issues, or to bear grudges. More subtly still, emotional attitudes may be formed around certain individuals in the family and round certain episodes in the past which preclude a normal attitude to various aspects of life subsequently until these earlier attitudes have been uncovered

and modified. For example, over-dependence on one or other parent may produce an apparently causeless anxiety at the prospect of marriage. More detailed exposition of topics of that kind will be found under " Psychoneuroses ".

It will be seen that what is wanted where the patient is co-operative, and especially where there is no question of mental alienation and of the existence of a radically different general attitude to the world from that of the ordinary man, is a history of the patient as a person, his character and temperament and his modes of reaction to the emotional stresses of life.

Where, however, the degree of co-operation is less than this, and where even if co-operation is superficially good the patient's attitude and ideas are such as to suggest that he has been developing a psychotic form of illness, then the following scheme should be closely followed, because an accurate, systematic form of examination is indispensable, and should be of material aid in the progress of psychiatry. It has seemed to us that physicians in general practice are reluctant to deal with psychological or " mental " cases, largely because they do not know how to approach and examine them in an orderly way. No one expects a general practitioner to be fully conversant with every speciality, nor does one expect from him a detailed argument in regard to prognosis and diagnosis, but the general practitioner should be familiar with methods of examination, so as to be able to elicit the facts and present them systematically, even although he may not be able to interpret them correctly. This is fundamental. The interpretation of symptoms will only come on the basis of wide experience.

It has been unfortunate, therefore, that in psychiatric case-taking there has not been a settled, uniform policy, but each person studying psychiatry either has had to work out methods of examination to suit himself, or has blindly followed the ways of his teachers and colleagues, even although those ways were recognised to be far from satisfactory. Hence psychiatric records have often left much to be desired, and it has not been possible to correlate accurately the clinical picture with the pathological findings, nor has it been possible to compare cases occurring in one mental hospital with those in another. From this there results confusion and incongruity, where it is essential to have clearness and uniformity. One hears various excuses made for this. A common one is that the patient is so disordered mentally as to be quite un-cooperative, and on that account a complete examination is impossible. How seldom is

this really the case! It is true that it may not be possible to make an absolutely complete examination until after a number of attempts have been made, and certain points may not at once be elicited, but sufficient should always be obtained (whether there is complete co-operation or not) upon which to base an independent opinion. Where it is not possible to elicit all the facts, the case-record should contain an explanation of why this is so.

Although a good descriptive record of the behaviour and symptoms of the patient is of importance, it will not be of any great value unless information is collected elsewhere regarding the setting in which the symptoms have occurred, and the causes which have been instrumental in producing them. The causes are so often of a family or environmental nature that a study of the social conditions and of the family life is essential. The plan of examination, therefore, consists of two parts—the history or "anamnesis" obtained from the relatives or friends, and the examination of the patient. The one is no less important than the other.

There are several general points which should be kept in mind in making this examination. An effort should be made to record the case in simple, non-technical language, rather than by using hackneyed terms. Further, the physician should not be satisfied with an account from any one source, but should interview several of the intimate relatives or friends of the patient.

In examining the patient a great deal depends on the method of approach. The physician should realise clearly that he is dealing with a person of disordered mentality, who cannot be treated in the same way as a patient in a general hospital, and he should therefore be more than usually tactful, very patient, understanding and sympathetic. Many medical men in examining their mental patients repeatedly fail to get hold of the essential points of the case, either because of an undue sense of delicacy, or because their manner and method do not inspire confidence in the patient. The patient should be made to feel at once that the examiner has his best interests at heart, that he is willing to do everything that he possibly can to help him, and the doctor should be quite frank in stating his position. If the patient asks who was responsible for his coming, why he was brought, and so on, these questions should be answered fully at the time. The patient should be informed that all the facts will be carefully investigated. It not infrequently happens that patients are more talkative and more willing to explain their illness at the first interview than they are later on, and this time

should be seized to take as complete a record as possible. Sometimes the physician feels that he may upset the patient by going thoroughly into the case at the time of admission, but this is incorrect. It is much better to make a comprehensive note at once of the patient's condition, and, at the same time, to give him any explanations which he asks for. The complete systematic examination should be conducted as early as possible. If this is not done, a change may very soon occur in the patient's attitude, and often a most valuable part of the record is lost. Until the physician has gained considerable experience in history-taking, we consider that it is advisable that the plan suggested below should be followed closely. Later, after experience has been gained, it can be changed to suit the individual case. Under these circumstances, and using this plan of examination, we believe that the different mental fields (*e.g.* behaviour, affect, intellect, personality and insight) can be examined just as thoroughly, as completely, and as systematically as any bodily organ.

The plan suggested was first formulated by Dr. Adolf Meyer when he was Director of the Psychiatric Institute, New York. In 1921, Dr. George Kirby edited for the New York State Hospital Commission a series of guides for history-taking and clinical examination, which were largely based on Meyer's original plan. We have followed these closely, but have modified them here and there, and have eliminated parts which might be considered redundant.

The form of examination which we suggest may be considered under the following headings :

1. Family History.
2. Personal History.
3. History of the present illness.
4. Examination of the patient, including the (*a*) mental and (*b*) physical condition.

Family History

It is notoriously difficult to get a reliable statement of the family history. The relatives often feel sensitive about their position ; they are apt to think that the patient may resent information being given, and the maternal side is apt to blame the paternal side, and vice versa. Even where evidence of definite nervous or mental disturbance is obtained, the positive statements are often glossed over, and any description of the

state is usually qualified by some such phrase as " Of course he was not insane, Doctor ".

We have already emphasised the value of the accurate study of the facts of heredity in relation to mental illness, and at this point we would merely reiterate the necessity of having as complete and as detailed information as possible, dating back for three generations. It is not always easy to get this, for various reasons, but where the information is defective a statement to that effect should be made in the case-record. On the other hand, where a positive history of abnormality in the forbears is obtained, then the age of onset, the duration of the illness, and a description of it should be recorded. A one-word diagnosis is not satisfactory, because it is necessary to have the facts so that any one could come to an independent opinion. This is why it is so important to avoid such vague terms as " nervousness ", " shock ", " worry ", " melancholia ", and so on. In addition to having information regarding the direct line, the collateral lines should also be closely inquired into. We not only want to have information about the occurrence of the more gross types of mental disorder, but we should also have as much information as possible in reference to feeble-mindedness in any degree, epilepsy, alcoholism, and eccentricities and peculiarities of any kind. Apart altogether from the purely nervous and mental aspects, we should attempt to obtain information about the general physique of the family, and the bodily, as well as the mental, morbidity.

Personal History

This may have to be obtained from several different sources, from the brothers and sisters, or from other intimate relatives and friends. The personal history should cover the *development of the patient* from the time of conception up to the alleged onset of the illness. We want to know as much as we can about the life, habits and social circumstances of the parents at the time of conception, the condition of the mother during gestation, the character of the labour—whether it was unduly prolonged, complicated, or aided by instruments. The development and career of the individual should be followed, and such points inquired for as whether he was strong and healthy, or sickly; the susceptibility to childish ailments; whether there were convulsions, tantrums or sleeplessness; the time of teething, of learning to walk and speak. the control of sphincters

(bed-wetting) and the response to darkness, tunnels, thunder and lightning and other childish bogeys.

Following this, the stage of *intellectual and social adaptation* must be inquired into, and our inquiries should concern school reports, the degree of intellectual attainment; what the patient's attitude was towards his fellows, whether he was a leader or led; how interested in, and proficient at, games; whether a spontaneous, keen, straightforward person, or cunning, a truant, untruthful. In short, we should have as much evidence as possible in regard to the individual's interests and hobbies, including such things as fondness for animals, or cruelty towards them; and interest in religion—whether it was merely formal, or had a deeper side. Special inquiry should be directed towards *sex development*, the establishment of puberty, whether much interest was taken in it, whether there were bad habits (masturbation) or a tendency to associate freely with the other sex; and the possibility of venereal disease. In females, one should have an accurate history of the development of menstruation, of any irregularities, of pregnancies, abortions and the response to the menopause. In this connection one should also inquire into the psycho-sexual interests—love attachments, perversions, and attraction or antagonism to the parents, or to various members of the family.

Inquiry must also be made regarding *general diseases or injuries*, the possibility of infection from whatever source, and the state of the endocrine and vegetative nervous system (as suggested by abnormal desire for sweets, or fats, or fluids; frequency of micturition, etc.). Addiction to alcohol and drugs and the presence of other toxic factors must be inquired for.

Previous attacks of mental disorder should be carefully investigated.

The object of the examination, therefore, is to get a description of what the individual was at his or her best, what the response was to social, business and domestic life, and what were his ambitions, dreams and hobbies. All this should be recorded in narrative form.

History of Present Illness

Before attempting to take a detailed history of the symptoms, it is of even greater importance to inquire carefully about possible ætiological factors and precipitating causes. It may be that the cause is neither physical nor mental nor endocrine,

but that it is a combination of all these factors, acting on a soil predisposed by hereditary and environmental influences acting over a long period of time. It is well to recognise this, because the relatives often feel that one factor is very much more important than another, whereas it is often the one which has seemed of least importance to the family that has been chiefly responsible for the breakdown.

The date of the first deviation from the normal should be stated as accurately as possible, and then the development of the symptoms should be followed step by step. Such a description helps considerably in understanding whether the onset has been insidious and gradual, or sudden. It cannot be too strongly emphasised that general statements are of no value; we must get an exact description of what the patient's conduct has been, and how he has reacted to his difficulties. We must, therefore, endeavour to find what the attitude has been towards his intimate relatives and friends, whether there has been a change in mood, and whether peculiar ideas, delusions, suspicions or unusual interests have been spoken about and cultivated. It is not enough simply to have the statement, "He is delusional", or "hallucinated", but what is of value is to get an exact description of the delusions and hallucinations, and how the patient has reacted to them.

The memory and general intellectual faculties should also be closely inquired into. Where a variation of symptoms has occurred, it is important to give dates for the development of the various stages. In addition, one should always be quite clear whether there have been suicidal or homicidal tendencies, whether there has been an impairment of physical health, as shown by sleeplessness, disordered appetite, a loss of weight and constipation or diarrhœa.

Examination of Patient

(See also under Symptomatology)

Personality.

In 1913, Hoch and Amsden devised a guide which they recommended for a study of the personality. This guide comprised eight main groupings, as follows:

1. General intelligence, knowledge and judgment.
2. Output of energy.
3. General attitude towards environment.
4. Attitude towards self: inner mental life.

5. Attitude towards reality.
6. Mood : emotional reactions.
7. Sex instincts.
8. Feeling of inferiority.

In 1923, Amsden published a further article dealing with the Practical Value of the Study of the Personality in Mental Disorders, and in this he narrowed (rightly, we think) his previous conceptions under four main headings :

1. The intellectual faculties.
2. " Somatic demands " (physical activities).
3. The individual's self-criticism and self-estimate.
4. The urgency or imperative to adaptation.

It stands to reason that such a scheme must have a definite value in helping one to come to an understanding of the individual case ; for is not the colouring of the psychosis largely dependent upon the original make-up, constitution or personality of the individual ? Furthermore, the prognosis of any case, no matter how serious it may seem on the surface, depends essentially on the " stuff " of the individual, the inherent character. A person well-endowed intellectually, who has met his difficulties in his social, business and sexual relationships in a healthy, straightforward way, and who has had interests outside himself, who has been " exteriorised " in his everyday relationships, has always much more chance of making a good readjustment than his introverted, " shut-in " neighbour. With an exact, detailed description of the patient's likes and dislikes, hopes and fears, or of as much of them as it is possible to elicit, we are better able to guide the patient along the paths which are in harmony with his disposition, and which he can most easily accept. A study of the personality is therefore not only of importance after the development of the psychosis, but it seems to us to be particularly important in connection with prophylactic work, and in connection with the training of children. If we have clearer ideas about what the difficulties of make-up are likely to lead to, then we may be able to prevent the development of serious breakdowns. The scheme which Amsden has lately formulated is difficult to improve upon, and we would summarise it as follows :

1. In a description of *intellectual activity*, the points which we specially desire information about are : (*a*) The readiness with which knowledge is acquired ; (*b*) the power of retention ; (*c*) the ability to be guided by past experience. These points

can be elicited by having a detailed account not only of the patient's schooldays, but also of his business and family life. We want to determine whether the well-endowed type is able to co-ordinate his activity in a healthy-minded, constructive way, whether he is in touch with things as they are, or whether he is apt to be diffuse, absent-minded, lacking in purpose and easily side-tracked. The questions to elicit these various points must be left to the individual examiner.

2. The "*somatic demands*" concern themselves especially with motor activities and the demands of sex. Motor, or, better, psychomotor, activity involves the questions whether the patient was lively or sluggish, *i.e.* whether there was push and energy as evidenced by talkativeness and enthusiasm, or whether he was inert and lacked initiative; whether there has been much interest in sports, games, hobbies, or whether there has been idleness and lassitude. Regarding sex, it is important to know how much the topic has interested the patient, whether the reactions to it have been hygienic or unhygienic, whether there have been unhealthy habits, actual and mental masturbation, prudishness or its opposite. Some importance has been attached to vaguer matters, such as nail-biting, and response to mucous-membrane stimulation—eating, drinking, smoking.

3. *Self-estimate and self-criticism* depend largely on comparing ourselves with others. Such comparison may bring with it a feeling of satisfaction, or a feeling of failure, according to whether the comparison is favourable or unfavourable. If the comparison is favourable, the reactions are likely to be capable and adequate, but if unfavourable, a variety of responses may be elicited. Either the individual may realise his deficiencies, and attempt to correct his shortcomings in a healthy way, or else the individual may shrink, become sensitive, self-effacing and dependent. Again, evasions and compensations may be called into being. A sidelight on these various aspects may be obtained by the knowledge of whether the person is greatly influenced by the opinion of others, whether he is proud, fussy, and makes much of discomforts. Other important sidelights are the individual's ability to make friends, the degree of easiness or uneasiness in the presence of strangers, and the tendency to jealousy. The questions of over-conscientiousness, and the ability to take advice, also come in.

4. *The urgency or imperative to adaptation* centres round the question why we need to adapt ourselves at all. This, as Amsden says, is the crux of the whole study, because it is just these

tendencies which favour or impede adaptation which are so important. A constructive assertion of it is seen in ambition, courageousness and vigorousness generally. Where we find a diminution of such tendencies we must attempt to get some explanation for it.

Mental Examination.

We will attempt in the chapter on "Symptomatology" to describe the great variety of mental symptoms which commonly occur, so that the plan of examination as here laid down will be put as briefly as possible. It will concern itself mainly with the order to be followed, and the method of eliciting the required information. Where a technical term appears of which the meaning is not evident from the context, an explanation of it will be found in the chapter on "Symptomatology".

General Behaviour.

The general behaviour of the patient is usually the first indication to the relatives that all is not well. The facial expression, the dress, the attitude, often tell at a glance the underlying state of the patient, and we note at once whether there is depression, or elation and talkativeness, apathy and listlessness, co-operation or resistance, stupor or undue suggestibility. We must note whether the activity is free or constrained, changeable or stereotyped, whether there is anxiety and agitation, with scratching and picking at the skin, and whether there is any reaction to imaginary sense-perceptions. A good deal can be learned from the way the patient adapts to a new environment, as, *e.g.*, on admission to hospital, and it is always wise to get a description from the nurse of how the patient accepted the formalities of admission, *e.g.* having clothes taken and marked, the bath, and the association with other patients. The description should be made as vivid and telling as possible, but it should be couched as far as possible in non-technical language, and it is perhaps best written at the end rather than at the beginning of the examination, because facts will be observed during the examination which were not at first apparent.

The Stream of Mental Activity.

This is easily and quickly determined by a number of simple questions, *e.g.* "What is your name in full?" "Are you married or single?" "How old are you?" "What is your occupation?" "What do you complain of?" "Do you know why

you are here ? " The response to such questions will demonstrate at once whether there is any formal disorder—that is to say, whether there is over-talkativeness or mutism, whether questions have to be repeated, whether the answers tend to go into too much detail, with flight of ideas and distractibility, whether there is a considerable pause before a reply is given (retardation), or whether there is an element of suspicion, *e.g.* " Why do you ask me such questions ? " Again, questions may be answered promptly and to the point, or there may be irrelevance with incoherence, verbigeration, perseveration, echolalia, neologisms, stereotypies. On the other hand, the response to questions may indicate a total lack of understanding, and point towards some organic change. It is a most excellent plan to take, if possible, a verbatim report of the patient's spontaneous talk.

Emotional Reaction (Affect).

The superficial manifestation of the patient's affect (facial expression, etc.) will have been noted already under general behaviour, but we want to analyse more deeply not only the affect, but also the situation producing it, whether it is dependent on domestic, social or business difficulties. We have to depend a great deal upon what the patient himself tells us regarding his feelings. We note at once what his general attitude is, and we point our more specific questions in accordance therewith. It is a false move, and a great insult, to ask a patient obviously depressed whether he is happy ; in consequence, it is always best to ask some such general question as " How do you feel ? " and then, according to the reply, this can be followed up with such questions as, " Are you happy ? " and then, " Why ? " ; or, " Are you sad or melancholy, or out of sorts, or worried ? " and, again, " Why ? " Where possible, the mood should be described in the patient's own words. After these more or less formal questions, the patient should be asked to tell his story from the beginning, and should be kept to the topic with a minimum of questioning, until the condition has been thoroughly detailed. If the patient is allowed to tell his story in this way, it usually means that a satisfactory basis of co-operation is established, which permits of not only completing the examination expeditiously, but also gives a foundation for future work. Furthermore, the patient at once recognises that a real effort is being made to understand him. This produces gratitude, and establishes confidence. Our questions must largely be

dictated by our common sense, and must simply suffice to keep the patient to the topic in hand, without unduly suggesting things. The points which have particularly to be kept in mind are the intensity of the affect, whether it varies, the response to reassurance, and the question whether it is in harmony with the ideas expressed. The affective state can be approximately gauged even when the patient is unresponsive and mute, by noting such things as pallor, flushing, perspiration, the respiration rate and the pulse.

Mental Trend : Content of Thought.

It often happens that when a patient is describing his " feelings " he will express ideas pointing to a disordered content of thought, and at this point he should be encouraged to detail the development of his ideas. This may be done quite spontaneously, and without much urging, but, on the other hand, there may be evasion and hedging, and more direct questions may have to be asked. The narrative, however, does not read so tellingly when questions are interposed, and it is usually best to omit them, and to continue the story as it is given. In case of necessity, however, we must ask such questions as, " Do you believe that you have been watched, laughed at, or spoken about ? " " Have people been behaving strangely towards you ? " " Do they seem to take undue notice of you ? " " Have attempts actually been made to persecute and injure you ? ", and " With what motive ? " " Does it seem as if your mind or your body is being influenced by electricity, wireless, drugs ? " " Do your thoughts seem to be read ? " " Have you been influenced by hypnotism ? " " Do you feel as if you had a mission ? " It must be determined whether the patient is convinced that all this is being done for some special purpose, and whether these ideas occur in a setting of complete intellectual clearness. When it is evident that hallucinations play a prominent part, one should not hesitate to put direct questions, as " Will you describe your imaginations to me ? " " Do you hear voices or noises ? " " Are they imaginary ? " " Do they occur in one ear or in both ? " " Do you see things ? " " Have you ever had visions ? " " Is this condition worse at night-time ? " " Have you noticed whether your sense of taste or smell is affected ? " One should determine whether these experiences appear real (lack of insight), or whether they are regarded as being something strange and peculiar, and the result of imagination. When a positive history either of illusions

or hallucinations is elicited, a detailed account should be obtained of how, why and when such disturbances appear. Associated with these phenomena is the condition described as "compulsive" thought or action, or obsession, and inquiry should be made whether thoughts come with insistent force into the patient's mind, and dominate completely. Have actions to be repeated? Is there a "ritual" in regard to any of the daily tasks?

Orientation.

This can be determined by the following simple questions: "What day is it?" "What time of day is it?" "What month is it?" "What year is it?" "Do you know the date?" "What place is this?" "What kind of place?" "Who am I?" "What is my occupation?"

Memory.

The most convenient way to test the memory for remote events is to ask the patient to give a chronological account of his life from the date of birth. The patient should be asked for the date and place of birth, the age on going to and leaving school, and what standard was reached. After leaving school what was the further development in occupation or training, the first place of employment, and the subsequent career? If the patient is married, one should ask when the marriage took place; and the names and ages of the children. Where is the patient presently employed; what has been the longest time in one job; was he ever previously ill? It is wise to get as exact dates as possible of the various important events of the patient's life, in order to determine whether or not they are properly correlated.

The memory for recent events can be tested by such questions as "When did you come here?" "Where from?" "What were you doing yesterday?" "Who came with you?" "How many meals have you had since you were admitted?"

Retention (Immediate Memory).

In order to test the power of retention, the patient is given verbally and asked to remember a street address, a person's name, a colour, and some object such as a cabbage, a table, a house, and then, after a period of one to five minutes, or an hour, or several days, is requested to repeat what he was asked to remember. More specialised tests can be given, such

as the memory for digits or letters or words. Franz, in his book on Examination Methods, gives these various tests in detail. We would particularly mention the test by word-pairs. The patient is asked to repeat five or ten word-pairs, and after this has been done, the stimulus word is given again, and the patient has to supply the second word, *e.g.*:

Head	—	hair.	Window	—	door.
Room	—	hall.	Book	—	pencil.
Chair	—	table.	Lake	—	river.
Grass	—	tree.	Apple	—	pear.
White	—	red.	Pipe	—	tobacco.

Recent attempts to give more precision in tests for failure of memory and of intellectual capacity in general are described in the section on "Mental Tests".

Apperception (ability to assimilate and comprehend impressions).

Franz's second useful test is to give the patient a short story or paragraph to read, and then ask him to give the gist of what he has read. The cowboy story is a good test for this purpose:

"A cowboy from Arizona went to San Francisco with his dog, which he left at a friend's while he purchased a new suit of clothes. Dressed finely, he went back to the dog, whistled to him, called him by name, and patted him. But the dog would have nothing to do with him in his new hat and coat, but gave a mournful howl. Coaxing was of no effect, so the cowboy went away and donned his old garments, whereon the dog immediately showed his wild joy on seeing his master as he thought he ought to be."

The following two stories are taken from Bleuler's *Textbook of Psychiatry*:

THE DONKEY LOADED WITH SALT

"A donkey, loaded with salt, had to wade a stream. He fell down, and for a few minutes lay comfortably in the cool water. When he got up he felt relieved of a great part of his burden, because the salt had melted in the water. Longears noted this advantage, and at once applied it the following day, when, loaded with sponges, he again went through the same stream.

"This time he fell purposely, but was grossly deceived. The sponges had soaked up the water, and were considerably heavier than before. The burden was so great that he succumbed.

"The same remedy does not apply to all cases."

NEPTUNE AND THE LABOURER

"A day labourer worked along a stream. By accident his axe fell in, and as the stream was so deep that he could not get it out, he sat on the bank and bemoaned his fate to the river god.

"Neptune took pity on the man's poverty, dived down and brought up a golden axe. 'Is this yours?' he asked the labourer. The latter honestly answered 'No'. Suddenly Neptune dived down again and appeared before the woodcutter with a silver axe. To this one, too, the labourer made no claim. For the third time the god dived and brought up the right iron axe with the wooden handle. 'Yes, that is it. That is the right one. That is the one I lost', the labourer exclaimed joyfully. 'I only wanted to test you', replied Neptune; 'I am glad that you are as honest as you are poor. There, take all three axes; I present them to you.'

"The honest man told this story to several acquaintances. One of these wanted to misuse Neptune's goodness, and for this reason he purposely threw his axe into the stream. Hardly had he begun to bemoan his fate to the river god when the latter appeared with a golden axe. He asked, 'Is this the one that fell into the stream?' He quickly exclaimed, 'Yes, that is it', and grabbed for it. But Neptune denounced him as a shameless liar because he wanted to deceive even a god, and turned his back on him. With him disappeared the golden axe, and the labourer had to go home without even his own axe.

"Honesty is the best policy."

The *thinking capacity and the power of attention* are important topics. In order to test these a series of digits or letters are read aloud to the patient, who is required to tap each time a certain digit or letter recurs. Or the lists may be given to the patient with the instruction to cross out the designated digits or letters.

Other tests to illuminate the same topics are the Heilbronner test, where familiar objects are drawn with varying degrees of completeness and the patient asked to indicate their defects; and the Ebbinghaus test, which tests the patient's ability to fill in blanks in a short story:

"Once upon a time —— heard a —— chirruping in the ——. 'Ah,' he said to himself, 'if I could —— like that, how —— I should be.' So he bowed low to the ——, and said, 'Kind friend, what —— do you eat to make your —— so sweet?' 'I drink the evening dew', replied the ——. The foolish —— tried to live on the same ——, and died of ——."

School and General Knowledge.

It is necessary in testing school and other knowledge to keep in mind the nationality, the educational level and the general experiences of the individual. School and general knowledge can be tested by giving simple questions in arithmetic, in history and geography, as follows :

7 times 9 ? 3 times 17 ? 63 divided by 7 ?

Subtract 7 from 100 consecutively and aloud (*i.e.* 93, 86, 79, etc.).

If the patient is able to accomplish these satisfactorily, then such questions as the interest on £200 at 4 per cent for a year and a half can be asked, or such simple problems as—If 6 times X equals 18, how much is X ?

In regard to history, one can ask questions in reference to the Great War. When was the Crimean War ? Who fought at Waterloo ? Who was Napoleon ? Wellington ? Cæsar ? Name the oceans. Where are Brussels, Rome, Vienna, Berlin, Melbourne ? What is the capital of France ? of U.S.A. ? Name the chief rivers in England. What is the highest mountain in the world ? the largest lake ?

Approximately correct replies to such questions in some instances would of course stand, and a number of failures must be allowed for.

General Intelligence.

This can be gauged by the general character of the responses, or in special cases by tests for intelligence described in the section on " Mental Tests ".

Sometimes it may be useful to ask more abstract questions, or to read a fable to the patient, and ask what is implied by it. One can put such questions, for instance, as the difference between a lie and a mistake, idleness and laziness, character and reputation.

Insight and Judgment.

The questions here relate to the amount of realisation the patient has of his own condition ; does he realise that he is ill, that he is mentally ill, that he is in need of treatment in a mental hospital ? Does he acknowledge that his ideas have been due to his disordered imagination ? Does he show poor judgment regarding the question of discharge, plans for the future, family responsibilities, and ethical standards ?

The foregoing outline applies more particularly to patients

suffering from a psychosis. For modifications in cases of mental defect, and of psychoneuroses, see the corresponding chapters, as well as the first part of this chapter.

Physical Examination

A thorough physical examination is absolutely essential in every mental case. This follows the ordinary lines.

CHAPTER V

SYMPTOMATOLOGY

An attempt will be made to define the terms used in clinical psychiatry, and this in the order in which they occur in the scheme of mental examination. Their discussion in the categories of the usual type of normal psychology, which has not proved fruitful in psychopathological practice, is thus avoided. Although the observation of individual symptoms is very important, it is only in connection with the whole life-history and the general clinical setting that they have their full meaning.

In the great majority of psychological illnesses there is little or no outward change; but in others there are alterations in demeanour, especially in the psychotic reactions, where the changes in social attitude and behaviour are sometimes both conspicuous and persistent. In most instances, however, we meet mainly or entirely subjective discomforts which may, however, be as great a handicap as the disability of physical disease, which indeed they often resemble, in the form of pains, "indigestion", palpitation, headache and the like, without discoverable physical basis. The commonest type of subjective complaint is fear of something, whether it be of crowds, of open places, of being alone, of anything resembling dirt, of certain thoughts or of disease.

Behaviour

Behaviour will be used here in the general sense of the conduct and deportment of the patient as seen by the physician, and as related to him by the patient's friends. A change in behaviour can be one of the earliest and most striking indications of mental disorder. A man of hitherto ordinary normal habits becomes different from what he was previously. The change may be evidenced predominantly either in his emotional (affective) manifestations, in his activity, or in his intellectual

performance. If previously cheerful and capable, he may become dull, morose and lacking in initiative; or, on the other hand, he may become unduly optimistic and enterprising, undertaking much more than he is fit to do. Another type of individual, with different characteristics, becomes an idler, unable to concentrate, dreamy and sensitive. Often with these changes goes lack of care of the person—slovenliness in dress, and in habits of personal cleanliness. A good indication of the general condition is obtained from the facial expression and the general bodily posture, both of which may help to portray the prevailing affective state.

Intellectual disorder, *e.g.* of memory, may profoundly influence conduct by the resulting failure to carry out the ordinary everyday tasks, and, further, by the depression, restlessness or irritability which may result from the patient's realisation of his inefficiency.

A definite delusional or hallucinatory condition is apt to reveal itself in a bizarre type of conduct, entirely out of keeping with the person's known habits.

The degree of *co-operation* which the patient displays towards those who wish to help him is of considerable importance. An attitude of suspicion, or even actual antagonism, will show itself either in speech or in gesture.

In general, these are indications of the kind of information that can be obtained from observation at first meeting the patient. Disorders of behaviour will be considered in greater detail in the general and special sections.

Motor behaviour comprises (1) bodily movement and (2) stream of talk.

(1) Bodily movement may be abnormal either in degree or quality. *General over-activity* may consist in a rapid succession of purposive acts, with few of them carried to a conclusion, and not directed to a continued objective ("psychomotor excitement", "push" and "pressure" of activity). The over-activity is said to be playful when accompanied by a tendency to mischievousness, the whole having an "infectious" character. On the other hand, over-activity may consist of a repetition of movements, with little or no diversity, *e.g.* wringing of hands, pacing up and down. Such an oft-repeated movement is known as a *stereotypy*.

Stereotypy shows in several types of motor behaviour. It includes stereotypy of attitude, of movement and of speech. An action, or group of actions, or words monotonously repeated,

or a posture maintained long after fatigue would ordinarily have caused relaxation, is a stereotypy. Such monotonous activity may begin as an expression of emotional perturbation, or may have at first a special complex-determined significance; but in either case it gradually becomes a habit, from which meaning has partially or wholly departed.

Perseveration, or the repetition of a recent movement in spite of the patient's effort to produce a new movement, is to be distinguished from stereotypy. It is in its particular instances transient, requires a stimulus, and is associated particularly with cases showing changes in the brain substance.

Stereotypy of attitude is excellently exemplified in the "Egyptian mummy" position maintained sometimes for years—the patient sitting with head bowed, palms downward on the thighs. Stereotypy of speech consists in such phrases as these, which were questions asked by a patient day after day for years: "Is the door open yet?" "Is the conveyance at the door?"

A *mannerism* differs from a stereotypy in that it is not so monotonously repeated, and is more in keeping with the personality.

Partial over-activity may take the form of isolated movements such as the tics or habit spasms, which are to be differentiated by the relatively simple nature of the movements involved, by the general setting in which they occur, and by the fact that the subject is acutely aware of them, and complains of them.

General reduction in activity shows all gradations up to complete immobility. It may be associated with diminution in initiative, or with actual resistance to movement (*negativism*, *v. infra*). Slowness of initiative and slowness of execution ("psychomotor retardation", initial and executive) usually accompany each other, but may be found apart.

Negativism, like stereotypy, shows itself in various spheres of activity. In general, it consists in responses exactly opposite to those normally elicited by a given stimulus. In the muscular field, it may show itself either as an actively opposite performance to that asked for—*e.g.* shutting the mouth when told to open it—and as a resistance to passive movement. In speech it forms a variety of mutism. Negativism is seen also in the retention of saliva, urine and fæces, and in lack of general co-operation.

Contrasting with negativism is the so-called *automatic obedience*, showing itself in echopraxia (repetition of actions

seen), echolalia (repetition of words heard), and flexibilitas cerea (the maintenance of imposed postures).

Automatic movements or automatisms occur in a pathological sense, without the subject's being aware of their meaning, and even without his being aware of their happening at all. They have not the full co-operation of the personality; they may in fact, when generalised, occur in the complete abeyance of the normal personality. Automatism may be local, *e.g.* automatic writing, or general, as in the fugues and somnambulisms. Stengel restricts the term fugue to describe a state of alteration of consciousness combined with an impulse to wander. He has drawn attention to the relationship between vagrancy in childhood and episodic wandering in adult life, the common factor being a broken or disturbed home life. Very frequently a fugue occurs in a state of depression, and indeed the going away or wandering is often symbolic of suicide. An epileptic disposition is also often associated.

The significance of *impulses* varies with the clinical setting in which they occur. The term impulse has usually been applied to sudden outbursts of activity which were supposed to occur with little or no deliberation. The tendency has been to speak of "impulsive insanity" as an entity (*cf.* Clouston's "Remarkable Case of Impulsive Insanity"),[1] whereas it is at most only a symptom. Our experience is that the great majority of impulses, although apparently sudden, are the outcome of a long preceding period of mental unrest. Hence it is impossible to make clear differentiation between impulses and compulsions. The latter have been supposed to arise against the subject's wishes, and to make him uneasy until they are carried into effect. The term compulsive is also used in a similar sense which will be dealt with under the "obsessive-compulsive" psychoneurosis.

Posture may be defined as static motor activity. It is often a telling expression of the general condition, physical and mental, and especially of the emotional (herein called "affective") state. The bent head, furrowed brow and drooping shoulders of sadness are well known. The over-erect attitude of the vain and proud man is sometimes seen in an exaggerated form in mental disorders, associated with phantasies of self-importance. Strained and unnatural positions may be maintained ("fixed positions") over long periods of time. These may be produced by the observer by virtue of the "flexibilitas cerea" already mentioned. The absence of apparent fatigue in such cases is remarkable.

[1] Clouston, *Text-book of Mental Diseases*, p. 343.

" Catalepsy " is a term sometimes used for any form of sustained immobility.

Stream of Talk.

In the stream of talk a distinction has to be made between content and form—the content meaning what the patient says, and the form, how he says it. Form only will be discussed here. Content is more appropriately dealt with under "thinking". Talk may be more copious than normal (" pressure " or " push " of talk), but still perfectly coherent and logical. This is mere *volubility*, and is spontaneous, irrespective of the asking of questions. In *circumstantiality* there is much unnecessary detail and great spontaneity, but the object in view at the beginning is ultimately reached. Mrs. Nickleby is the classical example. In *flight of ideas* the stream is continuous but fragmentary, the connections being determined by chance associations between the fragments. The connections can be followed—there is a certain coherence—but the direction is frequently changed, often by chance stimuli from the environment (*distractibility*), and the original objective is quickly lost sight of. *Punning* and *rhyming* (sound or " clang " associations) are not infrequent in a flight of ideas.

Slowing of the stream of talk shows itself, like slowing of activity, in initial and executive retardation. In certain states of emotional exaltation the utterances may be slow and stately; but this is a deliberate slowing—an affectation. There may be no utterance at all, even in response to repeated questioning—*mutism.* This may be associated with one of several conditions—as an accompaniment of extreme depression, an expression of complete indifference to the environment, a form of negativism, the result of a hallucinatory command, of a complex-determined belief, or of an extreme degree of difficulty in thinking. When mutism is an expression of negativism, it may be only partial, occurring in response to questions, while spontaneous utterance takes place.

Blocking is a sudden stoppage of the stream of talk, occurring apart from any environmental influences, and without the patient's being able to account for the stoppage.

Deprivation of thought is an extreme degree of blocking, when the stream is arrested for a time, and there is no longer any apparent content whatsoever.

Relevance of the patient's answers is an important point. In the types of disorder of the stream of talk so far mentioned, the

answers, when given, are relevant; but there are many other types where the disorder of thought shows itself by an answer not in harmony with the question, or even conveying no meaning at all. This irrelevant type of answer is closely related to *disconnection.*

Disconnection may be of all degrees up to complete *incoherence.* The minor degrees of incoherence are known as "scattering" and "dilapidation". The most complete disconnection has been called verbigeration—simply a flow of unconnected words, some of them often repeated. A "word-salad" is a string of substantives poured out in a similar manner.

To be contrasted with these disorders of the stream of talk which result from disorders of thought are the paraphasic disorders depending on a focal organic lesion. These, too, consist of a jargon, and on this basis Stransky applied the term "intrapsychic ataxia" to the incoherent types of talk found in certain purely psychogenic disorders. *Perseveration* is often associated with a true paraphasic disorder, and consists of the persistent repetition of one word or group of words, in spite of the patient's attempt to change the topic, and the observer's attempt to introduce other stimuli (in contrast with stereotypy).

Neologisms are words of the patient's own making, often portmanteau condensations of several other words, and having originally had a special meaning for the patient.

Emotional Reaction.

"Affect" and "mood" are both used to denote the emotional condition. "Affect" is the term of preference, for it has none of the popular connotations of "mood". Affect is difficult to define. The language of emotion is in any case very inadequate. Affect can, perhaps, be called the subject's inner feeling at a given moment, but this is not a definition. The automatic (*i.e.* self-regulating) nature of affect is well known. The commoner normal affects are those of sadness, elation, fear and their variants—joy, happiness, gladness, sorrow, anxiety, etc. Pathological states show exaggeration or mixtures of normal moods, or apparent complete absence of affect (apathy). The chief criteria of abnormality are depth, duration and setting—*i.e.* how great the affect is, and under what psychological and material conditions it occurs. *Incongruity or disharmony* of affect—inappropriateness of affect to thought-content—is very important, and should always be looked for and noted.

Elation is a joyful affect, and is used for sheer happiness.

It is pathological when out of accord with the patient's actual circumstances. *Exaltation* means something in addition to elation—an element of grandeur and pomposity is usually implied. In pure elation and in exaltation, everything that could not harmonise with the general emotional condition is shut out. Pure elation is generally " infectious ", the observer having a sympathetic sense of the patient's happiness. *Ecstasy* is a less robust happiness, usually with a mystical colouring. *Euphoria* is a generalised feeling of well-being, not amounting to a definite affect of gladness.

Affective depression or sadness is pathological when not warranted by the patient's condition or surroundings. The patient may say that he feels " downhearted " or " sad " ; but often no statement of affect can be elicited, and a conclusion has to be reached from posture, facies and other sources.

Anxiety as a technical term is a fear of danger usually from within, *i.e.* impending physical illness. It may occur either as a continued state of fear, or (more commonly) in episodic attacks. The episodes have the well-marked physical manifestations usually associated with fear. It is said that a typical anxiety attack has nothing but somatic symptoms : there is usually, however, a conscious fear, generally of illness, sometimes undefined.

Apprehension is usefully confined to the fear of external danger.

Apathy is an absence of affect, and can only be inferred from the patient's statement, or, failing that, from his failure to respond to stimuli which would otherwise call forth an affect of some kind. It carries no subjective sensation with it, and should thus be differentiated from sadness. Apathy may exist in a setting of depression—the patient complains that he cannot respond with any feeling to incidents which should arouse emotion of some kind. " Indifference " and " dullness " are used almost synonymously, and are descriptive of the lack of objective response, while apathy refers specifically to a lack of feeling.

Irritability, as a description of affect, is used in the ordinary sense of response elicited with undue readiness. It is usually associated with some other prevalent affect, and is a symptom of lack of harmony of the subject with his environment, and especially with a feeling of " subjective insufficiency "—*i.e.* inability to perform ordinary tasks with the usual facility.

Morbid anger is an unprovoked angry outburst. It occurs in children, and in states of mental defect, and is then designated as " *tantrums* ". The striking features are the lack of provocation,

the violence, and the transient nature of the outburst.

It is disputed whether *suspicion* is an affect. Bleuler would consider it more an intellectual than an affective condition. It is best included among the affects for practical purposes.

Emotional instability or *lability* is characterised by fluctuations in the affective condition without external cause. It occurs especially in gross organic lesions.

Emotional deterioration is a progressive failure to show the normal emotional responses, and is usually characterised by a childish, easily suggestible (facile) state.

Thinking.

The general characteristics of thinking are altered in mental disorders. Phantasy assumes large proportions—*i.e.* there is less correction by reality than in the normal; and thinking passes but little into action. These are the two chief characteristics of "autistic" thinking (Bleuler).

It follows that the content and course of thought are much more at the mercy of the affects and wishes of the mentally ill than in the case of healthy persons. Disorders of thought have to be inferred from the patient's utterance, including his own statements about his thinking, and from his conduct. Disorders of the form of thought have, for the most part, been discussed in disorders of the stream of talk. In certain conditions the patient makes complaint of *difficulty in thinking*. This may be due either to difficulty in concentration on one topic from preoccupation with another, or to actual slowing of the thought processes.

In *preoccupation*, the patient continually reflects on one topic or group of topics, to the exclusion of environmental interests, and to the detriment of useful activity.

Obsessive thoughts (or obsessions) persist with full realisation on the part of the subject that they are abnormal, and in spite of his endeavours to rid himself of them. In these two respects they differ from simple preoccupation.

Autochthonous ideas are "thoughts coming to the patient in some unaccountable way, strange but not dependent on hallucination" (Meyer). In other cases the patient believes that some one reads his thoughts. This condition is an example of "passivity" (*q.v. infra*).

The *idea of reference* consists in the subject's being acutely aware that something in the environment is intended to have a meaning for him, when, as a matter of fact, no such personal

reference is intended. The idea of reference is thus partly based on some external circumstance, and is open to argument, whereas a fully developed delusion more often arises with apparent spontaneity. Moreover, the idea of reference is usually transitory, and is an example of a general tendency. It is based on personal sensitiveness, and is easily understood as an exaggeration of the normal; the abnormality lies rather in the source and acuteness of the sensitiveness—the source being affective in origin, and depending, for example, on feelings of exaltation or of guilt.

Ambivalence is a term coined by Bleuler to denote the co-existence of two contradictory ideas or feelings in consciousness, both of which cannot be true, but which are allowed to co-exist without rejection by the patient of either one. *Double orientation* is a case in point—the patient, for example, stating almost in the same breath that he is in Glasgow and in London. But ambivalence is also used by the Freudian school in a somewhat different sense to denote the entertaining of two opposite feelings towards the same person, *e.g.* both love and hate of a parent by the child.

The term *katathymic* has been used to characterise thinking along the lines determined by some complex.

Disorders of the Content of Thought.

A *delusion* is a belief which (*a*) is not true to fact; (*b*) cannot be corrected by an appeal to the reason of the person entertaining it; and (*c*) is out of harmony with the individual's education and surroundings. As Mercier points out, "The delusion is not an isolated disorder. . . . It is merely the superficial indication of a deep-seated and widespread disorder. . . . As a small island is but the summit of an immense mountain rising from the floor of the sea, so a delusion is merely the component part of a mental disease, extending, it may be, to the very foundations of the mind."

The type of individual most likely to have delusions is one who normally shows a suspicious, argumentative attitude.

The nature of the delusion is important—to what extent it displays judgment or lack of it. There are degrees of reasonableness even in delusional beliefs, and their unreasonableness varies directly as the degree of impairment of judgment and as the depth of the affect which supports them.

Insight in the form of the patient's own criticism of the fact of his holding delusional beliefs is a related problem of even more significance. A person who entertains a false belief,

but at the same time admits that it may be unjustified, and who may spontaneously talk of it as a delusion, is, as a rule, more amenable to treatment than one whose beliefs admit of no criticism.

Systematisation denotes that the delusions are well knit, and that they form a fairly coherent system, logical within itself, if the premises once be granted. In other instances, the delusions are not correlated with each other; they are more or less isolated, and little or no attempt is made at logical correction.

Delusions have frequently been classified, but this is a matter of convenience only. A delusion has its full meaning only in the setting of the whole mental state of the individual possessing it. There are, however, certain uniformities which enable us to mention certain general types.

Delusions of grandeur and *delusions of persecution* are very common varieties, which are frequently found together. They result from the projection of instinctual trends. They are sometimes obviously compensatory for failure in some direction. For example, a girl deformed from poliomyelitis believed that she was descended from Royalty, was married and had a family. In other instances their foundations are not so clear, and for the persecutory type the psychoanalysts have postulated a repressed homosexuality.

Another general type is formed by delusions of *sin*, delusions of *poverty* and *nihilistic* delusions. In the nihilistic variety, the patient declares that he does not exist, that there is no world, etc.

Hypochondria consists in a settled conviction of physical disease in the absence of any evidence thereof. As a symptom it occurs in many forms of mental illness. It is most common in depressions, especially in the depressions of the involutional period. It also occurs as part of a schizophrenic syndrome, when the hypochondriacal ideas are of the most grotesque kind. Sometimes hypochondria is hysterical in origin, and not infrequently what appears on superficial examination to be hypochondriasis is actually a chronic anxiety state. But a hypochondriacal conviction and preoccupation is sometimes found in which it is impossible to demonstrate that it is part of one of the larger syndromes. This occurs sometimes, for example, in elderly men, whose whole life centres round their supposed ailments—a withdrawal of interest, perhaps never strong, having occurred from the outer world, with a corresponding intense concentration on their bodily functions. Hypochondriacal delusions are closely connected with disordered bodily feelings. For example,

delusions that the bowels are obstructed, and the stomach cancerous, are associated with dyspepsia and constipation.

Ideas of unreality are probably sometimes psychologically related to nihilistic delusions, but they are not usually delusional, the patient recognising their abnormality, and complaining of the distress which they occasion. Everything is expressed as seeming different—the streets and houses look unusual, the patient wonders whether his friends are the same people as they were, or whether indeed they exist at all ("derealisation"); he feels differently in himself, and may wonder whether he himself exists ("depersonalisation"). Such ideas, and the feeling associated with them, are not at all uncommon in older children, especially the more intelligent, and as psychoneurotic symptoms in adults.

Hallucinations are mental impressions of sensory vividness occurring without external stimulus. They are distinguished from *illusions*, which are similar impressions depending, however, on a misinterpretation of an external stimulus.

The psychopathological basis of hallucinations is usually stated as follows: a wish is disowned by the ego and is repressed and so becomes unconscious, when it assumes independent activity, and forces its way back into the consciousness by the only method permitted to it—in disguise. The disowning by the ego makes it necessary that the disguised wish should appear to come from outside; it is accordingly projected, assuming an external sensory appearance when presented to consciousness.

Hallucinations may of course be physiogenic and not psychogenic in origin. Hallucinations occur in toxic states as the result of physiological disturbances, and brain tumours are responsible for hallucinations of a special type. Mechanical irritation of the uncus may cause hallucinations of taste and smell; and the same cause in the occipital lobe may produce flashes of light apparently before the eyes. The content of the hallucination is to some extent determined by individual psychological experience. In the case of at least one toxic substance, however, namely mescaline, the hallucinatory content is often entirely novel, and may even in an apparently normal person have characteristics that belong to schizophrenic experience.

Hallucinations occur even in normal people on rare occasions James gives several interesting instances (*Principles of Psychology*)

The evidence for the presence of hallucinations is various—the patient may state frankly that he hears voices, but he more usually does so only after some time and trouble have been spent in obtaining his confidence. He may be seen in a listening

attitude, or he may talk aloud as if answering some one, or his lips may be seen to move. The subject's response to hallucinations may be that of a passive listener, or he may reply to them. More active responses may be made to hallucinatory commands, which are often obeyed. Hallucinatory insults may lead to attacks on bystanders. In any case hallucinations entail a certain amount of preoccupation.

The general setting in which hallucinations occur is of great significance, especially in relation to the question whether the setting is one of mental clearness, or of disorientation (*q.v. infra*).

Hallucinations may occur in any of the sensory fields. Auditory hallucinations are the most common. The simplest form is "buzzing" or ringing in the ears. More usually hallucinations are of the nature of voices, the spoken words being distinguished as a rule. They may occur in one or both ears, and sometimes appear, like hallucinations in general, to be determined in their incidence by local disease or irritation (*e.g.* chronic otitis media). It is their *content* that is of special interest—and it has to be remembered that their content is just as much a part of the patient's mental life as his ordinary thought, however foreign in origin they appear to be. Illustrating their affective basis and their dependence on factors similar to those producing delusions is their similar colouring—grandiose, persecutory or accusatory as the case may be. Thus the voices may be those of exalted personages, conversing with the patient, who derives therefrom much satisfaction; or they may call him unpleasant names, or accuse him of vile practices. Occasionally the voices seem to the patient to come from inside his body.

Visual hallucinations occur in their simplest form as flashes of light and colour. More complex visual hallucinations commonly occur in a setting of general disorientation, but they also appear in states of ecstasy. Organic disease of the optic connections in the central nervous system is a cause of hallucinations either of the simple or of the complex type.

Toxic factors such as alcohol and morphine produce complex hallucinations often of a terrifying kind, more commonly associated with withdrawal of the drug; and they may or may not be accompanied by disorientation. When of purely psychological origin, the hallucinations are usually in accord with the prevailing affective tendencies, *e.g.* the religious ecstatic sees angels in his visions.

Hallucinations of smell may (rarely) be the result of irritation of the uncus from organic disease. When they occur in a psychosis, they are usually unpleasant odours, *e.g.* a patient stated that there was a skunk in bed with him. Odours may be interpreted by the patient as gas being pumped into the room to annoy him. There is evidently a frequent relation between hallucinations of unpleasant odours and a sense of guilt with reference especially to masturbation.

Hallucinations of taste are often associated with those of smell, and, like them, may rarely be the result of organic disease. They occur infrequently in psychoses. Illusions of taste are more common, and are related to affective conditions (usually suspicion)—the food tastes queerly, and is inferred to be poisoned.

Hallucinations of touch (haptic hallucinations) and other skin sensations are common—for example, in the form of creeping sensations under the skin (*formication*—the "cocaine bug"). Sensations "like electricity" are related to sex-feelings, unrecognised as such by the patient. All kinds of paræsthesiæ—numbness, tingling, pains, etc.—occur, and are sometimes used as part of a delusional scheme, the persecuted patient inferring that some injury to him is being attempted. Sensations in the genital or anal regions help to substantiate delusions of assault.

In *pseudo-hallucinations* the patient has the vivid sensory experience, but realises that it has no external foundation.

Reflex hallucinations occur in one sensory sphere as the result of irritation in another. An auditory sensation may in this way arise from irritation in the region of the inferior alveolar nerve (carious tooth).

In *Lilliputian* or *microptic hallucinations*, the objects seen appear much reduced in scale. They are usually of very pleasant content and bright in colour. The patient is amused at seeing diminutive women and children in bright clothing. They have been observed in cases of scarlet fever (J. C. Hall, *British Med. Journal*, December 9, 1922), in typhoid, and in intoxications by alcohol, chloroform and ether (Leroy and de Fursac, *Arch. Neur. and Psych.*, August 1920).

Hypnagogic hallucinations occur in the state between sleeping and waking. They can be recognised from the conditions under which they occur, including the accompanying sensation of drowsiness, and from their dream-like nature, as well as from the fact that the subject who experiences them usually realises their hallucinatory nature.

Impressions that part of one's body is being moved are

sometimes described as *psychomotor hallucinations*. These are better understood under ideas of passivity.

Ideas and feelings of passivity or influence include such diverse ideas of the patient as that his thoughts are being read, his limbs moved without his control or consent, and without visible agency, or even that he is entirely under the control of some one in the environment. Such ideas, or less well-defined feelings, may be associated with motor phenomena—flexibilitas cerea, and the maintenance of fixed attitudes. They are then expressions of a general attitude of passivity, and are sometimes the reflection of a wish, not consciously formulated, to be under another's control. From the psychoanalytic point of view, such ideas and signs have been interpreted in certain conditions as part of the attitude of the passive homosexual. In some conditions, especially where the phenomena are less generalised, the ideas of influence are more probably the interpretation of certain automatic motor acts—automatic because occurring without the co-operation of the personality, and dependent, it is supposed, on the activity of certain dissociated tendencies. The idea that one's thoughts are being read may in some instances rest on an affective basis of guilt.

Orientation is the appreciation of one's temporal, spatial and personal relations at the present moment. It may be deranged on either a psychogenic or a physiogenic basis. It is important to know whether the disorientation is complete or partial. Simple inattention, from distractibility or from general lack of interest, may cause partial disorientation. Strong affects may also do so, causing a patient to give for the actual date an erroneous one in which he is particularly interested. The answer in these cases must be judged from the general setting of memory, orientation in other respects, and general clearness. Inattention and lack of interest may also cause random answers to be given, when closer questioning may elicit the correct information.

It is in organic conditions (toxins, arteriosclerosis) that orientation is most frequently lost, wholly or partially. In cases of this kind, a false orientation is often given, and this statement of orientation itself changes rapidly.

Memory.—Disorders of memory are commonly divided into *amnesias*, *paramnesias* and *hypermnesias*.

Amnesia, or absence of memory, may be complete or partial, continuous, periodic or circumscribed. Complete amnesia, *i.e.* for the entire previous existence, is rare. Amnesia, confined

to recent events and progressive (*anterograde*), is characteristic of senile cerebral degeneration. In the gradually extending amnesia of advancing degeneration, rote memory tends to be retained better than other kinds. *Retrograde amnesia* involves only past events, and is not progressive.

Circumscribed amnesia involves some isolated event, or group of events, which usually have had a strong affective meaning; but in some cases of brain trauma there is a localised amnesia which persists for events immediately before and immediately after the accident.

Paramnesia denotes false recollection—the patient relates with conviction and circumstantiality events which never took place, or gives a false colouring to those that did happen. *Confabulation* is the term applied to the fabrication of memories in this way, and *retrospective falsification* to the adding of false details and meanings to a true memory. *Pseudo-reminiscence* covers both these meanings. An outstanding example of fabrication of memory occurs in *pseudologia phantastica* (*pathological lying*).

Hypermnesia or excessive retention of memories, especially of detail, is found in certain prodigies, and in certain mental disorders, especially paranoia and hypomania. In the former of these two conditions it is related to the general affective tendencies, and any detail is remembered which might possibly have a bearing on the delusional topics.

A variety of paramnesia, known as the *déjà vu* phenomenon, refers to the not uncommon experience of seeing something (or hearing it) with the feeling that one has seen it before, but does not know when or where. Such an experience occurs sometimes in epilepsy, as well as in normal persons. The basis may lie in some real experience, which has been forgotten; something which one has read and does not clearly recollect; or in some previous phantasy, conscious or unconscious, of waking- or dream-life. Where the feeling of *déjà vu* is continuous, as in an epileptic recorded by Kinnier Wilson, the term "reduplicative paramnesia" has been applied.

Attention, sometimes loosely called "mental tension", or regarded as a manifestation of that ill-defined entity, may be increased or diminished. Decreased attention to the environment may be the outcome of lack of interest, or of a more deliberate shutting-out (in its extreme form a manifestation of negativism). A patient's attention varies inversely with his preoccupation with his own problems. Hence any affective disturbance may

cause a diminution in useful attention.

Inability to attend, in spite of the wish to do so, is seen in organic diseases (toxins and in structural cerebral lesions). "Fluctuation of attention", in which the attention varies to a much greater extent than in the normal, is a fairly characteristic disorder in these conditions, in which also perseveration of previous impressions is sometimes an interfering factor in attention, new impressions being hindered by the persistence of old ones. It has been pointed out by Bleuler that active attention is often good in organic cases, while passive attention is poor; and that in "functional" disorders (*e.g.* schizophrenia) the reverse is true. *Blunting of attention* is an extreme form of inattention, and occurs in stuporous states, when even nocuous stimuli, *e.g.* pin-pricks, fail to elicit a response.

Increase of attention (*hyperprosexia*) is less common, and is sometimes associated with a sensory hyperæsthesia, *e.g.* auditory hyperæsthesia, and with certain excitements (hypomania). But increased attention is usually affectively and selectively determined. *Distractibility* is a disorder of the attention in which the patient gives attention to every passing stimulus; consequently his attention passes very rapidly from one object to another.

Comprehension (or *apperception*) is impaired by organic (cerebral) disorder, whether from toxins or from grosser lesions. Comprehension may be modified in certain directions by affects—misunderstandings occur in line with them, or comprehension may suffer from the inattention that comes from apathy.

Judgment depends on the ability to bring together two contrasting propositions, and to discriminate that one which is in closer accord with the general body of the subject's knowledge. Anything which interferes with associative processes will therefore impair judgment; hence toxins, organic lesions and congenitally defective organisation lead to defective judgment. But it is now also generally admitted that judgment is much more dependent on affect than was formerly believed. A delusion is the result of a judgment in which affect has had excessive weight. It is not, however, difficult as a rule to distinguish the affectively perverted judgment from a judgment defective from the other causes mentioned; the latter will be displayed in a wide variety of general topics of indifferent interest.

Suggestibility becomes abnormal when the patient habitually conforms with unusual readiness to suggestions made to him. It is common in psychoneurotics, and Babinski has attempted

to make suggestibility the fundamental factor in hysteria, on which all the wide variety of symptoms depends. Suggestibility is very much influenced by the relation of the patient to the person making the suggestion. A suggestion is much more likely to be effective if coming from some one whom the patient likes and trusts. Crude examples of suggestibility, not seen in psychoneurotics, are the forms of automatic obedience—echopraxia, echolalia and flexibilitas cerea, already described.

Negative suggestibility, in which the subject habitually does the opposite to what is suggested to him, is seen in spoiled children, even in early infancy—the infant refusing the bottle offered by the over-solicitous mother, but taking food readily if the mother's fussiness is corrected. It is seen in more obvious and more direct form in certain mental disorders as the so-called negativism, already described.

Suggestibility plays a part, among other factors, in the genesis of *folie à deux* or "communicated insanity", which is the term applied when two persons closely associated with one another suffer a psychosis simultaneously, and when one member of the pair appears to have influenced the other. The condition is not of course necessarily confined to two persons, and may involve three or even more (*folie à trois*, etc.). It is commonest in persons living secluded lives. Husband and wife, brother and sister, or parent and child, or friends of the same sex living closely together are the usual subjects of the condition. It is usually either a paranoid or manic-depressive state.

Consciousness.—Under disturbances of consciousness are usually included sleep, various psychogenic disturbances (*i.e.* produced and removable by psychic means, and occurring without demonstrable physical basis), such as the multiple personalities, transformations and depersonalisations, somnambulisms, twilight states, trances, hysterical deliria and stupor; and the physically determined disorders such as deliria, stupor and coma (included under the general term "amentia").

Sleep.—All kinds of disturbances are possible. Sleep may be diminished, abolished or increased in quantity (hyposomnia, insomnia and hypersomnia), or the sleep rhythm may be inverted, so that the patient sleeps by day and is awake by night. Diminution in sleep may be due to delay in falling asleep (from preoccupation, anxiety, habit or physical disease), to early waking (from similar causes), or from interruption, *e.g.* by terrifying dreams.

The most nearly complete deprivation of sleep occurs in

certain psychotic patients (manic-depressives). Experimental deprivation of sleep in man for three days has failed to show any change in metabolism of any kind. The subjective symptoms produced by artificial insomnia are quickly abolished by permitting sleep. Many normal people, including intellectuals, require comparatively little sleep. William Hunter habitually slept only four hours per night.

Apart from mental disorder arising from demonstrable physical disease, of the brain or of the body generally, there are few mental disorders accompanied by increase in the amount of sleep. Of physical disorders, increased intracranial pressure from whatever cause, tumours and inflammatory disease of the base of the brain, and general toxæmia (*e.g.* nephritis) are the commonest causes of increase in the amount of sleep. The drowsiness that appeared in some cases was the reason for the term "lethargic" applied to what is now known as epidemic encephalitis. In epidemic encephalitis inversion of the sleep rhythm is not infrequent.

A *somnambulism* is a general automatism occurring in the course of, and interrupting, normal sleep. In this condition the patient rises from sleep, disregards the ordinary significance of his environment and those in it, and behaves as if he were living in an environment conjured up by himself. If spoken to, not brusquely, he may reply in terms of the phantasy which he is enacting. If roughly stimulated, he may regain full consciousness, or pass into a trance state of immobility, muscular flaccidity and total lack of response of any kind. Patients in somnambulic states have sometimes met with unfortunate accidents, *e.g.* scalding, or even death from drowning.

In **stupor** the subject's activity is reduced to a minimum. There is no response to any stimulus, external or internal. In the deepest variety, not only is there no muscular activity even with regard to nutrition and evacuation, except (in some cases) that involved in the maintenance of posture, but there is no response to external stimuli, whether these be supplied by questions or actual pain. Stupor may be either of psychogenic or toxic-organic origin, or both. The maintenance of postures with resistiveness occurs more characteristically in cases of psychogenic origin, but it may occur, *e.g.* in uræmic stupor.

In the lesser degrees of stupor, the patient may sometimes be partially roused for a moment or two to pay some attention to, or even to answer, simple questions. A very striking feature of the stupor (so-called "lethargy") of epidemic encephalitis

is the ability of the patient to answer questions to the point when roused for a time. In psychogenic stupor, the suddenness with which the patient may pass from stupor to considerable activity is in contrast with the gradual recovery from the stupor of physical disease.

Coma is but the profoundest degree of stupor; all consciousness is lost; there is no voluntary activity of any kind.

Delirium is a symptom-complex consisting essentially in disorientation and hallucination, and very commonly having an accompanying affective disturbance, especially of fear. It is in its typical form the result of a toxic process, but psychogenic deliria are not unknown. These are apt to be characterised by a certain grotesqueness, or by the appearance of a certain preponderant affect (other than fear) running through them.

Type of Personality in Psychoses

Personality, as used in clinical psychiatry, is the integrated activity of all the reaction-tendencies of the daily life of the individual. It is, in other words, the person as he is known to his friends. This is the simple clinical connotation of the word. It has lately been the custom to use the term also in a much wider sense, regarding personality as the total integrated expression of the various "levels" of which the individual is constructed—the lowest, or vegetative level (endocrine-sympathetic), the sensorimotor level (central nervous system) and the psychic level.

Certain personalities in this sense are less adapted to meet environmental influences adequately than others. This may be the result of inherited handicap or of faulty training and habit. This result is a malintegration, in the sense of biological inefficiency. It has been found that personalities of this kind are specially prone to develop mental illness (which is, by our definition, a phenomenon of maladaptation). Thus a "psychopathic personality" is recognised in individuals who habitually display excess or defect of emotional reactions, together with impaired judgment and inadequate or anti-social behaviour, and in whom there commonly occur transient or permanent mental disturbances, which are merely exaggerations of their normal condition. In other instances mental illness appears to be not simply an exaggerated development of the personality, but implies also a qualitative change in it. In schizophrenia it is found that in a strikingly large

percentage (51 to 60 per cent—Hoch) the personality that existed before the disease occurred or was recognised was of the so-called "shut-in" type (to be described in the section on "Schizophrenia"). This is similar to an extreme degree of introversion (Jung) and to the "schizoid" personality types of Kretschmer. The type of personality that is prone to manic-depressive illness is the so-called syntonic (Bleuler) or cycloid (Kretschmer) or cyclothymic personality. This type represents an extreme degree of extroversion, and is characterised by its affective lability and responsiveness. It has been found that anxious, gloomy people are prone to develop depressions of the manic-depressive variety (Hoch, MacCurdy). In epileptics, long before convulsions develop, it is sometimes possible to observe an overwhelming egoism, with shallow emotional responses, shown especially in a hypocritical religiosity (Pierce Clark). Preceding the onset of paranoia, there is often a long-standing history of sensitiveness, tendency to suspicion, and inability to take criticism. These are the principal types of personality related to the development of mental illness which have so far been recognised. The importance of further work in this direction is obvious, not only from the point of view of prevention, but also for the prognosis of mental disorder—it is probable that the outlook in many psychoses depends as much (or more) on the type of pre-existing personality as on the type of psychosis.

Multiple Personality.

"Double" and "multiple" personality are the terms applied when the same individual at different times appears to be in possession of entirely different mental content, disposition and character, and when one of the different phases shows complete ignorance of the other, an ignorance which may be reciprocal. Each "sub-personality" (for the personality in these conditions at least is compounded of a series of sub- or partial personalities or "monads", as McDougall calls them) is said to be "dissociated" from the total personality, and from the other sub-personalities, on each occasion when its activities are fully conscious and control the motor apparatus of the individual. (See further under "Hysteria".)

Personality in Mental Syndromes.

The phrase "preservation of the personality" is used in clinical work to denote that, in spite of some disease process,

the previous traits of personality are clearly recognisable, and especially in a narrower sense when the patient preserves his ordinary social decorum and keeps his clothes, etc., neat and tidy. Thus, general paralysis, which is a sweeping disorder, and involves complete and rapid disintegration of the personality, contrasts with arteriosclerotic brain-disease, where in the early stages at least the patient has complete insight for his illness, feels it keenly, and endeavours to preserve his previous social appearance.

Depersonalisation is a subjective condition, in which the patient feels that he is no longer himself. It is not that he feels he has become some one else (the so-called " transformation of the personality "), but simply that he can no longer believe in his own existence. Thus one of our patients felt that he was " falling to pieces ", and had to look repeatedly in a mirror to assure himself that it was not so. In addition, his thoughts seemed to him " distorted ", and he felt that he must look distorted. In this patient the " depersonalisation " was associated with, and perhaps intimately dependent on, a total loss of affective response for any experience, so that everything, including himself, seemed unreal to him.

Transformation of the personality is a phrase sometimes used to designate the not uncommon condition when the patient has a delusional belief that he is some other person, and to some extent acts upon that belief—for example, an epileptic patient periodically believed himself to be Christ, allowed his beard to grow, and wrote letters to the newspapers protesting against his detention, and signing himself " Yours truly, Jesus Christ ". Another type of periodic personality transformation, but not of this bizarre type, is that furnished by the multiple personalities already referred to. More lasting and more bizarre transformations are seen in the schizophrenics, who believe themselves to be Napoleon, or King George, or some similar dignitary. In schizophrenics these transformations are often fairly sudden, and the rôle is very poorly sustained—a " princess of the blood royal " will scrub the floor without protest. A gradual transformation of the personality, where the behaviour shows more consonance with the delusional beliefs, is characteristic of paranoia.

A certain vagueness and diffuseness of the concept and feeling of personality is common in schizophrenia. There is a " suspension of the clear distinction between the ego and the environment, in which, for the ego, the clear presence of the

external world vanishes" (Jaspers). In this way a schizophrenic woman came to say, "Sometimes I cannot tell myself from other people" (Storch). There results an identification of the self at different times with different people. Another of Storch's patients felt himself to be eight separate persons at once.

The most extensive, and at the same time most profound, of all personality changes is the "splitting of the personality" that occurs in advanced schizophrenia. This consists not simply in a disintegration of the personality so that the latest acquired reactions crumble away and leave only the primitive functions, but there is rather a fragmentation or splitting-up of the entire personality, with apparent independent activity of the individual split-off function, with the result that all kinds of incongruities of thought and action are possible. Hence the schizophrenic's conduct lacks conservation and purpose, and often appears utterly bizarre, and he may appear happy when his thought content is tragic, or apathetic when he believes himself the recipient of untold wealth. He may perform actions which he does not want to perform, or feel that his thoughts belong to some one else. Some of the split-off reactions are projected and appear as hallucinations, or as delusions.

CHAPTER VI

GENERAL PSYCHOPATHOLOGY

(1) Instinctual development.
(2) Environmental influences.
(3) Mechanisms relating (1) and (2).
(4) Symptom formation.

MENTAL development occurs in response to the needs of adaptation. The mind grows in complexity as the necessary adaptations multiply. The adult mind is far more complex than that of the child; the European's more complex than that of the native of Borneo. Adaptation implies originally conflict, the conflict in human beings between certain forces inborn in them and the environmental circumstances. It will be convenient, therefore, to consider mental development under three heads: (1) The nature and working of the inborn forces, (2) the nature of the environmental influences and (3) the methods and means of mental adjustments between them. The discussion of the genesis of symptoms (maladjustments) will then be possible.

(1) The inborn forces are commonly called **"instincts"**. They are primary data, being given in the innate equipment of the organism. A common confusion occurs in failing to distinguish between instincts in this sense, and the innate paths or patterns which they utilise for their expression, and which are probably fewer in man than in any other animal. The prevailing instinctive forces, however, are the same in man and animals. There are probably only two, **self-preservation** and **sex.** Some add a third—the so-called "**herd** instinct". At birth in man the instincts have but few patterns of expression, but these multiply (under environmental influences) as the age of the individual increases, so that there are two varieties of pattern of instinctive expression—inherited and acquired. It is in the number and

complexity of his acquired patterns that man surpasses the lower animals. Some of the patterns which are actually inherited do not mature till after birth—the myelinisation of the brain is not complete. The patterns of expression of the self-preservative instinct are adequate from an early age (although they continually multiply), while those for sex are much less developed, and do not begin to approach completion till puberty is reached. The process of unhindered satisfaction of an instinct—*i.e.* where the reaction-patterns are in full play—is accompanied by a conscious feeling of pleasure, and frustration of the process by unpleasure—a kind of pain. In early life all the activities of the organism are concerned with the immediate increase of pleasurable, and the reduction of painful, stimuli (the so-called **pleasure-principle**). Later, the increasing demands of reality make necessary a postponement of pleasurable attainment until certain mediate conditions have been fulfilled—this has been described as obedience to the "**reality-principle**". Instincts are in themselves not conscious, but the feelings that accompany their processes of satisfaction or frustration are conscious. The self-preservative instinct attains satisfaction fairly readily from birth onwards, although not without repeated and increasing effort on the part of the organism. The sexual instinct is much more persistently frustrated. The conscious expression of an instinct seeking satisfaction is a **wish** or desire. This wish or desire by virtue of the representative-imaginative function of consciousness can have a definite conscious *object*, through which the general *aim* of the instinct can be fulfilled. The sexual instinct has a development peculiarly its own, in that its object normally changes at various stages of life although its general aim remains the same (Freud). First of all it attains satisfaction in the body of the individual himself—the **autoerotic** stage. In this autoerotic stage, satisfaction giving a pleasurable feeling akin to sexual pleasure is attainable by stimulation of almost any part of the body surface, but especially of certain *erotogenic* zones (mouth, anus, etc.). Thus, for example, stimulation of the mouth area is associated with pleasurable sensuous feeling—an association which persists in adult life. Similarly stimulation of the zone of the anus is at least in some individuals associated with pleasurable feeling, and this persists in adult life in a few of them as "anal erotism". In the later stages of development of the sexual instinct, these regions usually lose most or all of their pleasure-giving possibilities, which are now largely confined to the zone of the genitals. In the second or **homosexual** stage,

the object of the sexual instinct becomes another individual, but of the same sex, and in the third or **heterosexual** stage, of the opposite sex. This is probably the normal development in which the stages overlap. But it may be arrested (" fixated " is the technical term) at any stage—one of the erotogenic zones may continue to afford sensual pleasure to as great an extent, or greater, than the genital zone ; or the development with reference to the object may not go beyond the autoerotic or homosexual stage. Further, " bi-sexuality " has to be taken into account. The individual's sexual instinct is capable of expression and satisfaction in two opposite ways—with the individual as active or the individual as passive. In either case the process of satisfaction gives pleasure, but in the passive rôle the general feeling-tone involves a certain amount of pain ; while in the active rôle evidently a certain amount of the pleasurable feeling may be derived from the inflicting of pain on the sexual object. These are called respectively the " sadistic " or active and " masochistic " or passive part-expressions of the sexual instinct.

A more recent psychoanalytic theory has come to regard these tendencies as expressions not of the sexual instinct but of an aggressive or destructive instinct. According to this view there are two broad groups of instincts ; the life instincts or " eros ", using a collective term, and the death instincts. Most instinctive manifestations are held to be the results of the fusion of these two broad groups. Hence the appearance of sadistic and masochistic elements in sexual relationships. This distinction cuts across the distinction formerly made between self-preservative and sexual instincts. Instead we have a life instinct which directs itself either to the aims and objects of self or those of sex, and on the other hand an aggressive instinct or group of instincts which find their object more usually in the external world but sometimes turn back from that on to the ego itself, producing, according to Freud, such phenomena as automatic self punishment, *e.g.* in patients with whom everything seems to go wrong all their lives.

" Affect " or emotion arises in consciousness when an instinct is prevented from attaining easy complete satisfaction. Emotion and feeling-tone (pleasure and unpleasure) are not the same. Pleasure occurs during the process of satisfying an instinct ; emotion probably only if there is some obstruction to the process of satisfaction. All emotions can be divided into two classes—those with a pleasant, and those with an unpleasant, feeling-tone, the latter occurring when obstruction is for the moment complete.

Consciousness (sensations, feelings, emotions, wishes or desires and ideas) arises when instincts, themselves unconscious, are in action, requiring certain complicated adaptations to the environment for the satisfaction of the instinct. Consciousness is not an otiose creation. It has a function, the representative-imaginative function, especially when satisfaction has to be delayed in accordance with the so-called "reality principle", in facilitating the satisfaction of instinctive needs. The instinct is represented in consciousness by a wish, and its object by an image. The wish and the image are in some way associated by a tension (Driesch) furnished by the instinct, and this tension brings about the motor adjustment necessary for the fulfilment of the wish (satisfaction of the instinct).

In the course of the individual's experience, certain mental events have a peculiar intimacy; such events become welded together to form the ego or self. Another group of mental events are attributed to the environment—"projection" is the attributing of subjective impressions to external causes. But their conscious representations form part of the experience of the self. Mental events are retained (memory), but do not persist in consciousness unless they continue to minister to an immediate need. They are said to become **"unconscious"**. Thus one's knowledge of French, say, remains unconscious while one is talking English. Although the content of consciousness is small at any moment of time, previous conscious events, being retained (memory), can be revived (recollection or recall). Many of these revivable unconscious events have had the peculiar intimacy mentioned and have been incorporated in the ego; hence the ego or self is composed of certain conscious facts of the moment together with a great many revivable mental events. The latter are, at any moment of time, for the most part unconscious, *i.e.* not conscious. "Preconscious" is the term often used for this easily accessible type of unconscious fact.

But there is another type of unconscious fact—one which has proved distasteful to the ego and has been disowned by it. The forgetting of such facts occurs in an automatic way, and this process is known as repression. The percipient ego may or may not be aware of the occurrence, the repression itself being done largely by a part of the ego which is jointly the product of the ego's conception of the environmental demands and on the other hand of the instinctive urges. The joint product is the super-ego which Freud believes to be composed fundamentally of the introjected images of persons, especially the parents and

those on whose conduct the child has modelled himself.

The super-ego is therefore the result of a process of identification with the parents and of wanting to be like them. The nature of the super-ego, it should be noted, is held to be coloured very much by the component it contains from the aggressive instinct. This aggressive component is derived in this way: that the child projects his own aggression onto one or other of the parents, picturing the rival parent as having the same aggressive impulses as himself. Therefore when the parental image is introjected the aggressive aspect is introjected along with it. Thus the super-ego is felt to be severe as well as kind. This aspect of severity is supposed to be responsible for the feeling of guilt so commonly encountered. It is recognised that the super-ego is to a large extent an unconscious formation and consequently the repression carried out by it occurs unconsciously and therefore automatically.

Yet another type of unconscious content has never reached consciousness. Such are many feelings and tendencies closely connected with the instincts. This unconscious reservoir of instincts and feelings and attitudes connected with them has been subsumed by Freud under the term " Id ". Many of the items of the conscious content, and of the repressed unconscious content, are by Freud regarded as originally derivatives of this primal reservoir.

Strictly speaking, " unconscious " feelings, emotions, wishes and ideas are a contradiction in terms. But particular aspects of the instincts of which feelings, etc., are the conscious representations can persist in an " unconscious " form. The term " unconscious " is itself a bad one, since it defines something in terms of what it is not.

That part of the individual's unconscious which is inherited, including the " instinctive " part, has been called the racial unconscious (Jung).

The inherited and the acquired possibilities of reaction—the instinctive reaction-patterns—have something associated with them (something designated above, instinctive forces), which converts them from mere possibilities of reaction to actual functioning elements, and the reactions they subserve must occur if life is to be sustained at all. The something which forces these patterns into action it is usual to regard as analogous to the " energy " of physics. This psychical " energy ", if we may call it so for brevity, is commonly labelled " libido ". The libido is regarded as being at the disposal of any reaction which subserves an instinct. In Jung's original sense of the term, the

energy designated "libido" was of a general kind, and applied to any instinctive force; but in Freud's usage libido is always associated with the sexual instinct. It is to a certain extent transferable from one reaction to another. When it is transferred from the service of a reaction which fulfils the ordinary instinctive aim more or less closely to one which fulfils that aim in a less direct way, the libido is said to take part in a reaction of "sublimation" of the instinct. Freud has a special theory of the libido, of which the barest outline follows. In early life, as we have seen, instinctive satisfaction is largely obtained from the individual's own body. The libido at the service of the instincts is then pictured as directed inwards—the autoerotic direction of the libido. As development proceeds, instinctive satisfaction is obtained increasingly from without; and the libido is directed to external objects. The libido is then said to expend itself partly in keeping the mental representation of these objects in consciousness: it is "attached" to these mental representations and is spoken of as "object-libido". By this time self is not only a succession of experiences with a common feeling of intimacy: it is a developed concept. Sometimes it happens that very little of the total libido is attached to object-representations, and most to the concept of the self. That part of the libido which is attached to the concept of the self is called "narcissistic libido". "Regression" is the return to an earlier stage of development of the individual personality, and in the language of the libido-theory, consists in a withdrawal of libido from its present object to objects characteristic of an earlier stage of psychosexual development.

A distinction is made in Freudian theory between the **aim** and the **object** of the libido, the aim being the mode of satisfaction and the object the person with whom satisfaction is desired. The aim may change with reference to the same object according to the developmental stage.

The aim is believed to be concerned first with the satisfaction of oral cravings and then with anal. Each of these stages is divided into two; satisfaction is obtained first by sucking and later by biting in the oral stage; and in the anal stage of libidinal organisation first by expelling or annihilating and then by retaining, possessing or holding fast. These aims are sought with reference to an object in the environment, usually one of the parents or a parent substitute. It will be seen that in the second and third phases the aggressive aspect predominates and this aspect is directed towards an object otherwise loved, *i.e.* an

example of ambivalence. In this way the foundations of guilt feelings are supposed to be laid in the pregenital stages of libidinal organisation. In the next stage, the so-called phallic stage, satisfaction is concerned with the genital zone, still with incomplete investment of the object with libido. The final stage is said to occur when the female genitals receive for the first time the recognition that the male genitals have previously obtained, and complete object-love is now said to be possible.

Phantasy.—We have seen that an important mental function is the conscious representation of an object or end with which a desire is associated. The occurrence of this conscious representation creates a state of tension (furnished by the instincts whose end is the conscious representation) which issues in bodily activities adequate to attain the desired end. Sometimes, however, these activities are not permitted to take place, and satisfaction of the instinct does not then occur. But in such an event the representation sometimes continues to be held in consciousness, and even to be elaborated, the energy which should have actuated the necessary bodily movements dissipating itself instead in the elaborative process. This is the development of phantasy and the achievement of phantastic wish-fulfilment at the expense of application of energy and activity to reality—at the cost, in other words, of adaptation to reality. The state of conscious preoccupation with phantasy is called **introversion,** to distinguish it from the normal adaptation, which is the direction of the energy of libido outwards to reality **(extroversion).**

Phantasy is an important part of normal mental life, and it can serve a useful purpose if kept in sufficiently close conformity with reality to form the basis of a scheme of future action. Ambition, for example, is a phantasy, and is pathological only if real striving is abandoned for indulgence in the phantasy alone. The child's formulations of reality are phantastic in nature. His father is a great man, his mother the personification of goodness. He may identify himself very closely with these *imagines* (embellished concepts not in strict conformity with reality), and when these illusions which lapse more or less into unconsciousness are encroached upon in later life by contact with reality, he will feel the encroachment keenly, although unconscious of the source of this feeling, since the source has lapsed long ago into the unconscious. The resulting emotional perturbation leads to much thinking—an obsessive preoccupation, which is really an attempt to reconcile the real with

the unconscious ideal. Since the motivation of this continued thinking is unconscious, the thinking appears in consciousness as a "symptom" and forms one type of the obsessive-ruminative psychoneuroses (*q.v.* in Ch. "Psychoneuroses") (MacCurdy).

The Environmental Influences

In early infantile life the child remains in the closest association with the mother. The child being still in the primary undifferentiated phase of consciousness (Burrow), the associations of the earliest days are entirely subjective, *i.e.* there is at this stage no objectivation, no differentiation of the mother from himself: and his interest follows the direction of his mother's interest—namely, his own body. At this stage and later, his slightest gestures are followed by satisfaction of his instinctive nutritional needs—the stage of omnipotence (of "magic" gesture and "magic" words—Ferenczi). Soon, however, this primary subjective phase begins to pass, reality makes increasing demands on his consideration, and he has to conform increasingly to it if he would compass the satisfaction of his instincts. His consciousness increases in extent, and a distinction arises mentally between self and objective reality—his conscious experience is divided into self-consciousness and object consciousness. Both are experiences of the self, but the source of the second is projected. Object consciousness is at first a vague affair, the details of which are poorly differentiated among themselves. For example, objects are assumed to have a kind of organic connection with the persons to whom they belong—a connection which in later life is recognised not to exist. This stage of object-consciousness corresponds to one which primitive man never completely passes—the stage of sympathetic magic or participation. The most prominent objective facts for the child at this early stage are his parents, and so they become the objects towards which his interest is chiefly directed. But here a complication occurs, in that one parent becomes more important for the child than the other. Furthermore, each parent has a place in the interests of the other, as well as having a place for the child; and so the latter meets what is probably his first great environmental obstacle of a personal kind—his first rival—and the germs of hate may grow in association and contact with the group of emotions and feelings comprising the conscious expression designated love. Thus love and hate are said to begin that association which persists throughout life.

Prohibitions and punishments also can produce a feeling of antagonism and play a part in the genesis of hateful emotion. The attachment of the child to his parent of the opposite sex is conventionally called the Œdipus situation or complex. The early identification with the parents has a formulation partly conscious, partly unconscious, in the creation of an ideal to be like the parents. The ideal is the *imago* already mentioned. The parents thus serve as an example to the child, and so unknowingly train him in the formation of habits. Deliberate training begins with example and later proceeds with precept, in earlier days from the parents, and later from school influences and the influence of companions. Morbid reactions, as well as healthy ones, may be impressed in this way, and not only specific reactions but general attitudes with emotional components—*e.g.* morbid gloom or anxiety. Training also makes use not only of rewards but of punishment and threats of punishment. Punishment implies either the frustration of some conscious wish and the production of unpleasant emotion, or the infliction of actual pain of physical origin. There is no doubt that the inflicting of pain in one of the erotogenic zones may be accompanied by a certain amount of pleasurable feeling, and frequent arousal of pleasure in this way may cause a desire for it to become fixed. This desire may appear as a sexual perversion in later life, just as any other premature fixation of the sexual libido may appear as a perversion. When the primary parental stage of the environment begins to be less important, and the child's mental environment widens and his contacts with it increase in number and complexity, a group of tendencies come into play which have been included under the term " herd instinct ". The use of this term connotes that certain reactions necessary for adaptation to society in general are inborn. It seems doubtful whether it is necessary to make this hypothesis, rather than to attribute the more primitive less differentiated reactions to the social milieu as reactions derived from personal contact with it. In any case, it is in connection with adaptation to the requirements of the herd that the ego-ideal is further built up, and that the most powerful repression is exercised.

The Mental Relations of (1) and (2)

(*i.e.* of the instinctive manifestations and environmental influences)

The infant, receiving its first sensory impressions, treats them in the beginning as part of itself—" introjects " them—

they have a purely subjective reference. But from his motor activity and the different quality of sensations arising in his own body from those not so arising, he learns to differentiate those of the external world and to attribute them to influences external to himself and less within his control—*i.e.* to " project " them. Not only does he do this with his sensations, but he projects also his emotions. The emotions he experiences in certain situations, *e.g.* in beholding anything large and new to him, he attributes to the thing itself, so that what fills him with awe has an awesome quality attributed to itself. Furthermore, all his projections are of the personal type ; he endows external objects with all his own conscious properties. This is comparable to the stage of animism in primitive man.

Imitation of example, especially of parental example, is a training-method which is used early. It is one of the modes by which suggestion operates. **Suggestion** seems to depend on a particular relation of operator (suggester) and subject, analogous to but not identical with the active-passive relation in the play of the sexual instinct. Suggestion operates only in an affective relationship.

Intelligence is phylogenetically the last-developed of all the adaptive functions. It appears in rudimentary form in the highest apes, at least. Intelligence is said to grow in the individual till the age of sixteen. After that its apparent growth is mostly a matter of experience and consequently improved judgment. In the growth of intellectual processes which deal eventually with the adaptation of means to ends, not merely the end is consciously represented, but the means to it, and so *symbolisation* plays an important part.

Symbolisation consists in the conscious representation of experiences derived from the environment by something mental which *stands for* that experience. Language is made possible by symbolisation. For example, a certain sensory experience of roundness and depth and colour and consistency becomes represented by the vocalisation " ball ". The word " symbolisation " has unfortunately attained many meanings. In ordinary life it has come to be specially used where some simple object has become endowed with great affective meaning, *e.g.* a country's flag as a symbol for patriotic feeling. A very similar use is now made of the term in psychopathology ; but the object acting as a symbol is invested with a very strong personal affective meaning instead of a general one, as in the case of the flag. Symptoms are often symbolisations in this sense when the meaning is unconscious (repressed).

The association of one idea with another, or of an emotion or feeling with an idea, is an important adaptive function subserving both practical (real) and phantastic thinking. It works in a way analogous to the conditioning of reflexes in physiology, in that once a certain feeling has become associated with a certain idea the revival of the idea (or, unlike the conditioned reflex, of some similar idea) may revive the feeling. For example, if an article of food has accidentally been associated with a feeling of nausea, the same or a similar article may on a later occasion revive nausea simply by virtue of the previous accidental association.

Adaptation is not at all a matter of pure reason. It is eventually and at all times a matter of modifications of instinctive trends, which have a very much closer association with emotional than with intellectual processes. But wherever an adaptation is consciously made or results in conscious experience of some kind, an intellectual formation tends to occur, which by virtue of its conscious nature, contrasting with that of the instinctive reaction which is wholly unconscious or only indirectly conscious, is apt to masquerade as the reason for the particular adaptation. This substitution of an intellectual conscious " reason " for the actual instinct-derived (unconscious) basis of a reaction, is known as **rationalisation.** It is usually a formulation more closely in accord with herd or ego-ideal requirements than was the primary instinctive trend.

The gradual building-up of an ego or self has been stated to arise from a continuous synthesis of certain experiences having a peculiar intimacy, while at the same time a " not-self " or external world has been mentally constructed (represented). There is here a contrast, which results among other things, in the formation within the experiences of the ego of an idealised representation of the self, or ideal ego, of which the unconscious part is called by Freud the super-ego (*q.v. supra*). It is a very gradual growth, and consequently not at all fully conscious at any time. It gives rise to an important subservient reaction, in that where the attributes of the self are conceived as lacking in some of the qualities of the ideal self, the self makes an attempt to **compensate** in one direction what is lacking in another. These deficiencies which it is attempted to compensate may be of either physical or intellectual attributes.

The more intimate part of the environment constituted by the body has important relations to the mind. In the first place, the mental representations of bodily activities are regarded as part of the self. Secondly, mental events (ideas) are followed

by bodily (physical) events in so regular and invariable a way that a relationship of cause and effect is universally assumed to exist, and the relationship is called a process of " will ". Thirdly, mental events which have an emotional accompaniment have a bodily reverberation also, not in the form of directly adaptive movement as in the case of " willed " sequences, but in the form of disturbances of function of a special kind, especially visceral disturbances, but involving also movement of the limbs of an apparently useless sort, *e.g.* tremors. Fourthly, most visceral functions go on without any conscious accompaniment, and the intervention of conscious accompaniment usually betokens malfunction. Conversely, in the absence of spontaneous malfunction, conscious attention to the working of the viscera tends to derange the latter. Attention alone would not do so, but such attention is usually accompanied by emotion (usually anxiety), which has visceral reverberations. Attention of this sort arises only when the normal direction of interest towards the environment is frustrated and turns towards the self. Frustration of any instinct causes emotion of some kind, emotion produces palpitation, etc.; palpitation draws the attention, already failing to find an environmental object, and a vicious circle is set up, since attention makes the palpitation, etc., loom larger, and so the emotion increases.

For the individual the combined result of the innate endowment, of the environmental impressions, and of the reactive-tendencies arising out of the conflict between them, is what is customarily called the **personality**. This is a more or less completely synthesised group of reactive tendencies, including not only all these that the ego acknowledges as its own, but some of which it is unaware, *i.e.* unconscious but not repressed tendencies. Certain mannerisms are a simple example of this latter class of components of the personality. No two individuals ever have exactly the same history, from the zygote stage onwards, and so no two personalities are exactly alike. But there are certain general types, representing different types of adaptation. Some of these are more successful than others, reality being more adequately dealt with. Those personalities that are less successful are *ipso facto* apt to develop substitutive reactions (Meyer) for healthy ones, *i.e.* to have symptoms of mental illness.

The Production of Symptoms

The very important part played by unconscious factors in normal conscious mental life has already been emphasised.

Normally the unconscious factors co-operate harmoniously in facilitating conscious reactions. But in some cases the unconscious factors break through indirectly (symbolically in the second sense given above) into consciousness in a manner out of harmony with the conscious mental life of the individual; in other cases, the unconscious factors usurp the whole realm of consciousness (dreams and dual personalities, for example). In either instance, symptoms of mental disorder become apparent. It is obvious that to do this the unconscious factors must have an activity that is independent of consciousness; they are said to be **dissociated** from the rest of the mental content, and the field of consciousness to be "restricted" with regard to them. This lack of connection between conscious and unconscious may result either from a simple failure on the part of the conscious ego to recognise a connection, or it may be due to a refusal of the ego to do so ("repression").

The first case (of simple failure of recognition) is not at all uncommon. A patient may have a great deal of emotional perturbation which is associated with visceral disturbance. The latter attracts his attention, and as its subjective accompaniments (symptoms) are the same as those of some organic disease, and as he fails to recognise their connection with emotion, he concludes that he has that disease. Then because affects are easily displaceable from one idea to another the emotional perturbation which originally arose from other factors becomes attached to the idea of disease—and in this way an anxiety state is set up.

In the second instance, where the dissociation depends on repression (the result of conflict of the repressed material with the ego ideal), the dissociated material has had originally a strong affective accompaniment. The formation of a symptom denotes a partial or complete failure of the ego to repress the affectively accompanied material ("complex"), the degree of failure being proportional to the directness of expression of the latter. The symptom may take a bodily (physical) form: in the motor field, a muscular movement (tremor, tic) or a paralysis; in the sensory field, an anæsthesia or amblyopia, or some other sensory disturbance. The particular form is a matter of minor determinants. In other instances the symptom may have a psychic form—a fear or an idea, either being apparently meaningless for consciousness. The commonest conscious emotional symptom is "fear" in the special form of distressful expectation usually designated "anxiety". Conflict of any kind, whether self-preservative or sexual, may lead to

anxiety. The anxiety tends to attach itself to an idea, since affects can hardly remain unrelated in consciousness. This idea to which the anxiety attaches is apt to be one consciously very far removed from ideas associated with originally repressed material—this is the so-called "displacement of affect". Whatever the idea to which the affect (of anxiety) attaches, an attempt may be made to ward off the anxiety in a way reminiscent of the magic acts of infancy. Thus a schoolboy had to touch everything twice in case he should not pass a forthcoming examination. This is the genesis of some compulsive acts—a wish, a fear and a magic act to overcome the fear. A similar mechanism accounts for certain obsessive ideas (magic words).

Another fashion in which the ego may deal with an imperfectly repressed complex (of idea plus emotion) is by **projection**. The complex material is permitted to appear in consciousness but projected as external reality, so forming a delusion (*e.g.* a belief that other people are watching the patient wherever he goes), or as a hallucination (*e.g.* a voice accusing him of vile practices). The method of projection is more seriously pathological than the preceding modes, since it involves a distortion of reality.

The projected complexes are often considerably elaborated, being originally the phantasy-formations already mentioned. Phantasies may, however, appear directly as part of the conscious ego, instead of being projected, in one of two ways: (*a*) either the phantasy is not one involving the emotions of guilt or other emotions such as would cause the ego to disown it; for example, a delusion of grandeur may involve simply a turning to phantasy from disappointment with reality, as in an individual with inflated self-regard; or (*b*) the ego-ideal is so disintegrated that repression is not exercised at all, and any complex which involves material, no matter how distasteful originally to the ego, is admitted into consciousness. This occurs only in the most serious forms of illness, *e.g.* in dementia præcox and epileptic dementia.

Frank conscious indulgence in wish-fulfilling phantasies when disintegration of the ego is not too profound, is accompanied by the appropriate affect, viz. elation. In many patients in whom elation occurs there is, however, little conscious evidence of a wish-fulfilment; and it appears that elation may also colour the consciousness while the wish-fulfilment associated with it remains unconscious but active (dissociated).

The emotional state which we are accustomed to consider as

the psychological contrast to elation, namely depression, reaches pathological intensity in several ways. When a wish is not fulfilled—when frustration occurs—depression results. Depression is more likely to occur when the aim of the frustrated tendency is abandoned: anxiety when there is frustration with continued striving. This is a normal occurrence, but the depression attains pathological significance, magnitude and duration, (*a*) when the frustration occurs in relation to some conscious but very much overvalued end, the depth of depression being proportional to the degree of overvaluation. Overvaluation of the end is common in "neurotics", especially as this overvaluation is derived from an exaggerated ego-ideal. Hence the continual striving of neurotics (Adler's "masculine protest"). Depression is also pathological, (*b*) when the frustration is in relation to some unconscious object. In the latter instance the depression appears pathological, because there is nothing in consciousness to account for it. Depression may also be the conscious accompaniment of a feeling of guilt or remorse, which itself may be derived from an unconscious trend imperfectly repressed. A conscious rationalisation of the feeling of guilt may be produced in the form of self-accusatory ideas, which may reach delusional intensity. Guilt is particularly apt to be felt in connection with sexual trends, on account of social prohibitions.

The methods of symptom-formation which have just been described are used in response to contemporary environmental influences, and may or may not imply any developmental defect hindering adaptation. In some individuals the development of the libido's object-direction may be arrested at an intermediate stage (*e.g.* the autoerotic or the homosexual). This hinders adaptation to adult reality, which is heterosexual in organisation, and brings the individual into contact with social prohibitions, *e.g.* in fixation at the homosexual stage. If he accepts his homosexuality in a matter-of-fact way, no mental disorder results, but if he represses his tendencies from consciousness because of the socially induced feeling of guilt, and if the repression fails, depression or anxiety or projected wish-fulfilment occurs as a symptom.

Failure of adaptation at any level of development implies dissatisfaction. The individual may revert in phantasy to a previous level of development, *e.g.* the infantile stage of helplessness, and obtain a phantastic satisfaction which may be dramatised, *i.e.* the patient lies helplessly in bed, uttering baby-

talk, and having to be fed. " Regression " is not an unimpeachable description of this state, since there is no recapitulation, and the reinstatement of the previous terms of existence is never an identical one.

All these reactions can be described as substitutions for healthy adaptations. Their general tendency is to lead the patient away from reality. Some are more pernicious in this respect than others; the further away from reality, the more symptomatically pronounced the mental disorder, and (on the whole) the worse the prognosis for recovery.

CHAPTER VII

PSYCHONEUROTIC REACTION-TYPES

PSYCHONEUROTIC forms of reaction are the commonest kinds of manifestation of psychological ill-health. The specialist in psychological medicine encounters conditions of this kind much more often in that part of his work which lies outside mental hospitals, while for the general practitioner they constitute no small proportion of his practice.

MEANING OF "PSYCHONEUROSIS"

Descriptive.—The term psychoneurosis has, from the standpoint of classification, two connotations. In the first and historical connotation the meaning of psychoneurosis is purely descriptive. It is a term referring to conditions characterised by certain mental and physical symptoms and signs, occurring in various combinations. The most usual of these combinations or syndromes have been distinguished as sub-types of psychoneurosis called respectively neurasthenia, anxiety neurosis or psychoneurosis, hysteria, and obsessional or obsessive-compulsive psychoneurosis. None of these are dependent on the existence of any discoverable physical disease. They are not mutually exclusive categories so far as individual symptoms are concerned, but they signify certain recurrent patterns of symptoms commonly occurring together.

Ætiological.—"Psychoneurosis" has, however, another connotation, more fundamental, since it is an ætiological one. This is to the effect that the existence of a psychoneurotic reaction is an indication of mental conflict. Psychoneurotic reactions are the commonest modes of faulty response to the stresses of life, and especially to those inner tensions that come about from confused and unsatisfactory relationships to other people, whether they are a legacy from the past or from early childhood onwards,

which remain to hinder future adaptations; or arise in the present in relation to hopes, ambitions, jealousies and so forth. The constitutional factor, where it does operate, seems to facilitate the development of inner tension, but this factor is less conspicuous than it is in the psychotic forms of illness, such as manic-depressive and schizophrenic conditions. The pathology of psychoneurotic reactions, in other words, is essentially a pathology of interpersonal relationships.

On this view the existence of mental conflict is the commonest reason for the existence of psychoneurotic symptoms, but because the individual is unconscious either of the conflict within him, or at least of its connection with his symptoms, the psychoneurotic symptoms appear in the ordinary sense to be irrational. Although they may consist for the most part of ideas, no rational explanation exists for them in terms of the rest of the patient's thoughts so far as he is able to give an account of them; or if the mental conflict expresses itself as physical disturbances, such as blindness or paralysis or tremor, no physical disease can be found that can be regarded as causal. A psychoneurotic patient may be disconcerted by a morbid fear of travelling in a train or a bus, or he may be unable to go more than a few yards from his own door, but he does not have the faintest notion why; yet this fear may be so impelling that the attempt to walk a few yards in the open may prove utterly beyond him.

The irrationality is confined, however, to the account that he is able to give of his symptoms. If enough of his thoughts and feelings are known, what has seemed mysterious becomes logical and coherent with the rest of the contents of his mind. It has been demonstrated many times that there are undercurrents of feeling and thought, and connections between thoughts and feeling, which the individual himself may be quite unaware of until the connection is exhibited to him.

A complication must be considered here, in that psychoneurotic reactions resulting from mental disturbances in earlier life may be perpetuated as habits of behaviour and attitude and so become part of the personality. Even simple stresses, such as fatigue, may allow these characteristics to appear in such exaggerated form as to constitute an inadequacy of adaptation in the symptomatic form of a psychoneurosis.

Disturbances of constitutional origin, especially depression, may have a similar effect, and this probably accounts for some of the instances where symptoms of psychoneurotic form cover an underlying depression.

Incidence.—It is found that about one-sixth of the ordinary run of hospital out-patients in the departments of general medicine and about a third of those receiving benefit under the National Health Insurance Act for a month or more, and a similar or even greater proportion of patients in general practice, are not suffering from any physical disease but have some psychogenic disorder, usually of the psychoneurotic type. Labels like "insomnia", "gastritis", "anæmia", "rheumatism" and so forth commonly attached to minor complaints which are nevertheless often responsible for absences from work for weeks, rather than days, at a time, usually cover psychoneurotic reactions.

The apparent increase in these psychoneurotic forms of illness is due in part to their now being much more widely recognised, whereas formerly they passed for other things. Mythical diseases, such as "mucous colitis", "dropped kidney", or "spinal neurasthenia" or what not, are now debunked. They were the labels formerly attached to the patients' complaints, *faute de mieux*, by doctors of a generation who had not been taught that physical disease is often simulated by mental disturbance.

That there has also been a real increase has been difficult to prove, but figures obtained from statistics of the Department of Health for Scotland have tended to show that an increase had in fact occurred between the wars (Halliday). If this is so, then the increase is probably related to one of the general factors favouring psychoneurotic forms of illness, namely, insecurity in its many forms, whether crudely financial, or more general, especially an absence of mental values of the sort that transcend purely material issues.

Clinically, a psychoneurosis implies either a bodily disturbance without structural lesion, and dependent in a way unknown to the patient on mental causes; or a mental disturbance, not the result of bodily disease, in the form usually of morbid fears, or more rarely of persistent ideas or motor acts, all of which the patient realises to be abnormal and the meaning of which he is at a loss to understand. The bodily disturbances may be sensory and entirely subjective, or motor and therefore directly observable, or visceral. The sensory disturbances may occur in any or all of the systems of the body in a given patient—anæsthesias, hyperæsthesias and paræsthesias, including pains, headaches, palpitations, breathlessness, anorexia, weakness and fatigue. These disturbances are emphatically real and not "imaginary". A hysterical pain is a real pain. The motor signs are paralysis, paresis, tics, tremors, postural deformities,

anomalies of gait, and speech (not language) disorders such as aphonia. The visceral disturbances include tachycardia, vomiting, diarrhœa, constipation, sialorrhœa, polyuria, sweating and vasomotor disturbances generally. The mental disturbances appear as fears of all kinds, *e.g.* of heights, of sounds, of open spaces and especially of bodily illness; as localised losses of memory (islands of amnesia); as trance-states and somnambulisms; as troublesome thoughts, usually with an uncomfortable feeling attached to them such as anxiety; or as acts which the patient feels compelled to do.

The most acceptable **clinical grouping** is the following, which is a modification of Freud's original one: states of "irritable weakness" (neurasthenia); anxiety states, including "anxiety neuroses" and "anxiety hysteria"; hysteria; and the obsessive-compulsive psychoneurosis.

Neurasthenia has often been used in a very wide sense. It makes for accuracy of definition if its use be confined to those cases in which fatigue, mental or physical, is the prominent symptom. The validity of "neurasthenia" as a clinical entity in this sense will be discussed below.

Hysteria is an overworked term. It has been used in many different senses. (1) Those conditions in which some of the bodily disturbances enumerated above are prominent, and in which there is little or no conscious mental perturbation, are subsumed under the comprehensive heading of *hysteria*, which, however, is also made to include mental symptoms arising, as we shall see, in a way analogous to the origin of the bodily symptoms. (2) The term "hysteria" has been applied to mental processes or mental "mechanisms" in which a complex undergoes repression and is represented by paralysis or other bodily disturbances, or by some disturbing content of consciousness, such as a morbid fear. This process should be called "dissociation", and not hysterical. (3) Symptoms arising from a particular type of complex formation such as an Œdipus complex, imperfectly resolved and not fully repressed, have been labelled "hysterical". (4) The hysterical personality as usually described might well have another name, such as "histrionic". Such people are highly egocentric and immature, both in talk and appearance. They are conspicuous for the demands they make on people around them. They are inclined to make dramatic displays by producing dramatic symptoms, such as fugues and suicidal gestures. They dramatise their emotions especially so as to give the appearance of suffering, but their feelings seem to lack depth. They are

usually women and usually frigid. There is an excellent description of such a personality in *The Young Melbourne* where the author reconstructs the personality of Lady Caroline Lamb.

When there is much mental perturbation in the form of fear, and when any bodily symptoms seem to be the outcome of this, the best term probably is *anxiety state*, although Freud divides this group into two—anxiety neurosis and anxiety hysteria. In the anxiety neurosis, so called, there is supposed to be a primary physical disturbance in the form of tremor, palpitation, etc., with a mental content of discomfort or vague fear. In anxiety hysteria there is a fear of some definite external object or disease, and the physical disturbance is less important. But the differentiation is clinically usually difficult to make, and is not helpful, and it is probably better to use the inclusive term *psychoneurotic anxiety state*. Anxiety is used by us in the sense of morbid fear, whether primarily of conscious or unconscious objects or ideas.

For Freud, anxiety has the special significance of being the mode of " discharge " or expression of repressed libido, as in " anxiety hysteria ". In his " conversion-hysteria ", on the other hand (described below simply as hysteria), the libido is said to be " bound " by the physical or mental disability into which it is " converted ".

Where constant preoccupation occurs with a single topic, itself usually of apparently minor importance (*e.g.* an anxious preoccupation with the idea of dirt) against the patient's better judgment and to his distress, " *obsessive-ruminative* " state is a fair description. " *Obsessive-compulsive* " state is applied to a similar condition in which the preoccupation issues in motor acts of an apparently trifling or meaningless kind. Both of these conditions are usually included under the *obsessive-compulsive psychoneurosis.*

Differentiation from psychosis.—There are no clearly defined boundaries in nature, and there is many a case of mental illness which it is difficult to assign definitely to the psychoneurotic or psychotic group. But between a well-developed psychosis on the one hand and a full-fledged psychoneurosis on the other there is a world of difference, from the descriptive as well as from the therapeutic aspect. Transitions also occur ; so that a patient who reacts psychoneurotically at one time may react psychotically at another. We have, for example, seen a patient who began with psychoneurotic anxiety symptoms subsequently develop obsessive compulsive ones and who finally entered a paranoid

schizophrenic psychosis: as if these were successive stages of mental disintegration. But such transitions are the exception and not the rule. The psychoneurotic who has among his other topics of anxiety the fear of insanity can usually be reassured with statistical certainty.

The distinctions between psychoneuroses in general and psychoses are symptomatic, psychopathological and therapeutic. The symptoms of the psychoneuroses will be enumerated later, when the divergences from the clinical pictures presented by the psychoses will be evident. Considered biologically, that is, regarded as types of reaction to environment, the psychoneuroses are distinctive in several ways. A psychosis involves a change in the whole personality of the subject in whom it appears, while in the psychoneuroses it is only a part of the personality that is affected. With the development of a psychoneurosis there is often no outward change of personality of any kind. As Meyer puts it, a psychoneurosis is a part-reaction, while a psychosis is a total one. Furthermore, in a psychosis reality is changed qualitatively and comes to be regarded in a way very different from the normal, and the patient behaves accordingly; in the psychoneurosis reality remains unchanged qualitatively, although its value may be quantitatively altered (diminished). But the psychoneurotic acts always as if reality had the same kind of meaning for him as the rest of the community. Psychopathologically the psychotic change in reality-values is partly expressed as projection, which consists in attributing an experience in origin entirely subjective to some external personal agency, *e.g.* an externally unfounded belief that one is being continually watched often depends on a sense of guilt, subjective but unconscious. Projection of this sort does not occur in the psychoneuroses.

Language is the symbolising function and the latest developed function for social adaptation. In the psychoneuroses language as such is never disturbed, whereas in the psychoses it often undergoes distortion. From the psychoanalytic viewpoint, the unconscious comes to direct verbal expression in the psychoses; whereas in the psychoneuroses it never attains more than symbolic expression in some physical or localised mental disturbance. The reactions in the psychoses are of a much more primitive type on the whole than in the psychoneuroses: there is often a "regression" (so called) to an infantile level of activity in the psychotic. For example, wetting and soiling without shame are not found in psychoneurotics in the presence of clear consciousness.

Pathogenesis

Theories as to the causation of the psychoneuroses are known to have existed from Hippocratic times, when the psychoneurotic manifestations still designated hysteria were supposed to occur only in women and to result from " wandering of the womb " into another part of the body. The more dramatic aspects of hysteria—the convulsions, for example—were for a long time attributed to demoniacal possession. Many of the dramatic cures by exorcism and other preternatural methods recorded in popular and religious history occurred in hysterical patients. The study of neurotic symptoms was on the whole haphazard until **Charcot**, who was primarily a neurologist, began a systematic study of them, confining himself to the hysterical type of manifestation. Applying the methods of clinical observation which he had used for organic nervous diseases, he succeeded in formulating a group of clinical pictures, of paralyses, contractures and convulsions which constituted a graded series of increasing complexity, and all of which together he called " hysteria ". The one causative factor which he found uniformly in his patients was inherited taint. Hysteria was therefore a malady of degeneration. A relatively minor observation of Charcot's had far-reaching effects in the hands of certain of his pupils. He reproduced paralysis in his patients by means of hypnotism, proving that hysterical paralysis could be the result of specific ideas existing in the patient's mind. But Charcot believed that such paralyses could be hypnotically reproduced only in hysterics and in " grande hystérie " at that ; in other words that the hypnotic phenomena were those of hereditary degeneration. It remained for his successors to develop and modify his views. These modifications were on very divergent lines, and the principal varieties of theory and practice were associated with the names of Bernheim, Dubois, Dejerine, Janet and Freud.

Bernheim gradually came to the opinion that all the phenomena which Charcot had described as hysterical were capable of being produced by suggestion. He declared that not merely hysterical patients were hypnotisable, but that practically every one could be hypnotised. " Suggestion ", said Bernheim, " consists of the influence exercised by an idea that has been suggested, and has been accepted by the brain." Hysterical symptoms were therefore in Bernheim's opinion the result of suggestion. Babinski went further and stated that

nothing is hysterical which cannot be produced by suggestion and removed by persuasion.

So far, hysteria had been the principal interest. There was but little attempt to distinguish types of psychoneuroses. Whytt of Edinburgh had distinguished three types, neurasthenia, hysteria and hypochondria, as far back as 1765; but it was left to Pierre **Janet** to make an elaborate attempt at subdivision of psychoneurotic disorders. He recognised two groups, hysteria and psychasthenia. Hysteria included the symptoms indicated above. Everything else—obsessions and compulsions, fears of all kinds and feelings of fatigue—he included under psychasthenia. For hysteria and for psychasthenia he had interdependent theories. It is necessary to understand that these are psychological theories and their terms do not connote a physical substratum. "Hysteria", says Janet, "is a malady of the synthesis of the personality." It is a form of mental depression characterised by restriction of the field of personal consciousness and a tendency to dissociation (*i.e.* independent functioning) and emancipation of the systems of ideas and functions that constitute personality. There are two kinds of psychological operations, according to Janet—easy ones, requiring the co-operation of only a few elements; and difficult operations, which require the systematisation of an infinite number of elements, involving a very new and intricate synthesis in each operation. When the "nervous tension" or "psychological force" is lowered by puberty, disease, fatigue, or emotion (the last named involving great expenditure of nervous strength and therefore approaching fatigue) there is a general lowering of the level of psychological performance ("lowering of the mental level"). Hence only the simpler acts can be performed. In psychasthenia the lowering of tension is generalised. "The superior tendencies (more complicated acts) can no longer achieve a high degree of realisation, and the inferior tendencies are agitated in consequence of a kind of derivation." In hysteria, on the other hand, the lowering of psychological tension is localised in one particular function, which disappears in consequence from consciousness, *i.e.* is "dissociated" from the rest of the conscious personality. The dissociation is mainly of a function which has been weak or disturbed, especially if the function has been in activity at the moment of a great emotion. The function that disappears is commonly one that is very complicated and difficult for the subject, *e.g.* professional and social paralyses.

Janet considers that neurasthenia, in the sense of long-

lasting feelings of fatigue without physical basis, is simply a state of psychological depression—of general lowering of mental tension. The objection to Janet's views is that they are a matter not so much of explanation as of description in terms of physical analogies. In hysteria, they do not explain why dissociation occurs. In psychasthenia, they do not explain the individual symptoms. **Freud**, also a pupil of Charcot's, began where the latter left off, and recognised the fundamental importance of mental processes in the causation of psychoneurotic disorders. Following up a discovery made by his colleague, Breuer, that a hysterical patient became apparently well after a forgotten event of a personal and emotional nature was recalled under hypnosis, and after establishing further in some cases that the forgotten event had been of a sexual kind, Freud formulated the generalisation that hysterical symptoms are simply memory-traces of sexual traumata—" the hysteric suffers from reminiscences ". Soon he modified this view to include among the ætiological memories not only those of actual trauma, but those of sexual experiences which had existed only in the patient's childish phantasies. It remained, however, to explain why such early memories should produce symptoms in later life. For this purpose Freud constructed the hypotheses of " repression " and the " unconscious ". Unpleasant memories were forgotten. This process he called " repression ". But the memories were not thereby annihilated ; they simply became " unconscious "—*i.e.* the ego was no longer aware of their existence in the mind. If repression was entirely successful, the unwanted memories never reappeared in any form ; if only partially successful, the memories appeared again in consciousness, but under a disguise. These disguises formed the symptoms. If the symptom or sign so produced was a physical manifestation such as a paralysis, or a tic, or an anæsthesia, the result was called a " conversion hysteria ", the psychic " energy " derived from the repressed ideas being said to be " converted " into a physical symptom or sign. The particular form of conversion hysteria chosen was not an accident, but was determined by mental events which had caused that part of the body to be associated in some way with the traumatic memory. Freud further declared that such manifestations were more than symbols or substitutes of a repressed memory. They represented in addition a present " wish " or desire, which, like the memory, was not palatable to the super-ego and was therefore also repressed. It is now considered that the process of repression itself occurs uncon-

sciously by means of the super-ego. Such memories and such wishes have been for Freud usually sexual in the special sense of that infantile sexuality which he believes is misused, in that the infant's relationships to other persons and to itself all have the object of sensuous gratification. (Sucking, evacuation of the viscera, and genital stimulation derive their interest from their sensuous quality.) Where conversion of the repressed material into a physical symptom does not occur, the conflict between the ego and the repressed material results in a conscious fear, which rarely if ever remains unattached, but tends to become linked up (" displaced ") to some apparently indifferent idea. It is in this way that a phobia arises. It is now supposed that the anxiety precedes the repression—that anxiety is a kind of danger signal given by the ego. Freud accounts for obsessions and compulsions in a similar way: he supposes that in them also there is a painful memory, that it may actually appear in consciousness, but that it is prevented from disturbing its possessor by continuous preoccupation with some apparently indifferent thought (" displacement " again) or by the repetition of some apparently meaningless act. But the particular thought or act selected as a defence is again specially determined by previous experience. Displacement is simply one of the methods of disguise.

In distinction from these psychic modes of symptom-production in hysterical and obsessive-compulsive psychoneuroses, Freud supposes that in " neurasthenia " (where fatigue is the most prominent symptom) and in the " anxiety neurosis ", a physical ætiology alone is at work—*i.e.* no psychic conflict is necessary to account for the symptoms. Neurasthenia in the narrow sense in which he uses the term is then the direct outcome of masturbation or its equivalents, while the anxiety neurosis is the physical result of sexual stimulation with inadequate satisfaction (coitus interruptus especially).

Dejerine's theories are less involved. He gave great prominence to the rôle of emotion and of faulty habits of thought in the production of symptoms. " We lay it down as a general rule, without exception, that there is always an emotional cause in the genesis of psychopathic states." In the development of neurasthenia, under which he includes all psychoneurotic manifestations not included in psychasthenia (phobias and obsessions) and hysteria, there are three phases. First, there are psychic and physical disturbances resulting directly from emotional perturbation. Second, conscious reflection occurs upon the

disturbances; mistaken inferences are made regarding their origin; and autosuggestion of physical disease results. Lastly, there are secondary disturbances resulting from these processes. For example, anorexia may result from a belief that one has gastric disease—a belief which originated in pondering over the significance of a gastric sensation produced by emotion.

Hysteria also results, according to Dejerine, from emotional disturbance, but only in subjects with a "peculiar emotional constitution". The emotional constitution of the hysteric is shown in his tendency to react much more intensely than the normal to an emotional stimulus; he reacts in a specific region, *i.e.* in a particular organ or group of organs; the psychic representation of the function has a peculiar tendency to become dissociated from the seat of consciousness; and there is a peculiar passivity in his attitude to the dissociated function. Dejerine performed a great service in stressing the part played by emotions and preoccupation with their bodily results, but his explanations of hysterical reactions lack the precision and detail of Freud's. **Ross** has filled up some of the gaps in Dejerine's teaching by applying Pavlov's concept of the conditioned reflex to the theory of the emotional origins of neurotic symptoms and by utilising it also in relation to Freud's ætiological hypotheses. An emotional reaction first aroused by a certain mental event tends afterwards to be aroused by any other mental event which has become associated with the first one. This secondary mental event may be totally without emotional significance in itself, but by virtue of its association becomes capable of arousing the emotional reaction without the presence of the primary event in consciousness, or (perhaps and more often) in the absence of any conscious connection between the primary and secondary events, which may both nevertheless be fully conscious. The signs of emotional disturbance, physical or mental, aroused in this way, without adequate conscious reason, are reflected upon by the subject and mistaken for signs of disease. Thus the necessary conditions for neurotic symptom-formation are reproduced—the presence of localised bodily or mental disturbances without adequate conscious explanation of their occurrence. A simple example of this type of "conditioned reflex" was that of soldiers returned from the front who jumped at the slightest sound—not because the sound brought back memories of warfare into full consciousness, but simply because sudden sounds had become associated with reactions of fear.

There has also been a succession of theorists who have

maintained that all psychoneuroses have a physical origin. Their numbers were much depleted by the clinical experience of war neuroses. Charcot was the father of this school. Weir Mitchell attributed all psychoneuroses to fatigue, and treated them all by rest. Deschamps spoke of a " sthenogenic function " of the central nervous system, and regarded the latter as a kind of electrical battery the depletion of which produced neurotic symptoms. Modern attempts at a physical explanation have been more subtle, and because certain tics and co-ordinated movements have appeared in epidemic encephalitis, hypotheses of basal brain-lesions have been invoked—uselessly—to account for hysteria.

The *constitutional aspect* has recently been more precisely investigated. It has been shown that 21·4 per cent of the parents of patients with anxiety states have a similar disorder, while 17·5 per cent have either an anxious type of personality, where the latter is described as timid, apprehensive, given to excessive worry, mild phobias, or an obsessional personality or a depressive one (F. W. Brown, *Proceedings of the Royal Society of Medicine*, 1943, 35, 785). Five per cent of the parents of patients with anxiety psychoneuroses have had depressions. In a control group the proportions are significantly less. It appears therefore likely that there is a constitutional factor in psychoneurotic anxiety states, and that this is occasionally related to the depressive constitution. That anxiety symptoms are related to some extent to personal, and probably often constitutional, characteristics, has clinically been long observed and has recently received statistical confirmation (E. Slater, *Jour. Neurol. and Psychopathol.*, 1943, 6, 1).

Nineteen per cent of the parents of hysterical patients have themselves had hysterical reactions, while 14 per cent of them exhibited an anxious personality.

With obsessional patients it has been found that 7·5 per cent of their parents show obsessional syndromes. The same percentage of parents of patients with obsessional psychoneuroses show depressive syndromes at one time or another, while 19·6 per cent have anxious personalities. The distinction between an obsessional neurosis and an obsessional personality is not by any means clear and easy to make, and this may account for the discrepancy between these figures and Lewis's, who found that 37 per cent of the parents of a group of 50 obsessional patients had obsessional psychoneuroses.

The same tendencies were confirmed by a study of sibs and

of first and second degree relatives of patients with psychoneurotic disorder, the difference in a control group being in all cases significant.

Thus there is evidence that psychoneurotic syndromes of the anxiety, hysterical and obsessional types have in some instances at least a constitutional basis and that the inherited constitution may be specific in each group, but that there is some common factor which shows itself in an anxious personality.

By attacking the problem from another angle, namely, the statistical relationships between personality traits and subsequent psychoneurosis, it has been shown that there is a significant correlation between the pre-existing personality traits and the type of psychoneurosis that develops. This is truest of the obsessional group where the correlation between the type of psychoneurosis and the type of pre-existing personality or " predisposition " is high. A positive correlation has been shown also to exist between hysterical traits of personality and hysterical symptoms; between anxious characteristics and subsequent symptoms of anxiety; and between depressive traits, such as mood swings, and subsequent depressive illness, in that diminishing order of relationship (Slater). If we assume that the original personality traits are inherited rather than acquired in the course of experience, from infancy onwards, then this is additional evidence of a constitutional predisposition to psychoneurotic forms of reaction. The correlation is not high enough to indicate that the constitutional factor is essential in all cases.

Such studies advance and confirm clinical observation in a valuable way. What is further required is a collaboration between the psychopathologist, the student of character traits and the statistician in an attempt to establish what the fundamental and presumably heritable characteristics may be, and how they may produce in the course of psychological development in secondary fashion the character traits which we recognise as predisposing to the development of certain types of symptom. In the obsessional type of character, for example, does the inherited factor essentially consist in an excessive degree of aggressiveness, which by happy accident and happy upbringing may result in a dominant and forceful personality in the one case; or, on the other hand, as a result of a miscarriage of psychological development, may produce reaction formations, such as extreme scrupulousness devised to keep the aggressiveness in constant check, leading in the long run to the development of inner tension and ultimately of symptoms? How far is the habit of anxiety,

which appears to favour the development of anxiety symptoms, based on inherited emotionality; how far a mere infection, as it were, from an anxious parent; and how far from inner conflict, never properly resolved? Some of these are questions to which there can be no general answer. Studies of inheritance and constitution, whether inherited or early acquired, must be blended with studies of the life-history of the individual and if possible with that of his parents, the resemblances between both traits of temperament and symptoms in parents and child being sometimes astonishing. Probably only in this way can a true understanding be obtained, and at the same time scientific methods of prevention and treatment be gradually devised.

In the meantime it can be said that the individual constitution alone may be enough in some instances to determine the onset of an obsessive-compulsive state; while in the case of the hysterical, anxious and depressive syndromes much more depends upon accidents of experience and upbringing. It appears, in effect, that if an experience is severe enough these latter forms of reaction may appear in any one, whereas it would be difficult to develop obsessional symptoms without a relevant constitutional predisposition. Put in another way, the form of obsessive-compulsive psychoneuroses is often determined largely by inheritance, so that wherever a person with such an inheritance develops a conflict with tension, the form of the resulting disturbance will be obsessive-compulsive; whereas the other types of psychoneurotic reaction are more likely to be determined mainly or entirely by individual experience.

We are, however, of the opinion that the obsessive-compulsive type of disturbance is a syndrome which may have a different ætiology in different individuals; sometimes it is an expression of a manic-depressive illness, at other times a true psychoneurosis based on inner conflict. Our impression is that a good deal of differentiation remains to be done in the field of obsessional syndromes, and that the obsessional temperament and obsessive compulsive psychoneuroses may have very little in common with their ætiology.

Intelligence plays a part in determining the occurrence of psychoneurotic reactions as a whole, being relatively commoner both among people of superior and those of inferior intelligence. Intelligence has an effect in determining the form of reaction, hysterical symptoms being commoner amongst dull individuals.

CLINICAL SYNDROMES

It is necessary to emphasise that Freud's classification is essentially a clinical one, although Freud has devised a separate ætiological theory for each subdivision. Further, it is not a hard and fast classification. Certain symptoms are common to each group, and a given case may sometimes change so much that now it falls within one group, now in another. For example, anxiety in the sense of vague fear (with or without the peculiar bodily distress known as " angoisse ") which gives its name to one of the groups can also be found prominently in the obsessive-compulsive group. The principal symptoms of two groups, *e.g.* the " irritable weakness " of neurasthenia and anxiety symptoms may be found existing together in one case. Freud's ætiological theories are predominantly sexual in his special sense. We shall see that there is ground for amending his views and for furnishing a more comprehensive theory.

Neurasthenia

This syndrome was at one time much more commonly mentioned in the literature than it is now. Beard first described it in 1880, and Beard's neurasthenia became such a popular diagnosis that by 1894 Muller was able to furnish a bibliography of fourteen pages. In modern days neurasthenia is rarely seen in pure form. This pure form consists in complaints of mental and physical fatigue, associated with sensations of pressure in the head, poor memory, inability to concentrate, irritability of temper, increased reflexes, poor sleep and various aches and pains (A. Meyer).

Numerous *ætiological theories* have been advanced, and have had their day, only to be greatly modified or altogether abandoned. Inherited constitution can play a part, since mental disorders are frequent in the ancestry of neurasthenic patients, and in some the syndrome exists from a very early age—the " primary neurasthenia " of Osler and McCrae. There is some evidence that persons of a certain physical constitution—the so-called asthenic type, with long narrow thorax, long neck and limbs, small muscles and visceroptosis—are prone to " irritable weakness ". Autointoxication has been invoked as a cause, but no one has succeeded in demonstrating an endogenous toxin of any kind in neurasthenics. Overwork being obviously related to fatigue, it was assumed by many that neurasthenic symptoms were identical with fatigue and must have an identical cause.

On this assumption was based Weir Mitchell's treatment by absolute rest, in which the patients were not allowed even to feed themselves, lest they incurred unnecessary expenditure of energy. Overwork is an ætiological theory very commonly offered by neurotic patients, whether neurasthenic or otherwise, because overwork is a very creditable thing in their eyes. But a closer investigation of their history seldom reveals excessive devotion to duty. Experimental confirmation of the overwork hypothesis is very slight. Persons who have recently undergone excessive toil rarely show the neurasthenic syndrome detailed above. Dubois and Dejerine, on the other hand, have emphasised the factor of autosuggestion in the production of neurasthenia. This is not the whole explanation by any means, but it is more in accord with the facts than the physical theories already discussed, as we shall see. While excessive effort may produce transitory symptoms, it does not in itself lead to a prolonged state of irritable weakness.

Psychoanalysis has sought to give a very limited interpretation of neurasthenia. According to Freud, neurasthenia is the direct physical result of excessive masturbation. Other analysts have found it necessary to postulate conflict over masturbation, or conflict plus renunciation of the habit. The later psychoanalytic view (Wilhelm Reik's) of chronic neurasthenia is that it occurs in people who have never passed beyond the pregenital stage of libido-organisation: who therefore use their genital organs to serve pregenital aims: and who therefore become compulsive masturbators, because this is an inadequate method of relieving pregenital tension.

It is a commonplace experience that profound emotional disturbances are exhausting. We have known a robust vigorous youth who could work all day and play games vigorously in the evenings without ill-effect, who was compelled to rest completely for many hours after a competitive scholarship examination. It was the excitement of anticipation and competition, not the writing, that floored him. No one who has been through a profound emotional experience can doubt its exhausting effect. But even these instances do not furnish a complete picture of neurasthenia. The fatigue is there, mental and physical, and there may be aches and pains, insomnia and anorexia; but the symptoms are transient, and inability to concentrate and irritability are not prominent. What is it that perpetuates such symptoms? The emotional perturbation in the instance quoted was transient; may it not be that the enduring nature

of neurasthenia depends on continuance of the emotional state ? Clinical evidence obtained from cases more fully investigated than has been usual in the literature supports this hypothesis. Many theoretical and clinical writers have favoured it, for example, Dejerine, Janet and Solbé. Recent experimental evidence has also supported it, for example, Cannon's work on the secretion of adrenalin under emotional stress, and the action of adrenalin on muscular activity, leading to greater utilisation and consequent depletion of muscle-sugar. In clinical work, however, it is nowadays very hard to find a patient with the clinical symptoms of neurasthenia in pure culture. Like Charcot's " grande hystérie ", neurasthenia has largely died out since physicians ceased to expect it so frequently and to search for its symptoms so diligently. This fact is in itself suggestive. It is, however, common to meet with patients in whom fatigue is the principal or at least a leading complaint. An example was furnished by a farmer of thirty-five, a single man, who complained chiefly of lack of energy.

CASE 1.—This patient was 35 years of age. His mother had been insane for past thirteen years, and his sister had a manic-depressive episode. His youngest brother had a hypochondriacal type of depression.

The patient was a puny, nervous child, with fears of the dark and of birds. He had to leave preparatory school at 16 because of " timidity " and self-consciousness. At 23 he graduated from college and went on his father's farm, where he has worked ever since. He had already at 22 begun to have depressed episodes. His personality was quiet, shy, book-loving, unaggressive, but ambitious and day-dreaming.

For two years before admission to hospital he was gradually losing interest in his work, and was eating and sleeping badly, but his chief complaint was lack of energy, so that his work seemed difficult. His farming had not been financially satisfactory in recent years, and his love affairs, of which he had several, had not prospered.

When first seen he was inactive, lying in bed a good deal. He admitted some depression, but his principal complaint was lack of energy and of interest. There was no retardation in speech or action. His chief topics were sexual, his impotence and his rebuffs in courtship. These occupied his mind practically to the exclusion of business worries. There was no difficulty in thinking and no evidence of emotional or intellectual defect.

He was poorly developed and poorly nourished (20 lb. under ideal weight), with constipation and attacks of migraine.

He discussed his condition willingly and accepted the explanations given him. Gradually he returned to a satisfactory

dreamless sleep, and his appetite improved. When he left hospital he was much more confident and cheerful than on admission.

It is clear that heredity and the home environment were alike unfavourable. Neurotic traits (phobias) early appeared. A depressive tendency appeared even at school. His application to reality was disturbed by his excessive day-dreaming, and his career did not at all correspond with his ambitions—he phantasied himself as the idol of sporting crowds, instead of which he was an unsuccessful farmer. Further, he was thwarted in his marital ambitions, and his feeling of inferiority in this direction was associated with the idea that he was impotent. His impotence he explained to himself as due to his general lack of energy. When it was pointed out to him that the latter was an expression of disappointment and dissatisfaction with his work and with himself (he was sensitive about his appearance and his failures) and that it represented a partial withdrawal from reality into his phantasies, he gradually accepted the explanation; and on putting it into practice, he considerably improved.

The case just discussed presented a neurasthenic syndrome which was the outcome of a very profound and complicated maladjustment, involving the whole life and personality of the patient. The next patient, although inferior from an early age, was suffering from neurasthenic symptoms in response to a recent situation. The treatment was correspondingly easier, and the ultimate prognosis better than in the first example.

CASE 2.—The patient was a man of 34, a school teacher. He complained of generalised fatigue, "nervousness", eructations, headaches, weakness in left side and precordial pain.

A paternal and a maternal grandparent died of a paralytic stroke.

The patient had enuresis until the age of 14. At school he reached the eighth grade at 16. He graduated from college and afterwards frequently changed his occupation, finally becoming a teacher "to do something good for the world". At 31 he married, and his wife died six months later. At 33 he married again, although in debt at the time. He was usually sociable, but was occasionally slightly depressed and diffident.

Immediately after his second marriage (September 1923) he discovered that he disliked his wife. She became pregnant in November although he had used means (coitus interruptus) to avoid this, and he developed frontal headaches and became irritable. Finally he felt so weak that he gave up work (December). Insomnia, eructations and vomiting, lumbar pain and loss of weight (14 lb.) followed. In the two weeks preceding admission to hospital he was moody and discouraged.

On admission he was apprehensive of physical examination. His mood he described as "bitter" but not sad. Hypersensitiveness to noises was marked. He talked slowly and dramatised his symptoms. There was some subjective difficulty in thinking. Orientation, retention and calculation were accurate. In remote memory he showed some uncertainty about dates. He had no insight into the cause of his condition.

He walked limply with the aid of two sticks. There were paresis and hypoalgesia of the left arm and leg. The reflexes were bilaterally equal and not exaggerated. Sugar tolerance was diminished. Hunt and Pembrey's exercise tolerance test showed him only 40 per cent fit.

From being very inactive and listless, he began to move about readily, but still complained of fatigue after exercise. He realised to some extent the relation of his mental difficulties to the onset of his symptoms. The question of discharge from hospital elicited symptoms of a relapse, but finally all his complaints disappeared, with the exception of fatiguability, which he protested was still present in a minor degree.

From the history it will be seen that his symptoms, of which "fatigue" was the most prominently dramatised, developed in response to a difficult situation, dislike for his wife, her unwanted pregnancy and his own financial indebtedness. They provided a temporary escape from his home environment. His reluctance to go back was shown by the recurrence of symptoms when the question of his discharge from hospital came up.

These are simple cases, selected because they are typical. What strikes the physician in them is that the fatigue-syndrome, difficult to understand in itself, since none of the patients showed any sufficient physical abnormality, is not something existing in isolated fashion, but is a phase arising directly out of the complicated situations—the strivings, ambitions, wishes, and the obstacles to their fulfilment—in which each patient found himself.

Fatigue and allied complaints may in our experience be the expression of one of several types of emotional perturbation. They may be the simple result of conscious mental conflicts. If the conflicts persist, the symptoms also persist, and in the manner suggested by Dejerine the latter may come to be autonomous, the patient observing them and dwelling upon them and shifting this preoccupation from the original problem to his physical health. Or fatigue may be the expression of some less conscious difficulties. It is then often a conversion phenomenon and really a hysterical symptom. Again, affective depression is commonly accompanied by fatigue; not uncommonly it is the fatigue rather than the depression of which the patient complains; or fatigue may wholly replace

depression and is then a symptomatic equivalent of the latter. Finally, fatigue symptoms may arise in the course of any psychosis, *e.g.* schizophrenia, as the result of the psychotic conflicts.

In some patients there were also physical morbific agents at work, but seldom (never in our experience) alone. In most, some minor physical disturbances of a functional (*i.e.* non-structural) kind can be found. In 25 cases physically examined in some detail, we found that the weakness and irritability which present themselves clinically are accompanied by functional weakness and irritability in the various organic systems—in the vago-sympathetic (if unusual irritability to drugs is a criterion); in the cardio-vascular system, as shown by the diminished cardiac reserve and the lability of the pulse-rate; in the anomalies of general and carbohydrate metabolism and in the respiratory irritability and low vital capacity. The majority of these physical disturbances it would be more logical to regard as standing in the relation of effect, rather than of cause, to the mental perturbation described above. In other words these physical changes and the subjective complaints are respectively the signs and the symptoms of persistent emotional conflict. Psychogenic fatigue symptoms must be differentiated from the clinically similar conditions sometimes following severe physical illness.

Treatment.—It will be clear from what has been said that the method of election for the treatment of neurasthenia is psychotherapy. The type of psychotherapy does not differ essentially from that used in the other psychoneuroses, to be described below. Psychotherapy is frequently sufficient alone. Since there are physical malfunctions of a secondary type, it is permissible to use rest in appropriate cases, graduated exercise to increase exercise tolerance (as for D.A.H. cases in the War) and to increase sugar tolerance, and hydrotherapy to help the vasomotor tone. A traditional method of treatment by the administration of phosphates had fallen into disrepute because of its apparently faulty rationale; but, like a number of other empirical methods, it has now been shown to have a sound basis. German soldiers during the War of 1914–18 were found to have their power of muscular endurance increased by the administration of phosphates. Phosphate is incorporated in muscle as a glucose-phosphate, and the working time of muscle prolonged.

But in all patients sufficiently intelligent and willing to undergo psychotherapy, it must be made clear to the patient that physical measures are mere adjuncts, and that the re-

adjustment of the mental attitude is the essential condition of recovery.

Anxiety States

These are the commonest of all the psychoneuroses and fortunately the most responsive to treatment. Freud distinguishes two principal varieties, "anxiety neurosis" and "anxiety hysteria", as has already been shown. The first variety is very uncommon in pure form; in fact, we have never been satisfied that such a condition exists in uncomplicated fashion; the vast majority of cases on closer examination will be found to belong to the second group. As an episode in other types of mental illness, psychoneurotic and psychotic, anxiety attacks are not uncommon.

Examples of Freud's second group are very frequent, and we would designate them "anxiety states" because the group comprises nearly all cases of morbid anxiety and because the term "anxiety hysteria" is confusing and incorrect, even on Freud's own showing. It is incorrect theoretically, if "hysteria" is to be restricted to patients showing a "capacity for conversion of psychic excitation into bodily innervation"; and practically, because one of the clinically striking points in hysterics is their lack of conscious fear—their "belle indifférence".

The somatic symptoms of an anxiety state may involve any one or all of the bodily systems. Palpitation, breathlessness, lack of appetite, flatulence, fullness in the stomach, water-brash, constipation, diarrhœa, frequency of micturition, seminal emissions, twitching of muscles, weakness of limbs, tremors, pains and other paræsthesiæ, blurring of vision, tinnitus and general fatiguability were the commonest symptoms in thirty successive patients we have seen lately. The mental symptoms were fears of all kinds—of insanity and bodily illness especially—and, secondary to these fears, lack of concentration, inability to do things, depression, irritability and excitability. To the fears of the many kinds of objects to which anxiety may attach, Greek and Latin names were formerly assigned, as agoraphobia, claustrophobia, ærophobia and so on. This gave the impression (which indeed existed in some minds) that it was a question of a large number of different diseases. They are, of course, not different, being one and all simply anxiety states, but with the external focus of the anxiety varying according to the individual sufferer's history. Not uncommonly one finds that the phobia is a fear of a recurrence of an attack of anxiety with pronounced somatic

symptoms which have once previously occurred, for example, in a crowd ("agoraphobia") or in a railway compartment ("claustrophobia").

A very similar syndrome may appear with no discoverable psychological cause, and subside spontaneously. They are probably depressions with symptoms of anxiety cloaking a depression.

Ætiology.—According to Freud, the basis of "anxiety neuroses" is always in the sexual life, and always in the present. In the latter respect they differ (he says) from hysteric and obsessive-compulsive states, which were supposed to require repressed sexual phantasies in very early childhood for their foundation. Morbid anxiety is said to depend on a discrepancy between sexual excitation and sexual satisfaction. The latter is insufficient and the "surplus excitation" diffuses itself throughout the body as symptoms like palpitation and tremors, while some of it finds mental expression in fears, which may remain vague, or become attached to some idea. Cases of this simple type are rare, but some instances of vague aches and pains and ill-defined fears, especially in married women, may be of this kind (when coitus interruptus has been practised or for some reason the woman does not get physical satisfaction).

It may be said of anxiety states in general that their origin may be found in all the types of conflict of individual needs with reality, and not simply of sexual needs. Freud would say that excessive anxiety (anxiety hysteria), even when attributed to obviously reasonable objects of concern such as business difficulties, would not arise in the absence of faulty organisation of the libido, so that the latter has remained partially attached to an infantile and incestuous object-choice, with the result that, when conflict takes place, libidinal regression occurs in the infantile direction, which is still a forbidden one, so that anxiety arises. But clinical observation shows clearly that when anxiety arises from any conflict it diffuses itself generally throughout the mind, that if this conflict is not squarely faced, in the course of its diffusion the anxiety becomes concentrated again in a manner determined by the individual's mental history to some special topic in itself apparently of indifferent emotional value, and that a state of morbid anxiety results. And this occurs whether the original cause of the anxiety was of a financial, domestic or sexual kind. At the same time it would often be possible in individual instances to trace the psychic connections between the patient's reaction to circumstances and the historical organisation of the personality, in terms of the libido theory. This is,

however, not a necessary exercise in a large number of cases, which can be rendered symptom-free on the basis of an understanding along the lines described here.

In the genesis of an anxiety state there are usually to be found some or all of the following factors. There is very commonly a morbid heredity (see p. 150). Frequently also there is what in its effects may be mistaken for heredity, namely, a morbid family environment such as may be produced by maternal anxiety. The type of personality in which a full-blown anxiety state supervenes is often an emotionally unstable one, given to worrying; in fact the psychoneurosis is often to be regarded as the culmination of a long series of anxious reactions. These are the predisposing factors. The immediate factors include any source of dissatisfaction, whether financial, business, domestic, sexual or some other. Exposure to some overwhelming, and usually sudden, external stress, for example a terrifying experience, can produce an anxiety syndrome in the absence of conflict especially in people of anxious or timid temperament, but if the experience is severe enough, in almost any one. The condition subsides spontaneously with the passage of time, but often not completely (see "Traumatic Neuroses", p. 194).

The *symptomatic form* of anxiety states is determined as to the bodily symptoms by the influence of emotional perturbation on the functioning of the organs. The immediate factors mentioned are such as to produce, in the course of rumination over them, emotional disturbances which of course have the usual physical accompaniments. Displacement of affect occurs as already explained. The displacement has the result of enabling the patient to escape from the contemplation of a material difficulty, and to turn instead to something where he need not feel that he has a responsibility and which may give him not only an excuse for shelving his concrete problems but some sympathy as well. These motives are not conscious, any more than the motives by which we are usually actuated are clearly conscious. It should be noted that displacement of this type does not necessarily involve repression in the Freudian sense of repression into the unconscious. The original difficulties may remain in consciousness. The emphasis is changed, that is all.

When the fear is not of impending bodily disease, but is attached to some idea of another kind, one of two conditions exists: either the fear is of the recurrence of an attack of physical symptoms, or displacement of the anxiety has taken place in the mental sphere without bodily reference.

That a patient who superficially bears the marks of an anxiety neurosis in the limited Freudian sense may on closer examination be discovered to be suffering from an anxiety state dependent on many factors, and not only on sexual ones, was apparent in the case of :

CASE 3.—A man of 39 who complained that he had fear of open spaces, of large rooms and of meeting people. The reason he gave was that such situations produced "panics" in which he felt giddy, trembled, had curious sensations in his legs and saw everything as if through a mist. The panic lasted sometimes for many minutes, and in the intervals he was more or less always apprehensive of them. He had been subject to occasional panics in open spaces or large buildings since later childhood, but this had not interfered with his work until four months before he came for advice. They had increased in frequency until he was entirely disabled. The first panic of any kind had occurred in a schoolroom when he was 11 years of age, when there was an epidemic of mumps in the school and the patient feared he might be infected. Suddenly he felt a lump in his throat, and wondered if it meant mumps. A schoolmate said, "You look pale—are you ill?" and the patient promptly became very much afraid and had a panic similar in all respects to those from which he suffered in later life. The patient was a married man, with one child. For some years he had suffered from premature ejaculations and his wife in the last eighteen months had seemed very cold towards him. He had a feeling of guilt with regard to her, because he had flirted a good deal about a year ago. He had a recurring dream of missing a train, sometimes accompanied by an emission. In addition to this, he gave in response to inquiry the information that he was in business or partnership with his father-in-law. Business had not been going well for two years past. He was in some awe of his father-in-law, feeling that he was inferior to him, and was afraid to discuss business with him. Another relative was in the same business and the patient did not get on well with her. His financial affairs were in a serious muddle. Speaking of his family and financial affairs, and not the specifically sexual ones, he said—"I never talked to any one like this before. . . . They were subconscious. . . . I had always shelved these things." He gradually lost all his fears, except that of open spaces; dissolved partnership; went to work elsewhere; was divorced, and married again.

It is sufficiently clear that to have confined the investigation and the ætiological responsibility to the unsatisfactory nature of his marital relations would have been to blind oneself to the majority of the causative factors, and so to repeat the error made by the patient himself.

That general problems—for example, of business—may be an adequate cause of an anxiety state by displacement or at least by diffusion of affect was well shown in a commercial traveller who had suffered some deafness from middle ear disease since childhood, but who did not seek advice till he was 41, when he complained of tinnitus and inquired anxiously what was wrong. It transpired that his business had recently failed, that his partner had been committed to prison for fraud, that his new employers were expecting him to produce more than twice the financial result he could hope to obtain and that he had a wife and family to support. Reassurance about his tinnitus, and discussion and advice on his difficulties, gained the patient's confidence and he thereafter confined his anxiety to his business and to ordinary dimensions.

CASE 4.—A similar example is furnished by an Italian girl of 19, the eldest of a family of five, who complained of insomnia and fainting attacks. She explained that she was afraid to sleep because when she was about to fall asleep at night a feeling of faintness would occur in the epigastrium, she would "lose consciousness for a few seconds", and on recovery felt nauseated. These attacks had begun nine months previously. She feared that her heart was affected. It transpired that the patient had heard that her mother and her grandmother had "heart-attacks" and she had surmised that they were hereditary. She had been working fifteen hours a day and been getting only four hours' sleep per night in consequence. Financial circumstances at home were straitened, and there were other domestic difficulties. After one interview with physical examination and reassurance, and medinal on four successive nights, the patient was well and has remained so.

The localisation of the chief symptoms in this case was in part determined by the patient's inference from what she had heard, while in the previous patient the determinant of the locus of the symptom (middle ear) was an actual physical disease.

A good example of a condition in which physical symptoms were very prominent, and were emphasised by the patient to the exclusion of any reference to the anxiety that produced them, was furnished by

CASE 5.—A married man of 47, who complained especially of attacks of diarrhœa in trains, of sweating of feet and hands, of dizziness, tremblings, irritability, insomnia and poor memory. He was a conscientious, hard-working man of artisan stock who had worked his way up to a position of responsibility in a large

business. Most of his symptoms had begun three months before, when he was transferred by his employers from an indoor to an outdoor job, another employé being discharged to make room for him. The latter had been in the business for thirty years, and the patient felt very "heavy and miserable" at usurping this man's position. The new post involved much travelling by train, and the patient began to suffer from diarrhœa from the very start of his train-journeying. He became so weak that after ten days he had to stay at home, where he remained till he entered hospital, after "convalescence" at the seaside had failed.

Investigations showed that some of the symptoms—insomnia and irritability—had existed for some time before the diarrhœa began, that he had attributed them to overwork and had actually resigned from his previous (indoor) post. His resignation had not been accepted, but he was hurt nevertheless at the small amount of attention that was paid to him. Further, he divulged that he had been afraid of supersession by his employer's son, who was coming to years of discretion. His fear was to some extent justified, for his removal to an outdoor traveller's position, although ostensibly for his health, was carried out to allow of his former post being taken by his young rival. He was a quiet, unaggressive man, who disliked a traveller's work intensely and embarked on it with great reluctance. It seemed likely that much of his regret for the dismissal of the other employé was a reflection of his feeling about his own supersession. The connection between his mental perturbations and his symptoms was pointed out. He accepted the explanation willingly and his symptoms ceased with dramatic rapidity, and did not recur. He said that he now felt confident, and that he never had understood his symptoms previously, having thought he had some physical disease.

The foregoing patient illustrates several points. The diffusion of affect from his own plight to that of his fellow-employé, showing itself as an unusual degree of regret, is an example of "displacement". The bodily symptoms were all those that are associated with fear; and he had a fear of his new job, plus a reluctance to leave his old one. He was also jealous—although he would not permit himself to feel it—of his employer's son, and he had a grievance towards his employers for their apparent lack of commiseration. His symptoms could be viewed as (1) the result of his fear, (2) a protest against leaving his former post, (3) retaliation against his employers, since he as a matter of fact proved their most efficient traveller, in spite of his handicaps, and his incapacity through illness penalised them financially. This threefold origin is a good example of "overdetermination"

as Freud has called it. The kind of process seen in this patient is one that is not uncommon in everyday life, perhaps especially in children and young persons. There is a grievance : the child is sorry for himself, he finds an ache or a pain easily enough, and he complains about it, either for sympathy or as an excuse from duty or for both. The process is not far removed from full consciousness. In the above case it was so near full consciousness that the patient quickly saw the explanations that were put to him, and laughingly, but a little shamefacedly, admitted their truth.

It has been said that the hysteric is suggestible above all others. But few persons are more suggestible than those who are anxious from any cause. For this reason the medical handling of anxious patients is a delicate matter. The slightest hint of uncertainty in dealing with them, and they lose faith, become despondent and develop further symptoms. If this can happen when a professed psychotherapeutist is dealing with a patient, how much oftener must it occur in practice in general ? Too often we find that in the causation of a psychoneurotic illness there has entered a very large element of " iatrogeny ". It is not very rare to find a patient who has remained bedridden simply because a doctor sent him to bed and murmured words like " neurasthenia " and " toxæmia " over him. In the days of the Weir Mitchell treatment by complete rest, the " recovered " patient not uncommonly remained for years fatigued on the slightest exertion. The patient about to be described was a good example of an anxiety state to which, it is true, there was much predisposition, but which was precipitated and fixed by misinterpretation and an unfortunate opinion.

Case 6.—He was a single man, æt. 32. What struck one immediately at an interview was the curious cut of his jacket—it had " Raglan " sleeves, *i.e.* with seams in the line of the arm, instead of the usual sleeves with a circular seam at the top. He confessed with some reluctance that he had been trying to get a suitable jacket made for years, as any pressure on his body, by a jacket or even a hat, produced a feeling of precordial pressure and pain, palpitation and diarrhœa. These were his principal symptoms, from which he had suffered for six years or more. He said that eight years previously he had had syphilis, diagnosed as such by two doctors, who scoffed when he denied having incurred the risk in any way whatsoever. . The " syphilis " was contracted in a manner into which the doctors he consulted did not trouble to inquire. A penile sore had appeared at a time when he was living with his brother and another man. This

other man had " scabies " and had worn an undervest belonging to the patient's brother. The brother is said to have developed a sore similar to the patient's at the same time. Treatment by mercury and salvarsan injections was begun at once, and the patient's sore disappeared in two days from the time of its first appearance. A blood Wassermann was negative on the first occasion of testing, but after two weeks, when the mercury was stopped, it was reported positive. Subsequently t was returned as negative, but the patient clung to his belief in the positive reaction until he came under psychotherapeutic treatment years later. The immediate effect of the positive report was that he resumed mercury in large doses and broke off his engagement to be married. Very soon afterwards he had a severe attack of palpitation at night. From that time on he believed that his heart was weak, and restricted his activities. A doctor whom he consulted diagnosed " indigestion ", and the patient went on a milk diet. Much later, as he felt weak, he put himself on a high meat diet. But another " heart attack " followed—palpitation with trembling. He concluded that " the system had become thoroughly poisoned with the after-effects of syphilis ". Ever since he " contracted syphilis " he had been " unhappy ", always expecting some development ; for example, he repeatedly examined his head in the mirror (he had a particularly luxuriant crop of hair) for signs of baldness. Palpitation would now occur on walking a hundred yards and would pass off on walking farther, but a sense of weakness always followed. One day " something seemed to go snap " in his head, and he concluded that he had burst a blood-vessel. Always after that he had a cold feeling in the left side of his head, and he found he could not wear a hat which pressed on that region, because this seemed to produce " weakness in the head " and diarrhœa. At first he could not understand the diarrhœa, but soon he adduced the explanation of the pressure of the hat. He attributed the diarrhœa also to pressure on his precordial region, which was " very sensitive after an attack of palpitation, so that the lightest contact in this region seemed to affect his bowels ". He proceeded to cut a precordial window in his undervest, but then he found the pressure of his jacket too great, and consequently had it remodelled. When he first came under care he had all these symptoms and others as well, less emphasised. He could not walk for five minutes without exhaustion.

Treatment consisted in a careful exploration of the history taken in detail. The details of his " syphilitic " infection when properly sifted were so improbable that he was willing to admit a possible doubt. Another negative Wassermann he held to be of little significance, saying that he might be suffering now from a " delayed constitutional effect of syphilis ". The influence of fear (*e.g.* of disease) in producing diarrhœa, etc., was explained

to him and the discrepancies in his heart-disease theory (after thorough physical examination) were pointed out. He was of more than ordinary intelligence, and he soon laughed rather shamefacedly at his theories of production of palpitation. He sent home for a jacket of ordinary cut, and donned it with the thought " I'll show the doctor he's wrong "—and was astonished to find that, for the first time for years, no diarrhœa followed the experiment. Within a week this man, who had been afraid to walk a hundred yards, would bat at the nets almost continuously for three hours—he had been an enthusiastic cricketer. His first essay at cricket he made in the hope that it would produce symptoms and so demonstrate that his physician was wrong: but no palpitation or exhaustion appeared. He recovered.

The case is given in some detail (but not nearly in full) because it shows some characteristics of the thinking of a person in an anxiety state. The anxiety piles inference upon inference: it rules out all evidence that would clearly contradict the anxious conclusions; and obvious logical discrepancies are disregarded. Supposedly provocative circumstances are carefully avoided, till the patient dare hardly move, and his interests and activity are almost nil.

Treatment of Anxiety States.—Two preliminaries are essential —the taking of a careful chronological history, and a physical examination as complete as possible. As so often the fears are of physical disease, it is necessary that the physician should be able to reassure the patient on this point with confidence. We have already remarked that hesitation on this point may be fatal to one's ability to help the patient. But reassurance of this kind is only a preliminary. It then remains to exhibit to the patient the reason for his symptoms. They are real symptoms —the patient at this stage commonly jumps to the conclusion that the physician believes them to be " imaginary "—and they have causes. If the patient remains in ignorance of the causes, the latter will continue to produce effects which will be likely to be mistaken again for symptoms of disease, in spite of previous reassurances. This latter is common in anxiety states that have not been thoroughly treated, and it also furnishes most of the relapses which are so common in these patients. The mere habit of anxiety may, of course, succeed in producing symptoms for some little time after the psychological explanation of their cause has been accepted by the patient. There is incidentally a difference between the demonstration of a cause and the patient's acceptance of a causal explanation. There is often some

reluctance to accept it ("resistance"), which is not surprising since an anxiety state, like all psychoneuroses, is an intensely personal affair and is usually in some sense a defence against unpleasant truth. For example, in the last patient quoted there had existed for a long time previously a profound dissatisfaction with his career and prospects.

In taking a history, it is a good rule to accept almost nothing that seems important at its face value. In the last patient uncriticised acceptance of his statement about his syphilitic infection had misled several physicians (including an eminent neurologist, who said he was suffering from the "tail-end of syphilis"). The same rule applies to statements that the patient had "influenza". Careful inquiry will often reveal that there was no pyrexia and nothing but vague symptoms. Influenza is a convenient label frequently attached by the harassed physician pressed to give a name to some vague symptoms, especially during an epidemic of influenza—a time when anxious people are apt to focus their anxiety on a possible attack and to develop symptoms in anticipation.

The history being obtained in detail, not only of the illness but of the patient's life generally, it is now the task of the physician in collaboration with the patient to collate the chronological development of the symptoms with the events of his life, or more strictly with the mental events which have accompanied them. It is best to take the most prominent symptoms, and to take the patient back over his mental history to their first development. Then he is asked to recall as far as possible all that happened at that time, and what his thoughts were about the events and about himself. If he cannot reconstruct sufficiently what was going on in response to ordinary questions, or preferably as a narrative in response to a vague general question, the method of free association may be tried. It is not, however, a method that works well with many patients.

By this time the chronological relation of most of the symptoms, their setting in the beginning and the relation of their first onset and their recurrences to events in the patient's life and to his phantasies (ambitions, reflections upon events), will be fairly clear to the physician. They will also have begun to be clear to the patient. Often at first he will deny that anything occurred at the time of onset of a given symptom. He will assure his doctor that nothing whatever took place at that time. But often a little later he will remember and will communicate what he has recollected—fragmentarily at first,

more fully later. This will often occur without pressure, the original question having set a train of thoughts going. For example, a woman of 35 complained that she had suffered from abdominal symptoms (nausea and discomfort) since she was 19. She at first denied altogether that anything had happened at that time. Two days later, without further reference to the subject in the meantime, she volunteered that she had been disgusted at that age by an assault from a very ugly man. Another patient who had recurrent attacks of trembling (at first associated with being called up for service in the War years) had an attack in November 1923, which had lasted till he came under observation, and had disabled him from work. He at first denied that anything whatever had occurred in November 1923 ; but finally, in response to a general question, and after much reflection, saying he knew of nothing important at that time, he said—" Why, I got married then ! " He saw the point, and laughed. His tremors disappeared, and he returned to work.

Before going on to explain the origin of his neurotic symptoms to the patient, it is well to discover what are his views and theories about them. Usually he has them defined to some extent, and the longer he has been ill the better defined and elaborated they are. It is also useful to know what he has been taught by other doctors, so that one may not be unsuspectingly led into the position of contradicting another man's opinion. The other physician may be at least in the patient's eyes a greater authority than you are : in which case, unless you are forearmed, your dicta may not avail much if they should chance to be in opposition to his. These views are commonly of a physical type, and more acceptable to the patient's ego-ideal. If they are discovered beforehand, they can be dealt with much more effectively, and not necessarily tactlessly. For example, a patient who was " exhausted " had had it explained to him by an eminent physician that his nervous system had energy enough for ordinary efforts, but for extraordinary ones it had to draw on a reservoir. This reservoir was declared to be depleted by the War, which had ended (by this time) eight years before. Further, although he was always exhausted, he admitted only ordinary efforts in these eight years. He had also been told that when a cat was put in a cage with a dog the fright caused structural change, and that similar structural change had occurred in him as the result of War experiences. Thorough physical examination had revealed nothing—*i.e.* no structural change ; but he had not seen the contradiction.

An explanation of the bodily effects of emotional disturbances can now be given; and the patient can often be shown, as has been pointed out above, how his symptoms arose at a time of emotional stress. In this way, instead of being told that there is no reason for his symptoms (which would be an incomprehensible mystery) he can be led to see that there was a reason, but of a kind different from what he had believed. Incidentally, he obtains an insight into the previously unsuspected influence of events on his mind and feelings. Where the fears are not primarily of bodily disorders, but of crowded places, etc., it will often be found from a few inquiries on the point that what the patient is really afraid of is a recurrence of an anxiety attack. The nature of anxiety attacks has to be explained and their ætiological relationship has to be shown in the same way as before. The more the patient can be allowed gradually to see things for himself, and the less direct explanation given to him in consequence, the better and the quicker in the long run.

It is desirable to survey the patient as widely as possible, and to regard the symptoms as arising not usually as an isolated response to one factor but as part of a wide problem of adaptation. Any mental unrest forms a fertile soil for the development of neurotic reactions. There is often traceable a precipitating cause; but there is always a predisposing situation in the patient's mind, of which he may be very vaguely aware (cf. Case 1 above). Where adjustments can be made in the domestic circumstances, or in the conditions of work, and where such adjustments are justifiable, the circumstances and conditions being positively morbid or disadvantageous, the physician derives much indirect therapeutic aid from whatever changes in this direction he is able to effect. Where the reactions to symptoms are not accounted for satisfactorily in terms of external situations, and where consequently they appear to be mainly endogenous, the investigation has to be carried further back into the early formative influences, internal and external, of the patient's personality—his relation to parents, brothers and sisters and companions, his reaction to dangers, real or imaginary, and to sexual experiences, his ideals (security, etc.), aims, religious attitude, and the like. Something of this kind is desirable in practically every case. How far to go in this exploration depends upon the requirements of the particular patient. Dreams are often useful, both for suggesting topics for investigation, and especially for throwing light on unconscious factors; but interpretations have to be very carefully based upon the patient's

associations and not the physician's, and the time for unveiling them has to be carefully chosen. Such an exploration as this will concern itself ultimately with unconscious factors, the technique for the discovery of which is almost entirely owed to Freud, whose methods of dream interpretation, free association, and transference analysis have proved much superior to the hypnotic methods, the word association method of Jung and the methods of automatic writing, etc. as depicted mainly by Morton Prince. These methods are described in various books and for the detailed technique of psychoanalysis the reader should consult them. The fundamental unconscious factor in anxiety psychoneuroses (anxiety hysterias) according to Freudian theory, is an unresolved Œdipus complex. It should be added that what is feared is not the Œdipus situation itself, but its imagined consequences—loss of love of one of the parents, or actual castration. The latter is a frequent, the Freudians say universal, theme in the unconscious. In our experience, faulty concepts of the self in relation to the external world are often of much importance.

The foregoing account of treatment follows fairly closely the principles described by Ross in the "Common Neuroses".

Hysteria

Hysteria includes a number of reactions of a type which is distinctive both clinically and psychopathologically. Hysteria has a relationship with anxiety states in that an anxiety state may in certain circumstances replace hysteria in a given patient, and a case may begin as an anxiety state and end as a hysteria. But these are not usual transitions. On the whole, in any one patient the type of reaction tends to remain pure. It is important to distinguish between anxiety in the sense of mental conflict and its accompanying distress, which is a normal reaction, and an anxiety state which is a clinical syndrome, is abnormal and has already been defined. In the former sense hysteria always begins with anxiety.

Clinically the characteristic features of hysteria are:

1. A physical manifestation (a sign or symptom or a group of such) without structural lesion and

2. A calm mental attitude—the "belle indifférence" of Janet.

3. Episodic mental states, in which a more or less limited but homogeneous group of functions occupies the field of consciousness, often to the complete exclusion of the usual contents of consciousness.

These last are the fugues, somnambulisms, dream-states and hypnotic states in which a greater or smaller part of the personality takes command and dictates the general behaviour, the rest of the normal personality becoming apparently incapable of consciousness for the time being and having no influence on conduct. In these conditions, as with the more common syndrome first mentioned, is exhibited the fundamental psychic "structure" of hysteria—a dissociation or splitting of the personality, affecting either the mental or the bodily functions. More strictly it should be said in regard to the latter that the dissociation affects the mental representation of these bodily functions. The implicit meaning of the word "dissociation" is not sufficient as a description of what occurs. There is independence of function as well as an isolation of it from the other functions, so that the dissociated function is capable of activity independent of the others. The dissociated functions may operate side by side with normal consciousness—for example, a post-hypnotic automatism with full normal consciousness. In other cases a function operates which has been dissociated at the expense of the complete loss of the others—for example, in instances of double personality, when one of the personalities is in possession of the field of consciousness and of behaviour, and the other is completely passive.

It should be observed that in hysteria the dissociation never involves incongruities as it does in schizophrenia. Thus in the case of double personality each of the mentally dissociated personalities is in itself a homogeneous whole—affect and thought-content are in harmony and there is no disorder of thought itself. It is usual to say that in schizophrenia the "splitting" of the personality is molecular or fragmentary, while in hysteria it is molar or massive. But it would be more nearly true to say that in hysteria, whatever the result of dissociation, whether the very localised one of a muscular paralysis, or the general one of multiple personality, the splitting is seldom into more than two parts and each split-off part is a unity.

Psychopathology

The theories of Janet regarding "restriction of the field of consciousness" have already been considered. They give a very apt description and theoretical formulation of hysteria as an established condition; but except that the hysterical dissociation is said to occur at moments of great emotion, Janet's

hypothesis does not offer an explanation of what brings the dissociation to pass. Freud supplies this deficiency. According to him, the hysterical symptom is the result of a conflict between the super-ego and some " wish " not palatable to the super-ego, which the latter represses. The repression, however, is only partially successful; the wish, although repressed into the unconscious, succeeds in obtaining a disguised expression by " conversion " into the symptom (which is therefore in a sense a symbol). Freud used to believe, however, that a necessary condition for the development of hysteria is a sexual trauma (real or phantastic) in early childhood. This trauma has undergone repression, and the repression only fails in later life when some contemporary event reactivates by association the memory of the trauma. Sexual trauma is no longer a *sine qua non*. Fixation and regression is sufficient—an infantile type of (forbidden) love-object is again sought out, or, in other words, a repressed Œdipus-complex dating from early childhood is the necessary condition for the development of hysteria in adult life. The memory and the wish are alike sexual. The localisation of the physical sign or symptom is determined by various factors —especially the appropriateness of the particular sign or symptom to symbolise the repressed wish, but also by accidental factors such as previous physical disability, *e.g.* a wound.

The Freudian explanation can hardly be accepted as having universal validity; it is probably true for only a proportion of hysterias. It is impossible, for example, to see anything sexual in the ætiology of hysteria occurring in the soldier on the field of battle (although Freudians have a hypothesis on this subject conforming with the libido theory), or in peace time as the result of injury involving questions of compensation.

Rivers put forward a general biological hypothesis, which regarded hysterical symptoms as the expression of a phylogenetically ancient instinctive reaction (usually that of immobility) which was substituted for higher active forms of reaction to danger.

These theories have this in common, that they are narrow and insufficiently elastic. Hysteria is more than a symptom or a collection of symptoms. It is a special type of reaction to difficulties, which seems to occur chiefly or entirely in persons predisposed partly by inherited factors, and partly by their personality and by environmental conditions such as home and scholastic training. The essential characteristic of the clinical picture in all its manifestations is the dissociation (splitting off

and independence) of the mental representation of one or more functions. The possibility of such dissociation lies in the predispositions already mentioned. Its actual occurrence depends on the problems which the individual encounters in his way through life. The symptom is symbolic in the sense that it has a meaning for the patient. This meaning is eventually purposive, the symptom being a solution, however unsatisfactory, of some problem of everyday adaptation. The patient is unaware of the real meaning. If he thinks about it at all, he believes the symptoms mean simply an illness in the ordinary sense. From these two facts—that the symptom is a solution of a problem, and that it is misinterpreted by the patient's consciousness—arises the patient's "belle indifférence". The onset of the symptom may not always involve repression, but only a mental conflict without repression. The conflict leads to emotion and its physical manifestations. These are misinterpreted as the outcome of physical disease, and physical disease suggests disability of the part affected. Suggestion operates powerfully where there is mental conflict, and as the suggestion of disease is in harmony with one side of the conflict—the desire to escape—the suggestion is accepted and the symptom results. There is a gain of mental composure, since the conflict is solved, but at the expense of part of the personality, since suggestion operates primarily at the mental level, and can isolate a function only at that level. The actual problem may remain in the patient's mind; but it is no longer acute, since the symptom has provided a solution of an indirect kind. But the connection between the problem and the symptom is not seen by the patient. The connection cannot so much be said to be repressed as to be neglected. Only in some such way as this can it be explained that in many a psychological analysis of hysteria nothing that was not conscious before—although it may not have been clearly defined, or alluded to—may be brought out, and yet the symptoms disappear as their causations and connections are exhibited.

Where repression does occur, the same processes will serve to explain the occurrence of symptoms. For the production of symptoms at all means a partial failure of repression: if repression has partly failed, conflict conscious or unconscious exists, and conflict is the condition that led to the formation of symptoms in the way already set forth. These theories hold for the physical symptoms of hysteria.

With the mental symptoms of hysteria a similar process

occurs. In hysterical amnesia, for example, there has been a period of conflict; then emotional preoccupation prevents the subject's noticing events in the ordinary way, consequently the memory of them, when the conflict has died down (they are registered marginally), is vague; vagueness of memory suggests complete failure of it, the patient does not wish to remember in any case—again the emotional symptom coincides with the wish—we accept what we wish to believe, and so does the hysterical patient—and an amnesia results.

An exactly similar process will account for fugues—the patient starts out on his fugue simply with a consciousness whose clearness is disturbed by emotional conflict, and ends with an amnesia. In a fugue there need not be repression at the beginning—the amnesia is an end-product. Where a fugue-habit has once been established, however, dissociation appears to occur at the beginning of each fugue.

General Ætiology

The hereditary relations of hysteria are said to be chiefly with schizophrenia, epilepsy and psychopathic states. Alcohol and tuberculosis in the ancestry have been considered to be contributory factors.

The personality in hysteria is frequently an unusual one, apart from the tendency to dissociation. The hysterical patient is often emotional, shy and reserved, even a little "peculiar". There has been described an "hysterical personality". This consists of a lifelong theatricality of behaviour and a desire to impress and gain sympathy, a contrast between actual shallowness of the feelings and the intensity of the expression of them, a contrary contrast of external shyness and intense erotic interest, a lack of persistence of emotion and of effort, and much compensatory day-dreaming. Hysterical symptoms are not uncommon in mental defectives and in moral defectives. Hysteria has also occurred in the course of psychotic illnesses, but not commonly. We have, for example, seen aphonia in the course of a schizophrenic psychosis, and stuttering in a psychotic depression.

It has been said that environmental factors in the way of training and education are of importance in determining the hysterical form of a psychoneurosis (Rivers, MacCurdy). A training in implicit obedience, such as occurs in soldiers, is said to heighten suggestibility to an extent that makes hysterical symptoms easily produced; while lack of education makes

possible gross signs, such as a paraplegia, the arbitrary appearance of which an educated mind would not tolerate.

Symptoms and Signs

Hysterical signs and symptoms have certain general characteristics. Taking those with a physical reference first, it may be said almost universally that there are no physical signs or symptoms in hysteria that could not be produced in the beginning either by volition or by emotion, although they could be so sustained only for a short time. Long-standing contractures, for example, which may persist during sleep and anæsthesia, require some additional explanation to account for their continuance. It can also be said that the physical aspects of hysteria correspond strikingly with the usual concepts of disease entertained by the lay mind. Thus a paralysis is always of an entire limb or of a movement, and never of an individual muscle; a tic is always a co-ordinated movement of synergic muscles, never a chaotic movement of muscles not functionally associated; and an anæsthesia does not follow a segmental or peripheral nerve-distribution, but is of the "glove" or "stocking" variety. Hysterical symptoms in general are readily produced and removed by suggestion in the waking state or in hypnosis.

Hurst showed that if a group of normal medical students in the pre-clinical years were asked to suppose that they had suffered from some bodily injury, the signs and symptoms they developed upon suggestive questioning had the characteristics of hysterical symptoms above described.

Physical Symptoms.—They may be conveniently considered as motor, sensory, trophic and visceral.

The **motor symptoms** include paralysis with or without contracture, tics, tremors, involving any moving part, for example, the limbs, or speech, the latter as mutism and aphonia. If paresis exists, it may affect the proximal muscles of a limb more than the distal ones, which is the reverse of what commonly happens in organic paralysis. When asked to make the movement that is paralysed, the patient only succeeds in producing a spasm of the antagonistic muscles. Thus an artisan of 63 when asked to walk faster (his right leg had a hysterical paresis) threw his body into such strenuous jerkings that he was very breathless in two minutes and perspired freely. There is no reaction of degeneration in hysterically paralysed muscles. The reflexes are not grossly disturbed; but they may be much

increased in amplitude. Not infrequently one notices a certain amount of what seems like voluntary exaggeration—the patient either jerks his limb before it is struck, or he jerks it again immediately after the true tendon-jerk has occurred. In hysterical flaccid paralysis the tendon reflexes may be very much diminished, but they are not lost. The plantar reflex is always flexor. If atrophy occurs, it is usually secondary to long disuse. In the War, however, in the so-called " reflex paralysis " rapid atrophy accompanied the vasomotor changes. Hysterical hemiplegia may involve the face on the same side, and often involves speech as well even when left-sided.

Mutism and **aphonia** have to be distinguished from similar conditions resulting from organic disease—(1) by their completeness—every phonated word and sound is lost, (2) the absence of any intellectual disorder, (3) the preservation of the ability to communicate by writing or by signs, (4) the absence of paralysis of the lips and tongue, (5) the vocal cords can be seen to be fully adducted in inspiration. These conditions are not always all present.

Hysterical tremor is usually coarse and often involves the whole limb. It may occur at rest, but commonly only when attention is drawn to it, or when the patient makes a voluntary movement.

Motor **tics** involve a co-ordinated group of muscles. They range from an occasional jerking of a limb to continuous choreiform movements, or to a spasmodic torticollis. Hysterical movements are apt to be more co-ordinated than those of true chorea and to be less varied, involving the repetition of a comparatively few movements. Rapid jerking movements of the head occur, and may be indistinguishable from spasmodic torticollis. Indeed it seems possible that a certain proportion of cases of the latter are hysterical.

A good example of the production of a rhythmical hysterical rotatory movement of the head on the neck of rapid phase occurred in

CASE 7.—A youth of 20 had recently left home after a quarrel with his father. He intensely regretted doing so, and slept badly, but was too proud to communicate with his home. One evening at 9 o'clock while returning from his work to his lodgings, his head suddenly began to jerk violently. It continued to do so, interfering still further with his sleep for three days, during which time he was sent by his employers to consult one of us. At an interview he related his troubles and said hopefully that

he thought his employers would get into touch with his father. They did so, and he recovered on the evening of the day in which he received the news that his father knew of his condition. The recovery took place at exactly the same hour as his symptoms had begun, ninety-six hours previously.

Curious gaits of all kinds are common. The patient may attribute them to " pains in the back ", as well as to loss of power in the lower limbs. Rarely the pupillary reflexes are affected. Janet speaks of a " spasm of accommodation ".

Sensory Symptoms.—Anæsthesias, paræsthesias and hyperæsthesias are common. It has been said that they are produced by suggestion from the physician, but this is certainly not true of all. They are commonly distinguished by their distribution, which is not that of an organic disturbance ; by their variability at successive examinations ; and by their susceptibility to suggestion. In the case of anæsthesias also, the lack of sensation is much more sweeping than in organic lesions, all kinds of sensation being abolished in a given area ; it is also deeper, pain not being felt at all ; and its margin is much more sharply defined—there is no gradual transition to a normal area as in organic lesions.

The susceptibility to suggestion can be shown very easily in certain patients with a hemianæsthesia. This can be transferred to the other side of the body by suggestion in the waking state. In a chronic hysterical patient in whom this was done, the anæsthesia could be very readily transferred from the left to the right side of the body, so that she would tolerate the passing of safety-pins through her skin ; but it had invariably returned to the left side the following morning.

The special senses can be affected also. A concentric diminution of the visual field is not uncommon. If the perimetric examination is continued through 360° a spiral field may be obtained. Amaurosis and amblyopia also occur. There may be a bizarre contradiction in the symptoms—the patient may be able to read a paper and yet may be unable to see to get about. Hysterical blindness is often sudden. For example, it has not infrequently followed a shell-explosion in war. In such a case it is probably the continuation by suggestion (operating at a time of great emotional stress) of a transitory blindness produced by the concussion.

The bilaterally blind hysteric commonly avoids obstacles placed in his path. Hysterical unilateral blindness can be

detected in various ways. For example, pressure on one eye may produce double vision. Specially coloured spectacles to read correspondingly coloured types can also be used for its detection, the patient reading type of a colour which can only be seen by the "blind" eye. Disturbances of vision nearly always are associated with intact pupillary reflexes and intact extra-ocular movements, but the light reflex may actually be lost, to return when the blindness is cured.

It should, however, be remembered that following organic disease, *e.g.* peripheral neuritis, there may be a residual hysterical anæsthesia which closely resembles the organic anæsthesia that has preceded it.

Visceral Symptoms.—Of these **"anorexia nervosa"** is one of the commonest and most interesting. There are at least two varieties, "primary" and "secondary mental anorexia" (Dejerine). The first is the true anorexia nervosa, which has an emotional basis and begins as a voluntary restriction of the diet. Secondary mental anorexia is an anorexia following on successive restriction of the diet as the result of a belief that the stomach is disordered when it is not. Primary anorexia is almost confined to females, usually girls or young women. They reach what is often an extraordinary degree of emaciation, and if not rescued in time may become mere skeletons and succumb to tuberculosis. These cases usually have a simple beginning.

CASE 8.—Thus a girl of 17 had been teased by her school friends because she was putting on weight. She was not at all excessively stout, but her breasts were rather well developed. She thought them conspicuous and was secretly very sensitive about them. She began to restrict her diet and soon lost 2 st. in weight. Her friends became alarmed and she was sent into hospital. She had by this time lost her appetite, but seemed happy and unconcerned. At the first interview, however, she gave a frank account of what had happened. It was explained to her that if she took extra diet she would be allowed to reach her ideal weight, but she was assured that she would not be forced beyond it. She agreed to eat, and after a few weeks her appetite returned. She put on 14 lb. in all and agreed at the end that "she would not be so foolish again".

Another young woman afterwards said, "It was a silly idea to get into my head" (to starve herself), "but I thought I was too fat, and then I couldn't get rid of the idea. I just wouldn't eat." A remarkable feature that these patients sometimes display is their tireless activity in spite of their emaciation. In

some cases the starvation begins as a rebellion against an over-solicitous mother. The refusal of food in all these cases is at first a voluntary effort, but soon there is no desire for food. The gastric function, according to Janet's formulation, has become dissociated. Menstruation ceases, and usually does not return for a considerable time after the weight has become normal. The B.M.R. and the nitrogen metabolism fall in accordance with the diminished food intake. True hysterical anorexia of this type must be distinguished from anorexia as a symptom of other mental disorders, *e.g.* psychotic depression.

Dejerine's secondary type of "mental anorexia" occurs at all ages, in both sexes, and is commonly an anxious rather than an hysterical phenomenon. The patient fears gastric disease, and, often abetted by a physician, selects her diet more and more exactingly, till, like a patient whom Dejerine encountered, she is reduced to a diet of nothing but a solution of sugar in water.

Bulimia (excessive appetite) vomiting, hiccough, fullness or pain in the epigastrium, flatulence and regurgitation also occur as hysterical symptoms. Since the gastric tone is so readily affected by emotions, it is easy to see why stomach functions should so often be deranged in hysteria, and why also stomach symptoms should so readily have a symbolic significance, *e.g.* vomiting may signify a repressed disgust. Hysterical vomiting is very rapid and easy, often occurring just after a meal, without nausea, and after any kind of food.

Respiratory tics also occur—*e.g.* hiccough.

It has frequently been difficult to distinguish the respiratory disorders of epidemic encephalitis from those of hysteria. The encephalitic or post-encephalitic tics have often had many of the marks of an hysterical disorder. For example, post-encephalitic tics may be influenced by emotional factors and may come on at precisely the same hour each night. But it does not at all follow, as some would have it, that hysterical and encephalitic tics are identical. Hysteria and encephalitis may sometimes release similar functions, but they are not therefore themselves similar.

Trophic Symptoms.—The **vasomotor disturbances** of paralysed limbs are well known. The hysterically paralysed limb is often blue and cold. This is partly the result of disuse and of posture (the dependent position of a paralysed arm, for example), but there is possibly another element, since the vasomotor changes are rapid and considerable. This was especially the case in the **reflex paralysis** described mainly by the French during the War

of 1914–18, ascribed by them to a lesion of the trophic centres in the intermedio-lateral cell column, but treated successfully elsewhere by psychotherapy (Hurst).

Dermatographia is common. The spontaneous appearance of skin lesions, blisters, erythemas, etc., has usually been considered an artefact (dermatitis artefacta). Many such lesions are more properly regarded as simulation than as hysterical. In other cases we have seen there has been a depressive, masochistic, exhibitionistic, or erotomanic basis. For example, one young woman when she admitted that she had inflicted the lesion upon herself, exhibited great anxiety and related how she had had to nurse an invalid mother and sacrifice her career for her, how she had come to hate the mother and to desire to injure her and had at last felt she could only avoid this by turning the injury against herself. Discussion of this situation was followed by a cure. It is claimed, however, that such lesions can be produced by suggestion. Well-authenticated cases are lacking to prove the origin in suggestion. But the amenability of such cases to suggestion is certainly considerable.

CASE 9.—A single woman of 25, mentally defective (Terman mental age rating 8), recently was referred from the skin department where she had been treated for three months with little result. She had an erythema with much desquamation of the entire extensor surface of the left hand and left forearm. She was submitted to light hypnosis in which suggestions were made that the skin would become intact. Improvement set in at once and continued until the erythema and desquamation had gone (in about six weeks), but in the meantime she developed brownish discoloured patches on the right leg and arm. Further hypnotic suggestion that all her skin would be free from lesions was rapidly successful in removing them.

The nails and hair may also suffer impairment from emotional causes, and so may show abnormalities in hysteria.

CASE 10.—The most pronounced example we have seen of trophic disturbances following what appeared to be an emotional shock occurred not in a hysterical but in an anxious individual, a shop assistant of 35, who slipped and fell on his buttocks on a slippery floor. He picked himself up and went on with his work, but complained of pain in his back. Several doctors were summoned, who suggested in his hearing an injury to his spine and ordered complete rest on his back for several weeks. On the second day of his enforced rest all his hair fell out, and he has since remained universally bald. He had previously suffered from alopecia areata.

Mental Symptoms.—The symptoms of hysteria which are obviously from the first of a mental kind are chiefly amnesias, somnambulisms, fugues, trances, hallucinations, deliria and dream states and fits. They are all of dissociative type, that is, they are all to be regarded as the result of detachment and independent functioning of a part of the mental content.

Amnesia is commonly of a circumscribed series of events in the patient's memory. It is as if a part of his life had completely dropped out, although the hysteric may not be aware of the gap in his recollection till it is pointed out to him.

In some cases the amnesia is for the entire life up to a certain recent point. This happened occasionally in the War hysterias, the patient having completely forgotten his own identity, the names and faces of his friends, even his wife and children. The amnesia is always for something with which a strong emotion has become associated. For example:

CASE 11.—A young flying officer who complained of insomnia and a terrifying dream of an aeroplane crash, with which he always awoke, could remember nothing of the events of a period of three days which began while he was at his flying depôt, but ended with his finding himself in a hotel in London in mufti. In response to persuasive insistence, he reconstructed the period little by little. Asked to begin with the events preceding the first day of the amnesia, he gradually gave a consecutive account, although with many pauses and transient inability to recall, which were overcome by encouragement. It appeared that he had been for some time under stress, as he disliked and feared flying, and was at the same time engaged to be married. If he stopped flying, it meant breaking the engagement, for financial reasons. Finally his fear became so intense that he deserted. The amnesia was for the episodes connected with his desertion, including the exchange of some letters with his fiancée, announcing the step he had taken. The recovery of the lost memory was followed by disappearance of the insomnia and anxious dreams.

Fugues.—The last example was of an amnesia for a fugue. In a true fugue the patient suddenly leaves his previous activity and goes on a journey which has no apparent relation to what he has just been doing, and for which he has complete amnesia afterwards (until the memory is recovered by some such process as described above, or under hypnotism). (See also p. 104.)

CASE 12.—Another patient, a boy of 17, attending a military academy in the Southern States of America, repeatedly was found miles from his school (where he boarded) clad sometimes

only in his pyjamas. On one occasion he was found at a place sixty miles from school, in a "dissociated state", *i.e.* he was walking, avoiding obstacles, but with his eyes half closed, and unable to say where he had come from, or where he was going, or to give anything but his name.

He was in a condition identical with that occurring in somnambulism. Under observation he continued to have similar attacks, which occurred suddenly by day or night, the condition sometimes beginning with his falling on the floor (although he had been a few minutes before in ordinary health) in a state of complete flaccidity.

In a few minutes he would get up in the condition described above, and endeavour to leave the hospital. He did not reply to questions, but given a pencil and paper he wrote with his eyes closed a remarkable statement. This was to the effect that he had been hypnotised by a travelling showman many months before, who told him while he was in the hypnotic state that if he returned six months later to the place at which he had been hypnotised he would be released from his (the showman's) power. Otherwise, he said, the boy would remain under his influence. Later, while in the "trance" state (flaccid paralysis with apparent oblivion to his surroundings) the patient related verbally the same story as he had written ("automatic writing") with a few more details, and still later he repeated it under hypnosis (he was easily hypnotised). The memories (which may well have been phantasies) revealed in hypnosis were brought into consciousness, but he continued to have attacks.

Somnambulisms are dissociated states identical with the above except that they begin during sleep. They are common in childhood, when their motivation often appears on the surface. For example, a patient who in late life developed a depressive illness had been in his childhood much attached to his mother, and antagonistic to his father, who treated him badly. In his somnambulisms he would make for his parents' bedroom and endeavour to get in at the side of the bed on which his mother slept. Janet describes "monoideic" and "polyideic" somnambulisms according to the poverty or wealth of mental content of the dissociated state. He points to the regularity of the development of each attack, the same features repeating themselves each time or (more rarely) each attack beginning as far as mental content is concerned where the other left off. Janet distinguishes fugues from somnambulisms chiefly on the ground that the former last longer, and consequently require for their continuance more rapport with the surroundings. During the somnambulism the patient commonly lives through a vivid experience, little or not at all related to his surroundings, and

therefore hallucinatory in character. By talking to him, not insistently, but in a persuasive attempt to enter into his experience, the patient may be got to describe the nature of the experience while he is still in the somnambulistic state. Although such patients appear to be "walking in their sleep", they are not really asleep. Their perceptions are often acute. The Virginian schoolboy above described had his eyes apparently closed, but when one door was shut he turned away without hesitation and chose another which allowed him to pass from the hospital ward into a corridor.

There are episodes resembling fugues at first sight, which occur in illnesses other than hysteria. For example, an elderly depressed patient in desperation got out of bed one night at home and wandered about London for hours. The police were informed, but he returned home in the morning of his own accord, and with a good recollection of what he had done (allowing for his preoccupation).

Schizophrenics not infrequently go suddenly on a journey. For example, a youth left his work one day and travelled to a neighbouring county because he thought that his fellow-workers were talking about him. Another young schizophrenic, worried about masturbation and about his engagement, after an interview with his fiancée's father walked thirty miles to a destination which had no practical bearing for him. He ruminated all the time over his sins and finally towards the end of the journey had a feeling that he was "saved". He then became ecstatic and remained so till admitted to hospital. His recollection was complete. All such incidents, when heard of for the first time, suggest hysterical fugues, but have a very different significance.

In **double or multiple personalities** there is a further elaboration of the process occurring in fugues and somnambulisms. The groups of dissociated functions are now so extensive that any of the dissociated groups is capable, when fully conscious and in charge of the motor functions, of appearing superficially as a complete personality. Stevenson's *Dr. Jekyll and Mr. Hyde* is a fictitious instance of this kind. James recorded a case which has become famous:

CASE 13.—A clergyman, the Rev. Ansell Bourne, disappeared from a town in Rhode Island. Eight weeks later a man calling himself A. J. Brown, who had rented a small shop six weeks previously in a town in Pennsylvania and had stocked it with confectionery, etc., woke up in a fright and asked who he was. He said he was a clergyman, that his name was Bourne, and that

he knew nothing of the shop or of Brown. He was subsequently identified as the Rev. Ansell Bourne by his relatives, and remained terrified by the incident and unable to explain it.

In Morton Prince's patient, Sally Beauchamp, there were not two but several distinct personalities, which alternately occupied the field of consciousness.

Hysterical fits can usually be distinguished from epileptic attacks, although there is an intermediary group very hard to assign definitely to one or other class. It is probably the case that what is to all intents and purposes a true epileptic seizure can be released by emotional factors.

The typical hysterical fit usually occurs only in the presence of others, and, in the daytime, does not involve any but very minor injuries, is often provoked by an emotional situation, has a very variable duration, and does not show the tonic-clonic succession, but consists of irregular movements, which have been supposed to have sometimes a symbolic significance, representing some emotional episode which the patient is re-living.

There are numerous anomalies in hysterical fits. Thus an elderly woman bent her head on her chest, screwed up her eyes (especially on an attempt to examine her pupils, which reacted normally during the fit), extended her right arm and rotated her forearm to and fro. She resisted both passive flexion and extension of the arm. The "aura" was of a peculiar, visual hallucinatory kind in which she saw her mother's grave.

Clinical Cases.—It has already been emphasised that hysteria is much more than an isolated symptom or collection of symptoms, and that it is the expression of a difficulty in adaptation to the circumstances of the patient's life. This general thesis, as well as certain characteristics of hysteria, such as the relation of the form of symptoms to emotional disturbances and to voluntary innervation, the complexity of the emotions involved, the part played by patterns of reaction acquired in childhood, the relative influence of heredity and environment, the unconscious determination of the locus of symptoms by previous experience (*e.g.* physical trauma), the purpose of individual symptoms and the aim of the illness, and its unsatisfactory nature as a solution of the problem—are all illustrated by the following case:

CASE 14.—The patient, a married man of 40, complained of exhaustion, tremor of right side of body, giddiness, pain in right side, photophobia (right eye) and jerking of body and limbs.

A maternal uncle had a brief episode of elation followed by depression. A maternal aunt died in an asylum of "religious mania" at 45 years. The maternal grandfather died from jumping out of a window. The patient has no children, his wife being "delicate".

Personal History.—He was always "very nervous" of his father, who was very severe in his punishments. In his boyhood the patient was thrashed sometimes every day for a week, put on dry bread and water and deprived of his clothes. While at school (from 5 to 15 years) the father made his son work in the garden before school hours from 4.30 A.M. The father was a very large man physically, and the patient was terrorised. His ambition was to be an engineer, but his father frustrated him, and he took up clerical work. He remained at this and has been fairly successful.

After the War he returned to his previous business, not from a strong desire to do so, but ostensibly from a sense of obligation because his employers had treated him very well during his absence.

He is a very ambitious man, fond of decorations and of social distinction, and is somewhat ashamed of the fact that he does not occupy an executive position in the office. His general attitude is one of some superiority, but this is not marked, and tinged with a good deal of uncertainty about himself and his position. His financial position is an unusually good one, largely from his own efforts.

Present Illness.—In October 1920 the patient was transferred to work of a type which displeased him in several ways. He was told that excess of work had been deliberately added to his predecessor, "in order to make or break him". His predecessor had succeeded in doing it, although he had had a "nervous breakdown" previously. Further, the work was much less congenial than patient's previous work, and involved much more writing. It also savoured of degradation in rank. His immediate superior was domineering, and the patient disliked him and, on account of his position, feared him. The superior had the reputation of being unable to keep assistants. The patient decided to make the best of it and to give the new work a three months' trial. Soon he found the work very difficult to overtake, and on most days he was exhausted even in the mornings. He began to sleep badly and obtained sick leave in May 1921. In November 1920 his father had had a stroke, and the patient for three months thereafter made a special journey every day to shave him. He "couldn't stand being at work all day and then doing this". While on leave he received a letter asking him to resign. This "hurt" him very much, and he "got such terrific pains", especially on his right side, that tears ran out of his eyes. He felt he was very badly treated. The pains in his right side were so bad that he could not lie on it for a time. Right-sided tremor began also at this time. His doctor reproved his superior for

sending such a letter, and the patient returned to work. Four days before his return, however, his right hand swelled, with shooting pains in it. He thought, " Am I getting some creeping paralysis ? " He subsequently remembered that many years previously at business he had noticed his hand numb after much writing, and still earlier after writing impositions at school. His hand had been swollen for some time in France (frost-bite ?). This painful swelling of the hand incapacitated him for anything except the type of work he had done before his transfer in October. On his return to work he was in consequence placed on an easy but menial task, which hurt his dignity still more. His condition did not in any way improve, and when his chief ultimately told him he was slacking, he felt this was the last straw, and practically did not sleep at all afterwards till he finally abandoned work two weeks later.

He was slightly depressed, and displayed considerable subdued resentment towards his business superiors, mingled with a fear of them and of their opinion, although he had no reason to fear the financial consequences of losing his job. He recovered rapidly with psychotherapy.

One of the most striking aspects of this patient's make-up was his ambition for the outward signs of success. Another was his timid, schoolboyish attitude to his superiors. Both these characteristics are marks of an underlying feeling of inferiority, the strength of which is measurable by theirs ; and the manifestations of both of them entered largely into the foundations of his illness. His ambitious vanity produced an intense emotional revulsion from the new conditions of his work (which was a preponderating interest despite his financial independence), while his juvenile attitude helped to prevent his taking any action. Even verbal expression of his resentment he found difficult. If it is attempted to trace the origin of his feeling of inferiority with its special manifestation of timidity towards his superiors, it is difficult not to suppose that his remarkable early experiences at the hands of his father were responsible for it. Furthermore, his father's denial of an education to him while it was given to his younger brother added to his inferiority in another direction.

This patient exemplifies fairly well also the transition from a condition of conflict with anxiety into hysteria with "conversion" symptoms (paralysis of arm, pains, right-sided tremor). The hysterical solution, however, was an unusually poor and incomplete one. The patient remained uncomfortable in mind for the greater part of the time. He was much too ambitious to be pleased with such an unsatisfactory compromise. The unsympathetic attitude of his immediate superior, while it helped to produce the illness, also seemed to shorten it, since the symptoms

were not permitted to achieve their object—resignation was suggested and not reinstatement. The case is interesting also in that it shows with unusual directness the symbolical nature of certain bodily pains—the receipt of a letter whose contents were painful to his self-respect was followed at once by "great pain" in his right side.

The relation of the paresis of his right arm to his reluctance to do his new work has to be inferred, but with considerable certainty, from the connections of the facts recorded. But there are simpler cases, where the symptoms are more localised and in which the purpose of the hysterical symptom is much more easily and certainly seen. For example:

CASE 15.—A feeble-minded girl of 15 was sent into domestic service by her psychopathic mother. She had not been employed for more than a few weeks till she was sent home, as she had been the cause of so many breakages of china, which she said she could not help. When interviewed she said that she picked up things and let them fall, being surprised when she heard the crash, for she had not known even that she had had the article in her hand. She went on naïvely to say that she had disliked domestic service intensely and that she had wished very much to get home. Such frankly purposive dissociations are possible only in persons of low intelligence or education, and with a very defective "health-conscience". They probably account also for a proportion of so-called "kleptomaniacs".

The purposive aspect of hysterical dissociations is particularly evident in the war hysterias, the hysterical disability making further service in the danger zone impossible. Amnesia sometimes served as a defence for actual desertion (Henderson, *Amnesia as a Defence-Mechanism for Desertion*). Ross has pointed out that it was often easy enough to remove a hysterical paralysis from "shell-shock" by suggestion, and that the patient appeared pleased and grateful for perhaps two days afterwards. Then, however, he began to have signs of considerable mental unrest—because he now realised that there was nothing between him and a return to active service. The farther away from the front a war neurosis is treated, the less likely is return to combatant duty, and the more frequent is relapse. In wound-cases where there had been immobilisation of a limb in splints for some time, the immobilisation sometimes persisted long after the splints were removed—the so-called "immobilisation-paralysis". The patient had "failed to realise when he had become well". The hysterical purpose was the same as in the unwounded cases of

functional paralysis. The same phenomenon is encountered in the " traumatic " hysteria of peace time.

CASE 16.—A youth who had his hand lacerated in machinery, and had had his arm held in a splint at right angles to his body for some weeks, was unable to move his arm above the horizontal after the splint was removed, although there was no injury to muscles above the elbow. He was on a weekly allowance by way of compensation, and an action for compensation was pending.

The dividing line between hysteria and **simulation** is often very difficult to draw. Simulation is the voluntary production of symptoms by an individual who has full knowledge of their voluntary origin. In hysteria there is no such knowledge, and the production of symptoms is the result of processes that are not fully conscious.

Kretschmer rightly points out that the criterion " conscious or unconscious ? " will not serve to differentiate simulation from hysteria, for not all the motives of a healthy mind are conscious, and not all hysterical ones are unconscious. There are all gradations between hysteria and simulation. For their differentiation Kretschmer proposes that an attempt first be made to determine whether in the hysterical symptom volitional or reflex disturbances predominate, and, if the former, whether volition is itself disordered. By " reflex hysteria " he means a hysterical sign in which an automatic nervous process (reflex) plays the dominant part and the will a minor part.

The will co-operates in the production of the sign, in so far as the reflex process fulfils a wish, but the will does not initiate its production. Examples of " reflex hysteria " are simple spasm, tic and tremor. " Reflex hysteria " he regards as the least equivocal kind of hysteria, involving the minimum of voluntary (*i.e.* presumably conscious) co-operation. " Reflex hysteria " is continuous, rhythmical (in the case of tremor and tic), independent of the patient's attention, of the co-operation of unrelated muscle groups, and of special affective stresses, and it cannot be voluntarily imitated (or only for a very short time). A " hysterical habit ", on the other hand, is one which began as a voluntary process and has become gradually automatic from repetition. It follows that hysterical habits have, in contrast to " reflex hysteria ", the appearance of a voluntary movement such as limping, falling and so on.

" Hysterical habits " include disorders of voluntary muscle movements, gait and posture (astasia-abasia), speech (aphonia),

hand-grip (weakness), and hypochondriacal complaints of pain.

As a "hysterical habit-residual" he designates a reflex hysteria which remains present because of the patient's lack of desire to get well. It is distinguished from simple reflex hysteria by its intermittent occurrence, chiefly on occasions where some end is to be gained, or in emotional situations (*e.g.* medical examination).

Wherever more than a simple reflex hysteria is present, Kretschmer proceeds to examine whether there is a disorder of volition and its nature. As truly hysteric he regards the manifestations of what he calls the "primitive functions" of the will, where the inability to balance purpose and aim results in negativism and catalepsy, stubbornness and extreme suggestibility, stereotypy and stupor. These he calls "hypoboulic" manifestations, which are stimulated by a goal, but not directed by it. This lack of purposive discrimination leads to obvious discrepancies in the patient's conduct, *e.g.* the hysterical disability continues long after any advantage can be gained. For example, a patient may remain in bed for a year for the sake of a compensation that amounts to only 50 per cent of what his income would have been. For the estimation of hysterical "hypoboulia", Kretschmer uses three criteria. First, the drive to be working at something is so natural to the ordinary man that any one who remains away from work long, simply in order to get compensation, is morbid. Second, the true hypoboulic has lost his ability for ordinary pleasures. If a person with a complaint of severe sciatic pain is found dancing, he is not "hypoboulic"—he is more likely to be shamming. Third, persons who maintain hysterical gaits and postures over a long period of time are truly hysteric (hypoboulic).

By the term "hyponoic" Kretschmer means to indicate that there is a lower, more primitive, level of the intellectual processes, of which dreams, hypnosis, hysterical dream-states and schizophrenic thinking are the best-known examples.

For the differentiation of these "hyponoic" states from mere simulation he uses also three criteria. A true "hyponoic" state does not yield to disciplinary measures, such as isolation and strong faradisation. The mental state in the intervals between "hyponoic" episodes has also to be taken into account. Where this is perfectly normal, or where, on the other hand, there is clear evidence of moral deficiency, simulation is to be suspected. On the other hand, persons habitually emotional, anxious or tense, or with explosive changes in their mood,

unsociable and sensitive, are to be regarded as the type in which true " hyponoic " (hysterical) manifestations are likely to occur.

Thirdly, long lasting and frequent dream-states, fits, etc., are to be considered hyponoic in character, especially if they are deep in the sense that strong stimuli are ineffective in changing the condition.

To sum up, Kretschmer's analysis amounts to this: " Reflex hysteria " of recent origin is to be regarded as having no element of simulation ; it is a true hysteria. In the case of long-standing reflex hysteria, and in all other hysterical manifestations (hypoboulic, in the form of disorders of gait, etc., hyponoic, in the form of fits, dream-states, etc.), the differentiation from simulation depends on estimation of the general mental condition, both before and after the onset of symptoms, on the behaviour of the patient in response to stimuli (ordinary examination and special tests) and on the evidence of judgment or the lack of it in relation to compensation.

We would add that the estimation of the aim of the illness, and of discrepancies between the loss occasioned by it and the apparent gain, is not easy. The patient conceals the gain—if he is a hysteric, he conceals it from himself as well as from others —and there may be objects other than pecuniary ones, of which the value for the patient is difficult to assess.

We would emphasise the importance of contradictions in the patient's story, discrepancies between his subjective account (of pain, for example) and his behaviour (whether he knows himself to be observed at the time or not), the presence of marked hysteriform symptoms with great profession of concern about them, and clumsy unwillingness to be cured, *e.g.* complete selective forgetfulness for what has been told him at previous interviews. All these strongly suggest simulation.'

In *situations of medico-legal interest* there are found hysterical mental symptoms as well as the physical ones already dealt with. Here again the purpose of the illness is fairly clear. The occurrence of a mental reaction in preference to a physical one probably depends in part on the situation in which the patient happens to be. They are very commonly situations in which a lack of mental responsibility, if recognised by the authorities, would bring some advantage, whereas a merely physical disability would not. In prisoners awaiting trial, for example, and in persons still at large who have committed some illegal act (as in the case to be recorded below), a state "non

compos mentis " may excuse, or be conceived to excuse, the misdoer from the immediate legal consequences of his acts.

The **Ganser syndrome,** or " syndrome of approximate answers ", was described first in prisoners. The patient gives bizarre replies to questions ; for example, asked how many tails a sheep has, he will reply " two ", or if asked how many legs a horse has, he may say " five ". Similarly asked to multiply 5 by 6, he will say (perhaps) 32. If requested to perform some simple action, the patient goes about it clumsily. Thus given a key and asked to lock a door, he will fumble and use the wrong end of the key. Dates will be given only approximately. We have seen the Ganser condition also in an acute hallucinatory paranoid state in one patient, and among the residuals of such a condition (probably alcoholic in origin) in another.

A similar condition occurs in **hysterical " pseudo-dementia "** (Wernicke). The patient cannot answer very simple questions—for example, he cannot tell the date. He cannot give a coherent account of himself, and he behaves in a simple childish way.

In some instances a much more elaborate attempt is made at dramatisation, and in these the voluntary (simulated) element is much more clear.

CASE 17.—A banker from one of the Southern American States furnished a good example of an elaborate reaction which was very probably simulated. His bank had failed at a time when he had utilised, for investments in companies in which he was interested, money from the funds of the bank in excess of the 10 per cent permitted by the laws of the State. When admitted to hospital he was mute, shook his head in answer to questions and refused food. An hour later he took supper, and answered some questions relevantly and coherently. Then he became mute again, and the same evening he got out of bed, lay on his back on the floor and propelled himself towards the wall with his feet. He next proceeded to make a show of " climbing the walls ". He mildly but firmly resented being put to bed, smiled, showed his teeth and moved his lower jaw rapidly up and down. When being carried to another ward he held himself rigidly, so that he could almost have been supported horizontally by his head and heels. For the following two weeks he alternately was mute and talkative. When he did talk it was in a disconnected fashion with sometimes a peculiar verbigeration, as " Mother—Mary—Mary—Mother—All Marys—All Mothers ". After two weeks he recovered suddenly. He denied that any legal trouble was pursuing him, but some weeks after he left hospital completely well a telegram was received from his lawyers asking for a certificate that he had been in a mental

hospital, as the patient had been arrested for irregular dealing with the moneys of his bank.

There is a **hysterical puerilism** which is related to this " pseudo-dementia ". In this there is a complete return to the behaviour of early childhood. McDougall (*Outline of Abnormal Psychology*) cites a good instance, which he regards as an example of true regression to an ontogenetically earlier mode of behaviour.

CASE 18.—An Australian private, aged 22, after a series of experiences, including a bombardment and an air raid, " reverted to the mode of life, bodily and mentally, which is normal to a child of some months of age ". With certain exceptions he showed no trace of comprehension of spoken or written language, and had little or no apparent understanding of the use of ordinary objects or utensils. He walked jerkily with feet wide apart, and, when allowed to do so, crawled on his buttocks. He had to be spoon-fed, and would take only milk and slops ; if he took anything else, he complained of belly-ache and curled up in bed. A doll was his chief toy. Fears of animals, sudden noises, etc., were prominent. However, there were some aspects of his behaviour which were of a more adult kind—he smoked a cigarette when offered it, showed some knowledge of finger speech and swam well. From time to time he showed progress in learning, especially in handwork, and the use of gesture-language, but he repeatedly relapsed after small frights. Once he wrote his own nickname spontaneously, and he sometimes tried to kiss his nurse. He recovered gradually " to an approximately normal condition ".

Bleuler summarises the difference of the pseudo-dementias and the Ganser syndrome from organic dementias in this way : " What is characteristic is the disappearance of the memory for elementary knowledge and experience, which remains intact in the organic disturbances ". The differentiation of these conditions from simulated mental disorder is often very difficult. Internal consistency and spontaneity as well as Kretschmer's " hyponoic " criteria already mentioned might be the chief guides, as well as the relation to some material advantage.

Traumatic Neuroses

The ambiguity of the term " traumatic neurosis " has already been alluded to. The group of conditions, usually so called, may be divided into : (1) Minor after-effects of brain injury, described under the " post-concussional or post-contusional syndrome ".

These are primarily physical in origin but may be complicated by secondary anxiety. (2) The truly psychoneurotic reactions following head injury aroused by special circumstances, especially the desire for gain of some kind, usually monetary compensation. Probably the first syndrome of the sort described was " railway spine ". It followed involvement in railway accidents, even where no apparent physical injury had been sustained, railway travelling being the first public risk that was insured against on a large scale. The gain on the other hand may be that of escaping from a disagreeable or dangerous situation, such as is so often encountered in time of war.

In the " traumatic psychoneuroses " the period that normally elapses between the trauma and the onset of symptoms is of considerable interest, from the point of view of differential diagnosis from organic conditions as well as psychologically. Evidently the latent period is filled with ruminations, but the memory of these is usually difficult to recover—they were probably ill-defined in the first instance, and underwent repression with the development of the symptoms. Babinski and Froment quote Clunet's experience on a destroyer which had been torpedoed. There were four recognisable stages—(1) immediately after the ship was torpedoed there was much emotional disturbance, but no hysterical symptoms ; (2) a period spent on rafts—much physical suffering from cold ; (3) rescue by another ship—the survivors were made comfortable, and now hysterical phenomena were first observed ; (4) period of recovery on board ship in harbour. Similarly, after the Vesuvian earthquake, all the survivors were at first emotionally upset ; after three months only a few, and these obviously predisposed, showed neuroses ; and after six months no one showed any after-effects. There was no compensation concerned in this last example, and the short duration of the neurotic phenomena, even in those predisposed, is an interesting contrast to what very frequently occurs in cases where monetary compensation is concerned—in workmen after accidents at their work, in railway passengers after a smash and the like. These tend to remain ill till compensation is settled.

Anxiety states may of course occur in relation to trauma and compensation, and do not differ in symptomatology from anxiety states in general.

In some traumatic psychoneuroses, a sense of grievance, and even a desire for revenge, help to sustain the symptoms in some cases until compensation or some other satisfaction is obtained.

This will obviously be more common where an employee is dissatisfied with the general conditions of his employment, or where the employer does not make satisfactory arrangements for rehabilitation. It is claimed that in large organisations where the disabled workman is given some kind of job as soon as he is fit to do any at all, and gradually restored to as near his previous status as possible, compensation neuroses virtually do not exist. Sometimes an accident impinges upon an individual who is in the throes of a mental conflict on some personal issue and the symptoms may then be exploited unconsciously as an escape, however temporary, from an apparently insoluble problem. (3) There is a third syndrome to which the term " traumatic psychoneurosis " has been applied. Again the trauma is psychological, but here it is the peculiarly terrifying nature of the experience which determines the subsequent symptom. A more correct, if inelegant, term would be " fright " or " terror " psychoneurosis. The experience is nearly, if not always, overwhelming. The immediate response may be extreme anxiety or wild panic, or there may be apparent calm with development of symptoms after a latent period. The symptoms that follow the fright are usually insomnia with terrifying dreams in which the patient wakes time and again ; these dreams representing the accident in more or less distorted form. Anxiety symptoms occur during the day, especially lack of concentration or uneasiness of mind, and the bodily discomforts associated with anxiety, such as tremor or palpitation. Such symptoms may appear even in the most stable individual if the experience is severe enough ; but they usually diminish and ultimately disappear, although it seems likely that they are readily revived by subsequent analogous experience. In temperamental less robust individuals anxiety symptoms are much commoner after such an experience and often never fully die out. There is a pronounced tendency in all cases for them to reappear when any reminder impinges on the conscious or even on the margin of the conscious mind. Such occurrences are sometimes loosely referred to as an example of a " conditioned reflex ".

The following is an example of a true traumatic psychoneurosis consisting in acute anxiety at the time, subsequent anxiety symptoms and prolonged associative or " conditioned " revival of the symptoms amounting to panic when the situation encountered reproduced, after nearly twenty years, more closely than ever before, the circumstances of the original experience.

Case 19.—An air gunner, aged 33, who had previously flown without symptoms, occupying the rear turret of a bomber for the

first time was seized with acute panic on a practice flight. When he was released from the turret his breathing was observed to be deep and noisy. It was remarked by his medical officer that on the ground he had shown no symptoms at all. His history revealed that at the age of 14 he had a particularly disturbing experience when he found himself one Saturday afternoon shut in the vaults of the office in which he worked; moreover, soon after, he found the exit closed against him, the lights went out and the watchman went off for the week-end. He became increasingly uneasy, and the intensity of his anxiety can be gauged from the fact that it was only after many hours that he noticed in the darkness a little red bulb which had the word " Pull " printed on it. This set off the burglar alarm throughout the building, which after nearly 24 hours' incarceration brought people to his rescue. The air had become increasingly hot and dry, or so it seemed to him, and his prevailing fear during his imprisonment was that of being suffocated. The door was opened and he ran out in a state of extreme tension. He was off work and in bed for the two days following. For nearly two years afterwards he had nightmares in which usually he was in a tunnel which caved in on him. He remarked, apropos of the episode in the rear turret, that his breathing when he left the turret was very much the same as he recollected it when he got out of the vault. His pilot remarked that he " sounded like a steam engine ". He was a man of stable character and temperament, and in the intervening years he was apparently well; but closer investigation showed that he had had mild claustrophobic symptoms all the time since the original trauma. When he drove a car it was always with the windows open, and he chose to drive a roadster rather than a sedan. On the first occasion in which he travelled in a tube train he had the thought that it was a risky business, but he was reassured by the lights and the open platform. For some time after his original experience he refused to take the elevator to his place of work, which was on the fourth floor,—he walked up the stairs. This phobia he ultimately surmounted.

Treatment.—The principles that have already been advocated for anxiety states apply also to the treatment of hysterics; that is to say, a complete physical examination and a careful chronologically detailed history are essential.

The mere statement that there is no physical disease is not likely to remove the symptom in the hysteric. In anxiety states this rapid symptomatic recovery does sometimes happen. In any case it is not wise to stop at the removal of the symptom. In hysterics it has often been the custom to use suggestion at this stage, with a view to removing the symptom. This is not wise, for it makes use of suggestibility, the excess of which is one of the morbid characteristics of the hysteric; and moreover,

nothing has been learned either by patient or physician as to the cause of the symptom. Nevertheless, in selected cases, suggestion alone, waking or in hypnosis, is sometimes permissible—for example, hysterical conditions in feeble-minded persons, in whom the intellectual processes necessary for co-operation in the further treatment to be described are not possible. The feeble-minded woman of 25 with dermatitis artefacta, already mentioned, was a case in point. This patient illustrated one of the dangers of treatment by mere suggestion without further exploration and explanation—that the disappearance of one symptom is apt to be followed by the appearance of others.

Where ordinary conversation fails to elicit the complete psychological setting of a symptom, free association may be used. It may be desirable to resort to hypnosis. This is always justifiable where the other methods have failed to yield the memories that must be present in association with the symptom. In patients who have already shown decided dissociations (amnesias, trance-states, fugues, etc.) it is usually easy and may be the only method of recovering the content of the episodes for which there is now amnesia. The object of all these methods is to bring back to consciousness, against more or less " resistance " on the patient's part, the mental events which have been associated with the development of symptoms. The mere recovery of these memories in this way may be sufficient for removal of the symptoms (patches of amnesia, for example). Where it is not sufficient, as, for example, in removing a tremor, explanation of the bodily effects of emotion and of autosuggestion may succeed. There are certain patients, however, in whom these methods do not succeed. They are patients whose resistance to being made well is considerable, and this in spite of obvious " transference " to the physician. It is then necessary to discover why the patient wishes to be so dependent, and to lead him to independence, away from his or her child-like (infantile) or actually erotic attitude to the physician. Where much resistance to psychotherapy exists example is often more potent than precept. A patient with a rigid paralysis, for instance, must be made to move the limb. For this kind of treatment, immediate complete success is necessary. Piecemeal improvement is tedious and often temporary. The physician should choose a day when he can devote if necessary an hour and a half or more to the patient (Ross). The patient must be informed that the physician does not intend to leave him until the limb is moved. The doctor then shows (often against actual physical resistiveness) that all

movements can be done passively, and this being done he orders the patient to walk or to use the arm as the case may be. In walking, support is given at first, but the patient is told that if he tends to fall the support will be insufficient. Complete function must be restored at one sitting by this method. Incomplete restoration means the perpetuation of an incomplete function for weeks or months.

It is not usual to have to resort to such imperative methods. In the great majority of cases it is possible, by gaining the patient's confidence, and by the exercise of firmness as well as tact, to persuade him that the lost function is recoverable, that he can move his hitherto rigid arm, or walk upon his seemingly powerless legs. In a proportion of cases the symptom is a hysterical habit which has outlived its usefulness, and which the patient would gladly be rid of, if he knew how. These patients are easily amenable to treatment. The difference between "trying" to move a limb—which involves a fear or a belief that it will not—and belief that it will move must be explained to him. Baudouin put it crudely but cleverly when he said that for the removal of symptoms the power of the imagination is inversely as the square of the will.

Patients that are among the most difficult to make well are those with a general attitude of superiority. Their symptom is even more with them than with others an emblem of their attempt to preserve their self-respect. To teach them a new attitude to life is the task of the physician. This new attitude may not be necessary for the disappearance of the symptom—they may rush off to some spa or nursing home where they are treated with ultraviolet rays, or electricity, or what not, and these, implying as they do a physical and therefore objective or even heroic ætiology of the trouble, may bring about a symptomatic cure. But the illness is not cured in these physical ways; and their liability to break down is as great—perhaps greater—than before.

The **treatment of certain specific symptoms** has been dealt with in passing. The use of hypnotism in amnesia, fugues, double personalities, has been mentioned. A few common symptoms remain to be dealt with.

Mutism can be dealt with at a sitting by a determined attempt at persuasion and re-education. The patient is told to place his mouth and lips in certain positions. He readily does so. He is then shown that by placing them in certain positions and making sudden movements of them he can whisper consonants.

Soon he can whisper sentences. It should then be pointed out that he thought he could not whisper, whereas it is proved that he can. They have then to be told with assurance that they can put their voice into it. They usually respond by doing so.

Aphonia is much more difficult to treat, partly because it causes less inconvenience than mutism.

" *Traumatic* " *cases* where compensation is involved in some form or another are extremely refractory. Prompt settlement, either totally without compensation or the hope of it, or in a lump sum, is the only effective method in the vast majority of cases, and even then the symptoms may persist. A lump sum may represent a fortune, pending the exhaustion of which there is no need to work. There are, however, a few cases in which the persistence of the symptoms depends on a dread of return to the particular class of work at which the accident occurred. The remedy of transfer to other work is obvious. The provision of a lump sum has recently been shown to be a very unsatisfactory method. Dr. Carl Norcross, examining 321 cases three years after their settlement for a lump sum averaging 3000 dollars, found that 67 of the 321 cases had some form of neurosis, and that of the 67 only 1 case had made a complete recovery, the remaining 66 being divided into three equal groups : the first 22 had returned to work, but their average weekly earnings were down over 40 per cent : the second 22 had not improved but were back at work, with their average weekly earnings down by over 60 per cent : while the last 22 were none of them at work, 2 being dead and 17 on the rates. Several of the original 321 had developed neuroses since the settlement of their claim. It was pointed out in a recent discussion that the Workmen's Compensation Acts in Britain have no provision for treatment. Moreover, the maximum weekly sum paid under the Workmen's Compensation Act in pre-war days was 30s., which means that under-nourishment is soon added to the man's other troubles. In Russia, according to H. E. Griffiths, the law recognises that nourishment is important for recovery, and stipulates that the workmen should have full pay, and, in special circumstances, 25 per cent more pay when incapacitated by injury. All sorts of anxieties complicate the position of the workman. For example, if he returns to work, what is to happen to him if there comes a recrudescence of his symptoms ? As Professor Herman Levy pointed out, there was in Britain no compensation fund for second injuries. The creation of a Workmen's Compensation Board, with a Board of Medical

Referees, has been recommended (B. Hart *et al.*, *Proc. Roy. Soc.*, 1942, 35, 495).

Anorexia nervosa of Dejerine's primary kind (hysterical anorexia) is usually not difficult. Superficial exploration will often reveal some of the originating ideas, often fully conscious, and will also serve to show the patient that at last there is some understanding and so gain her confidence. Where the basis is a fear of fatness the patient should have it pointed out to her that she will not be expected to eat so as to become too fat, and that, since she has been able to make herself so thin this time, there is no fear of adiposity. The rest is a matter of isolation, special feeding, gradually increasing till everything is being eaten and in unusual quantity, together with close supervision to prevent deception as to food intake. A special nurse is imperative at the beginning for this purpose. The isolation and special feeding should begin at once and not wait upon the results of psychotherapy.

Obsessive-ruminative and Obsessive-compulsive States

Disorders of an obsessive-ruminative kind can be differentiated clinically—and psychopathologically also in some cases—from the obsessive-compulsive type. The principal clinical difference is simply that in obsessive-ruminative illness the preoccupations (ruminations) do not issue in compulsive acts; but there are also very considerable variations in the basis and nature of the obsessive thought-content within the ruminative group itself.

Obsessive-ruminative States.—The characteristic symptom of the classical obsessive-compulsive group, including in this term also certain obsessive-ruminative states without compulsive acts, is a continuous preoccupation with some apparently indifferent topic or group of topics, to the exclusion of most other interests and to the distress of the patient. But there are also conditions of a simple kind where the obsessive preoccupation is with a subject which is not of indifferent interest but has a clear relation to the rest of the content of consciousness and an obvious affective significance.

There is another type of obsessive-rumination, in which also the mental content is a harmonious whole, but the origins of which are not so clear. A concrete instance will best describe this type. The patient was a tall, very thin young man of 20, who had recently been unable to follow his occupation because his mind was totally occupied by speculations about

religion. To his friends he had seemed to think and talk of nothing else. He explained that for two years he had been very much troubled by the divisions he saw existing in the Church, and said, " I can't get them out of my mind. I can't assimilate the attitude of religious meetings." At one of these where a woman evangelist had spoken, the patient was " very much upset ". " She laid down the law. It made me feel very uncomfortable. There always seems to be some sort of mystery about the Church. . . . What is Christianity ?—that is the point. Why are some people so religious ?—There is something funny about their appearance. . . . The different religions—that's what bothers me." Hymns in church disturbed him—" they seem so ruthless, sweeping every one aside ". He spoke of the awed feeling with which he looked on a king as similar to his feeling towards religion generally. He had also a feeling of " suspicion " regarding his choice of a profession, as he felt he had been pushed into it. But it was significant that he designated his attitude to the world generally as " suspicious ". It transpired that his feeling of being upset at a religious meeting was closely paralleled by an emotional experience which he had when 12 years of age, when he had listened to a difference of opinion between his parents and had sided with his father. The patient came to define his attitude to religious matters and to the world as one of fear, which made him physically sick and his mind a blank. This attitude was closely similar to the attitude he had held towards older boys when he first went to school. " It goes very far back—those young boys at school." In other words, it appeared that in facing the problems connected with emancipation from home he was reproducing in part and more intensely the affective attitudes belonging to an earlier age, and further that the obsessive preoccupation with religious matters depended on a discrepancy between religion as he found it in the world and his preconceptions regarding it. The discrepancy reanimated the fearful type of affect which had characterised his childish attitudes, and the fear supplied the motive power for the obsessive thinking. This is MacCurdy's theory of the basis of some types of obsessive thinking—the conflict of reality with unconscious concepts and inability to modify the latter in the light of real experience. If proof of the existence of unconscious concepts is required, it is only necessary to point out that some of our most important concepts, to which we continually conform, are never consciously formulated, *e.g.* one's concept of oneself. The obsessive thinking produced in

the way described differs from the type of thinking commonly included under the obsessive-compulsive psychoneurosis in that it is not the ideas themselves that are meaningless—they are on the contrary legitimate subjects for reflection—but (1) their persistent obtrusiveness is inexplicable, and (2) the patient does not regard them as pathological intruders. Psychopathologically also their *raison d'être* is not repression; it is simply that the rôle of the unconscious concepts is not realised. The patient just briefly described ceased entirely to be preoccupied after three months' psychotherapy, in which his childish concepts were modified to suit reality.

A simple type of obsessive thinking in the more usual sense is initiated by a desire to keep some unpleasant thought out of one's mind by thinking continually of something else. The obsessive idea continues as long as the necessity for repression of the unpleasant thought lasts, and sometimes to all appearances longer, as a habit. A married woman, æt. 29, and pregnant at the time, complained that she could not get out of her head the idea of a certain man. She tried to banish him from her mind by "thinking hard" of something else from morning till night. Shortly before the obsessive preoccupation began she had heard that this man, a casual acquaintance, had become insane. Two days later while knitting she had a "fidgety feeling" in her epigastrium and felt obliged to go out to "get some air". Out of doors she felt giddy and the thought of the insane neighbour occurred to her. She wondered whether she also was becoming insane. This fear of insanity had persisted, and was the basis for her obsessive thinking. The condition was essentially an anxiety state and responded quickly to reassurance. Freud recounts the case of a woman who was continuously brooding over such questions as "Why must I breathe?" She had been afraid of becoming insane, and to reassure herself she had begun to catechise herself on serious problems. This quieted her at first, but soon her fear was completely replaced by the habit of speculation, which lasted for years.

The relation of some obsessive-ruminative conditions to anxiety states is very close. Both of the cases just alluded to began as anxiety states. Nevertheless there is a clear clinical difference between an anxious preoccupation and a true obsessive one. In the former it is the anxiety that is objected to by the patient: in the latter the thought-content itself is seen by the patient to be morbid. It is probable that the severity and persistence of an anxious preoccupation to an obsessive extent

depends on the depth to which the personality is involved in the conflict that produces the symptoms. Phobias are a common component of the obsessional syndrome and are particularly apt to arise in people of obsessional temperament.

Within the group of obsessive-ruminative psychoneuroses, commonly so-called, the psychological basis of the obsessive preoccupation is different from that in the patients above recorded ; and within the true obsessive-ruminative group itself there are differences to be found. A very frequent basis of an obsessive rumination is an opposition between a desire and a fear—an opposition which is to be regarded as a primary mental datum. There is a desire, more or less " unconscious " (*i.e.* not given a clear conscious formulation), for something which the ego itself cannot permit, and a conscious dread as a reaction to the desire. This conflict may be fairly simply expressed. Greenacre quotes the case of a clergyman, who had distressing impulses to sing " Dim-dam-dimmity, dammity " to the tune of some hymn. Even here, however, the matter was not simple, for there was a certain amount of symbolisation. The obsession to use profane language symbolised his desire to be rid of the burdensome restrictions of his calling. In other cases there is complete displacement of the fear from its real source to some associated object, *e.g.* a girl had such persistent obsessive fears of bichloride of mercury tablets that she remained confined to her room for two years. Such tablets were associated in her mind with an illicit pregnancy, which she had both desired and feared.

That the formulation of the psychological basis of such conditions as an opposition of a desire and a fear is more than mere theory was very beautifully demonstrated by the words of a man of 50, L., who complained at first that he could not stop worrying about such apparently senseless topics as where he had thrown a match, and could not sleep for wondering whether the house door was closed. After some months these gave place to frank fears of homosexual tendencies. His homosexual thoughts horrified him excessively, and drove him to avoiding completely the company of men. He used such phrases as " It's *not* a wish ; it's a fear that the dread will turn into a wish ". He had never read psychological literature. From these thoughts a further very illuminating development occurred. He began to believe that he had been homosexually assaulted.

An extension of this principle of the basis of obsessive preoccupation in the conflict between a wish and a fear enables us to understand the following case :

CASE 20.—A Russian Jewish tailor, æt. 35, married, and with three children. He complained that for six months he had been obsessed to his immense distress by a desire to kill his wife and children and to commit suicide. If he saw a river he wanted to jump in; a window would tempt him to jump out. He had had to leave work, and suffered from insomnia, his obsessive thoughts being worst during the night. It transpired that six months before the development of obsessive symptoms business had become very bad, and he was worried and mildly depressed. One evening he read in the newspaper that the Home Secretary advocated the deportation of aliens. This angered him and he "wished he were the Lord that he might dismiss the Home Secretary". Then it occurred to him that such thoughts portended madness. At this he felt "hot all over", left his room and went out of doors, where he felt he wanted to assault a bystander, just as he would have liked to assault the Home Secretary. This alarmed him still more, and he became afraid that he would assault his wife and children in the same way.

Here again, although this patient, unlike the last, did not explain it in so many words, there was an obvious wish followed by a fear. But the reason for the extreme violence of the fear was again revealed by a subsequent development—the transference of the homicidal fear from the Home Secretary to his family and himself—a fear which could be easily understood in the light of his difficult financial situation as a reaction to a wish to be rid of all responsibility.

Obsessive-compulsive States.—The transition from an obsessive-ruminative condition of the type described to an obsessive-compulsive state is easy. The compulsion is simply a method of mastering the fear. Indeed, in the two patients just mentioned, a variety of compulsion was present—a negative compulsion, to avoid certain situations. Compulsive acts of a more positive kind are equally common, and have a similar aim. The act chosen as a defence against the desire is usually mentally connected with the latter in some way—as a simple association, or as a symbol. The origin of certain compulsive acts is well seen in children.

Compulsive acts are common in them—almost universal, and they are frequently actuated by the fear of some impending disaster. For example, a boy of 13 was brought by his mother because he "had to touch everything twice". He would often go back to a door which he knew to be closed, reopen it and close it again. He frequently was seen to smell his cap. All these symptoms had existed for six months. He had had a scholastic examination three months after the symptoms

began, which, however, he had successfully passed. With considerable reluctance and some tears, the boy, who was a fresh-complexioned well-built youngster, related how he had been dreading the examination, that he wanted very much to pass, but was afraid he would not do so, and that he had begun to touch articles twice and go through the other ceremonials mentioned because he feared he might be " unlucky " if he omitted them. The compulsive acts had persisted as habits after the occasion for them had passed, and his fear of bad luck became generalised. With this confession, which he had refused to his mother, and some simple reassurances, he quickly improved.

Similar mental processes seem to account for some cases of juvenile delinquency reported by Healy. The delinquent acts are an attempt to counter a sexual wish. Neither the wish nor the counteraction are clearly formulated as such. There is a strong urge (sexual) which has become associated in some way—for example, by evil companions—with a wrong action such as stealing ; and the urge finds indirect expression in thefts. Thus an eleven-year-old child had both the act of stealing and sexual knowledge imparted by the same older companion. " She told me about bad things, and now, when I see a picture with a boy and girl, I think about what she told me, and then I think of her and the stealing." Such children attach little value to the things they steal. McDougall remarks that the furtive and reprehensible nature of the act of stealing may play an essential part in the direction of the sexual urge along this abnormal channel, because there is a similarity of emotional tone—that attaching to something forbidden—in stealing and in sexual activity.

In the obsessive-compulsive states of adult life the mechanisms are probably similar, but they are not usually so superficially clear as in the cases already related. Freud explains obsessive-compulsive states in this way. There is present in the patient's mind an idea plus an appropriate affect. The idea is usually one of a kind intolerable to the patient's super-ego, and in relation to this the affect is usually one of reproach. The ego tries to keep the intolerable idea out of consciousness by substituting another idea, indifferent in itself. This, in Freud's view, is the genesis of obsessions. It is simply a restatement of the desire-fear antagonism. In the compulsive variety of illness, instead of substituting an idea, the patient substitutes an act for the original idea. What maintains the substituted idea or the substituted act in consciousness is the affect of reproach,

which the patient does not succeed in getting rid of when he treats the intolerable idea in this way, but which attaches itself to the substituted idea or act. In his first paper on this subject Freud quoted a number of cases in which the obsession or compulsion was fairly clearly an attempt to overcome (repress) some contemporary sexual wish that was not permissible. Later he formulated the theory that an obsessive or compulsive state could only arise when there had been an act of sexual aggression in early childhood, following a still earlier experience of sexual seduction (with the subject in the passive rôle). Then when sexual maturity is reached, the subject represses the memory of the early sexual experiences, often with an effort. The repression leaves on the surface character-traits in the form of conscientiousness, shame and distrust which are partly expressions of the defensive methods employed, and partly of the affect of reproach which had come to be attached to the sexual memories. Later, either spontaneously or because they are revived associatively by some contemporary experiences, the memories tend to return to consciousness. This makes it necessary for the ego to defend itself even more strongly—and this it does by means of obsessive thoughts and compulsive actions. In consciousness the reproach accompanying the original act of aggression becomes distorted into any other unpleasant affect, *e.g.* into anxiety about health, which is equivalent to a fear of physical injury as the result of the early sexual misdeed; into dread of temptation (mistrust of strength of moral resistance), or into ideas of reference (fear that people know of the deed).

Later Freud concluded that the hypothetical infantile sexual experience was always of an anal-erotic kind, with the subject in the aggressive rôle. He associated this type of activity with the so-called sadistic component of the sexual instinct. The patient already mentioned who formulated the opposition of wishes and desires as the basis of obsessions was singularly careful of his appearance and general cleanliness and so conformed to some extent to Freud's description of the "anal-erotic character". The latter Freud described as being compounded of orderliness, parsimony and obstinacy, which he regarded as over-compensation for an underlying (unconscious) anal-erotic trend. The patient in question was strikingly preoccupied with his anal zone. He remembered that he had had much itching there, and that he had scratched himself to the effusion of blood. In the course of his illness it was very interest-

ing to find that although no interpretations were given him of any kind he contemplated with horror the possibility that he might have scratched himself for pleasure. Soon also the fear occurred to him that he was thinking of his anus and of his masseur in conjunction. These fears took the place of his obsessive preoccupation with indifferent topics, and themselves finally gave way to delusions of homosexual assault. This case demonstrated very clearly the basis of some obsessions as well as of certain projections (delusions) and the close connection between the two. There was a gradual clearly evident transmission from obsessive preoccupation with indifferent topics to obsessive sexual ideas, and finally to delusions of assault.

In many obsessional patients there exist actually in consciousness not only indifferent obsessive ideas, but also the memory of sexual misdeeds of the kind which Freud would consider to be invariably at the foundation of the obsessive illness. He escapes from this difficulty by saying that the affect has, in an effort at repression, become displaced from the " pathogenic memories " to the indifferent idea, the obsessive nature of which is attributable to the motive power with which the affect furnishes them. The displacement is possible because the life-long conscientiousness which the patient has erected as a defence against the memories prevents his acknowledging his guilt. In this way Freud attempts to surmount the difficulty which would be presented by such a case as the following, merely on theories of unsuccessful repression of sexual memories into the " unconscious " category.

CASE 21.—The patient was a middle-aged man, a widower with two children, who in the midst of an unsatisfactory courtship suddenly began to fear that he would not sleep unless his clothes were arranged in a certain way at bedtime. His slippers must be at right angles to the wall, and everything in the bedroom placed so that it could have no chance of falling in the night. He also felt compelled to be exactly truthful. It appeared that he had considerable conflict over his second courtship, feeling that a second marriage would be contrary to his duty to his children by his first wife. Further, his home circumstances had produced a conflict, for he lived with his aged father who had married a young wife and had accused the patient of incestuous practices. In the course of his career the patient had indulged in masturbation, exhibitionism, sodomy, fellatio and several other varieties of perversion, which he clearly remembered (without effect on his symptoms); so that

there was none of the commoner perversions which he had not practised, and it was difficult to imagine what greater evil could remain repressed and undiscovered. It was possible that his father's accusations had aroused in him a disproportionate amount of feeling of guilt, by recalling incidents in his boyhood of incestuous curiosity towards his own mother, which he easily recollected. The compulsion to exact truthfulness would be regarded in some quarters as an over-compensation for feelings of guilt.

The relation of obsessive-compulsive psychoneurotic disorders to the psychoses is a problem not yet solved. Attention has been called to the presence of obsessive-compulsive phenomena in manic-depressive depressions. The psycho-analyst holds that it is primarily a matter of the type of libidinal organisation; with the obsessive-compulsive psychoneuroses there is regression to the anal sadistic stage, in comparison with the melancholic where the regression is held to be to the second oral or cannibalistic stage. It is not very uncommon for an obsessive-compulsive state to be followed by a psychosis, but the percentage of cases in which this occurs is not known. A. Gordon has recently described 6 cases in which such a sequence occurred. In one of his patients the obsessive-compulsive state passed into a self-accusatory depression, with suicide; in another the transition was directly into a depressive psychosis, with suicide; a third patient in a hypochondriacal depressed state developed phobias, then obsessions, and finally a schizophrenic paranoid state; in a fourth, an obsessive-compulsive state in a schizoid individual passed directly into a paranoid state; another patient with a long-standing obsessive-compulsive condition passed gradually into a schizophrenic (hallucinatory paranoid) psychosis; and another was so discouraged and exhausted by his compulsions to pray that he became depressed, began to rationalise his praying compulsions on a self-accusatory basis and finally developed a hallucinatory paranoid depressed state.

In this series of Gordon's the striking fact is the appearance of a paranoid psychosis in 4 of the 6 patients. One of the possible—perhaps the commonest—psychopathological connections between obsessions and persecutory delusions was well illustrated by the transitions already remarked upon in the case of L.

Treatment.—The treatment of persistent ruminations depending on an anxiety state (one of the simple types of obsessive rumination described above) is the same as the treatment of anxiety states in general, but is likely to be more prolonged than

usual. Where the obsessive rumination depends on an inability to reconcile objective facts with desires, or facts with childish preconceptions, discussion and modification of the desires and preconceptions bring about a recovery. Where the motive power of the obsessive preoccupation is remorse—and probably much of the malignancy of obsessive-compulsive states depends on their basis in feelings of guilt and remorse—discussion of the foundations of the remorse when it is discoverable and readjustment of the mental attitude to them will commonly help a great deal.

The mild obsessive-compulsive conditions found in children are usually not to be taken too seriously, and especially not to be taken seriously in the presence of the child. Otherwise he may become morbidly impressed with the importance of something which is very common in children, and which in most cases lapses with time. It is important to win the child's confidence, however, and to reassure him with some of the adult attitudes towards his fears.

The treatment of the classical obsessive-compulsive type of illness is a matter of much greater difficulty, but there is now evidence that in some cases psychoanalytic and closely allied forms of psychotherapy can have considerable and even curative effect.

Special Technique in the Treatment of the Psychoneuroses: Psychoanalysis

Psychoanalysis has been so much discussed and so fiercely attacked that it becomes necessary to say something of its general value before discussing its particular applications in treatment. It is essential in the first place to distinguish between psychoanalysis as a theoretical psychological system and psychoanalysis as a method of treatment.

Psychoanalytic Theory.—As a theory, there is no doubt of its epoch-making importance not merely in the field of mental disorders but in normal psychology. Much of what was previously completely mysterious—for example, many of the delusional utterances of patients—becomes comprehensible when psychoanalytic principles are applied to its interpretation. It is true that the better-founded psychoanalytic conclusions had often been foreshadowed; that there has been a great deal of wild speculation and unjustifiable attempts at unification of more or less detached phenomena in subsuming them all under

the term "sexual"; and that a great deal remains not only to be discovered but to be confirmed. But as a body of knowledge—for much of it must now be accepted as having a phenomenal and not merely a conceptual basis—psychoanalysis casts a light on many an obscure problem not only of normal and morbid psychology but of other provinces of science, including especially some branches of anthropology. Psychoanalytic theory is practically the creation of one man, Freud, and was originally founded by him on his observations of psychoneurotics. But the same principles were soon applied, with considerable success, to the psychoses by Jung (in his *Psychology of Dementia Præcox*), by Bleuler in his works on schizophrenia and by Freud himself in his *Psychoanalytic Notes of an Autobiographical Account of a Case of Paranoia*. The application of this theory to the psychoses has not been as fruitful for their comprehension as in the psychoneuroses; but many of the relationships of the morbid mental processes in the two groups of conditions have been demonstrated.

Among the most important theoretical contributions made by psychoanalysis is the emphasis of the earliest experiences in life, especially those derived from the family environment, on the subsequent mental make-up of the individual. It has been shown more clearly than ever that the child is indeed the "father of the man". Another concept, fundamental not only for psychoanalysis but for any comprehension of mind, is that of the unconscious, and its rôle in mental processes generally and in the production of symptoms. The concept of repression is closely related to that of the unconscious, although not every one finds repression as literally present as a perusal of Freudian writings would suggest. The psychoanalytic method of dream-interpretation depends on the foregoing concepts and on the principles briefly summarised in the section on "Dreams" (*vide infra*). That part of the psychoanalytic theory which deals with sex is the one most in dispute, and it is responsible for most of the antipathy which has been displayed towards the entire psychoanalytic structure. It includes the theory of infantile sexuality, which means in part that feelings and tendencies of a sexual kind exist in the child from its earliest days, and do not begin with puberty, as used to be so generally supposed. The general supposition was obviously fallacious, but it is unfortunate that Freud has chosen to clothe his descriptions of infantile affective tendencies in terms of adult sexuality. It seems better, because probably more accurate, to speak simply of the child's "affective attitudes"

to his parents and others in his early environment, rather than to construe them as sexual, however "wide" and inclusive the term may be made. Regression, already defined (*vide* chapter on "Psychopathology"), and "sublimation" or the utilisation in socially higher activities of energy derived from primitive instinctive forces, constitute the rest of the more important psychoanalytic generalisations.

Psychoanalysis as a Therapeutic Measure.—When it comes to assessing the value of psychoanalysis as a method of treatment we are on much more dubious ground. There is, however, no doubt at all that as a therapeutic weapon psychoanalysis can be dangerous, and that much harm has been done both to individual patients and to the general repute of psychoanalysis by injudicious practitioners of the method, who often disregard the limitations which Freud himself explicitly defined as early as 1904—limitations which have not since been materially modified. Freud considers that the morbid conditions peculiarly favourable for psychoanalytic treatment are "chronic cases of psychoneuroses", hysterias, both of the conversion and so-called "anxiety" types, and obsessive-compulsive states. But they must exhibit few violent or dangerous symptoms. "During periods of confusion or melancholic depression [*sic*] nothing can be accomplished even in cases of hysteria." Hence "acute cases of hysteria" are debarred from this kind of treatment till a calmer stage appears, *e.g.* such acute conditions as anorexia, with bodily emaciation, and "all cases where nervous exhaustion dominates the clinical picture". By this last reservation Freud evidently intended to exclude "neurasthenia" as at first conceived by him and the "anxiety neurosis", since in his opinion at that time they were referable to physical causes. But most psychotherapists now recognise the psychical ætiology of these conditions and treat them accordingly.

It is also laid down (*vide* "On Psychotherapy" and "On Psychoanalysis", Freud's *Collected Papers*, vol. i.) that the patient must be intelligent, and that he must have a certain amount of education, and a certain degree of "ethical development". "Deep-rooted malformation of character, traits of a degenerative condition . . . can scarcely be overcome." Further, the patient must not be too old. If his age is "near or above the fifties . . . the mass of psychical material can no longer be thoroughly inspected, the time required for recovery is too long and the ability to undo psychic processes begins to grow weaker". The patient must also be co-operative and consciously desirous

of recovery. Persons forced into treatment by their relations are unsuitable subjects. Finally, as far as the patient is concerned, he must have money, because psychoanalysis is long and tedious and takes too much of the doctor's time to be done gratis, and the very expense of the treatment furnishes a motive to benefit by it. The length of time necessary for a cure to be effected may be very great—up to six years or even more. It should be added that "compensation neuroses" (after accident) are not amenable to psychoanalysis.

Psychoses of all kinds are unsuitable, although some successes have been claimed in the treatment of paranoid states, in "early dementia præcox" and in averting recurrences of manic-depressive attacks. Claims of this sort must be inspected with the greatest reserve. The only psychotics we have seen who had been analysed at one time or another have not benefited by the process, but then one sees only the failures. It should theoretically be possible sometimes to prevent manic-depressive recurrences by analysis in the quiescent period, but the cases so far reported are few, and the results are still uncertain and must of necessity remain so. Pierce Clarke has claimed good results in the psychoanalytic treatment of retarded depressions. We feel that where early schizophrenia is suspected, psychoanalysis should be avoided. Bjerre claimed to have cured a case of paranoia by analysis, but it was not psychoanalysis in the exact sense of the term.

The limitations of psychoanalytic therapy appear, therefore, on Freud's own showing to be very narrow, but the indications have somewhat widened since he wrote in 1904. The obsessive-compulsive psychoneuroses have been found to respond in some cases fairly well to psychoanalysis or allied forms of psychotherapy. Freud claims, however, that even with the limitations mentioned there remain very large numbers of neurotic people to whom psychoanalytic treatment is applicable. We consider that there are further limitations which may arise in individual cases. It seems necessary to estimate beforehand the possible effects of submitting to a prolonged analysis even a patient who conforms to all the above requirements; whether, for example, persons of a sensitive idealistic type who have met their difficulties by interest in social, philanthropic and religious works should be submitted to the influence of psychoanalysis rather than be treated by the simpler methods described above. It also seems necessary for the physician to have a clear view of the circumstances surrounding the onset of a psychoneurosis;

where immediate material circumstances, *e.g.* disappointment in a career, financial difficulties and the like, play a large part, it is then superfluous and often harmful to enter upon a course of psychoanalysis. We are of the opinion that Freud's own restriction of the treatment to chronic psychoneurotics is a very proper one. " Psychoanalytic therapy was created through and for the treatment of patients permanently unfitted for life." Nevertheless, any well-founded psychotherapy must employ some at least of the principles so fruitfully emphasised, if not always first propounded, in psychoanalytic theory.

Methods of Psychoanalytic Therapy.—These can, of course, be learned only from the actual practice of psychoanalysis, and only the chief points in technique can be mentioned here. Freud recommends an hour's treatment per day, six days a week. The patient reclines on a couch and the physician sits behind him, out of his direct vision. The analyst asks the patient to talk about himself, by the method of " free association "—the patient is asked to relate without reserve whatever comes into his mind, no matter how irrelevant it may seem, or how personally objectionable it may be. The physician in the earlier descriptions of analytic technique did not intervene, except to urge the patient when the flow of his talk was temporarily arrested. Where an arrest of this kind occurs, it is usually said to be due to " resistance ", which may be either a more or less conscious desire to withhold some unpalatable piece of information or may be due to influences that are wholly unconscious, *e.g.* those of the super-ego. Nowadays the treatment is " made up of two parts, out of what the physician infers and tells the patient, and out of the patient's assimilation of what he hears. We give the patient the conscious idea of what to find, and the similarity of this with the repressed unconscious idea leads him to come upon the latter itself " (" The Future of Psychoanalytic Therapy ", Freud's *Collected Papers*)—which seems to show that suggestion plays its part, although analysts profess to avoid suggestion. It is probably unavoidable in some degree. The physician's interpretation of the material offered by the patient is based on the general theory of psychoanalysis (such as the Œdipus situation) applied to the data in question. The feeling which springs up in a patient towards the doctor with whom he or she is closeted for so long a time is called the " transference ". There are two aspects of transference. In the first place, it is held that the psychotherapist is made to occupy in the patient's mind various rôles formerly played by the patient's parents, brothers, sisters, etc., in early life. Secondly,

in accordance with this, the patient feels with regard to the analyst the emotions of love, hate, fear, etc., which he once experienced towards those other people in his infancy and childhood, some of which he sooner or later repressed. The task of the analyst is said to be to employ this " transference " to overcome the patient's " resistance "—to take advantage of the revival of the old situations to have them dissected consciously, and the reason for their repression clearly exhibited. The process gives the patient an opportunity to work off (" abreact ") the original feelings connected with the situation. In the most recent development of psychoanalytic technique, it is held that it is the analysis of the transference in its various phases that is the essential process.

Naturally the psychoanalyst, like any other observant physician, uses every little trait which the patient presents to help him in his estimation of the patient's personality and his problems.

Jung has diverged to some extent both from the theories and the methods of Freud. Laying less emphasis on the sexual interpretation of symptoms, he regards each neurotic illness as an attempt at solution of the general problems of the patient's life. Symptoms and symbols generally he interprets in a more abstract way than Freud does.

Psychoanalysis makes considerable use of the interpretation of dreams for the elucidation of the underlying causes and symptoms.

Dreams are the representations, in the disturbed state of consciousness called sleep, of unconscious mental states, based on experience of both the lapsed and repressed kinds. It is customary to call the dream-content as remembered by the dreamer the " manifest " content, and the unconscious processes which give rise to the latter the " latent " content. This distinction is of considerable importance when applied to psychopathology, for it is held in the Freudian theory that the manifest content is produced from the latent content in the same way that symptoms ("manifest") are produced from unconscious ("latent") factors. The latter are said, on the basis of the theory of repression, to be made palatable to the ego by various methods of transformation by which the manifest content is finally manufactured. It would perhaps be more generally correct to say that in a state of lowered consciousness such as occurs in sleep, more primitive mental processes occupy the field. Visual imagery, for example, which was shown by Galton to be much

more used by children and the uneducated than by educated adults, plays a large part in dreams. Nevertheless, it also can subserve repressive ends, on account of the distortion involved in clothing everything in visual images.

The methods of transformation which unconscious material undergoes before constituting the "manifest content", are chiefly condensation, displacement, secondary elaboration and symbolisation. By condensation is meant that the manifest dream is a kind of abridged edition of the latent content, this result being obtained especially by the blending into one whole of several latent elements with some characteristic in common, *e.g.* one person in a dream may represent several people actually known to the dreamer. *Displacement* consists in the transfer of the emotional setting of one idea to some other apparently insignificant idea, as has already been explained for symptoms. *Secondary elaboration* consists in welding the dream-content transformed in the other ways described into something like a coherent whole. By *symbolisation* is meant that certain objects which occur often in the manifest content of dreams have a fairly constant symbolic value—they stand regularly for the same unconscious content or latent dream thought. In the hands of Freud the standard symbols have usually a sexual significance. Symbolisations of a more general type occur, *e.g.* a man recovering from a neurotic illness, anxious to get well, and finding the way hard, dreamt that he was crossing a bridge, that it progressively narrowed, so that he had to clamber along the parapet, but that finally it widened and he could proceed safely and easily.

Dreams in general, like the one just related, are considered to be fulfilments of wishes, conscious or unconscious, and often of the repressed type.

Jung emphasises a purposive aspect in dreaming and also in the neuroses—an attempt to solve an immediate problem.

In the *word association* test a line of stimulus-words is read off to the subject and he is asked to respond to each word with the first idea that comes into his mind. Different types of responses are noted, according to the length of time that elapses between the giving of the stimulus-word and the reply, and according to the nature of the reply itself. By this means clues are said to be obtained to the unconscious mental content, especially to the complexes. The method is not of much value clinically. For full particulars the reader is referred to Jung's *Studies in Word Association* (trans. Eden).

Prognosis.

There have recently been published a number of studies of the recovery rate following various methods of treatment. Criticism has been made of these studies, as for example that no statistics are of value unless the patient is re-examined. But as Ross points out, only the patient (if he is psychoneurotic and not psychotic) knows whether he is well again or not: and it does not, therefore, seem fallacious to ask him, even if only by post.

The result of a follow-up of 1186 cases treated at the Cassel Hospital one year after discharge gave 40 per cent as well and 25 per cent as "improved". The more or less corresponding figures from the Berlin Psychoanalytic Institute are 40 and 18 per cent. The results, in spite of considerable difference in method and time occupied (the Cassel Hospital cases were treated for an average of 4·1 months; the Berlin cases for an average of 17 months), are remarkably alike. As regards rigidity of criteria of cure, there is probably little to choose between the two places. The Berlin figures refer to cases treated by psychoanalysis in the strictest sense; the Cassel Hospital cases were treated by hypnosis, explanation, persuasion and sometimes by a modified form of analysis. The close similarity of the results supports Ross's argument that shorter methods might more often be employed with satisfactory results.

On the other hand, attention has been called to the statistical uniformity of the results claimed for different methods so diverse as psychoanalysis on the one hand and purely conservative treatment on the other. Hinsie has pointed out that even for psychotics in general the discharge rate as recovered or improved is 40 per cent. But this figure includes both "recovered" and "improved" cases and is therefore significantly less than the recovery rate for psychoneuroses. A more comparable figure is that obtained for the treatment of milder forms of psychotic breakdown and of psychoneuroses by purely conservative methods. This figure was 60 per cent for the Woodside Hospital in former years, which again is a very similar rate to the combined recovery and improvement rates quoted above.

Consideration of these figures would suggest that some biological constant was present which provided a recovery and improvement rate of a fairly constant kind, independently of therapeutic efforts. But statistics always mean the lumping together of individual differences where the differences themselves may be of great importance, and the varying standards

for "recovered" and "improved" in different places make comparisons of dubious worth. Only the experience of individual cases and of watching their relation to the steps in treatment can carry conviction of the efficacy of the psychotherapeutic method; and while it is true of some cases that "the psychotherapist who understands his patient well and knows how to use psychological stimulation, succeeds with any method he cares to use", this is not true in many instances of anxiety psychoneurosis (anxiety hysteria) unless "understanding his patient well" means all that it needs to mean in the sense of understanding the precise basis of his symptoms; in which case this pronouncement of Janet begs the question. Moreover, these comparative studies fail curiously to take account of the previous duration of the symptoms; and therefore do not invalidate Freud's claim for psychoanalysis (or its modifications) as the means of access par excellence to chronic psychoneurotic conditions.

The prognosis does not depend entirely on the treatment. There is no doubt that spontaneous recoveries occur in a fair percentage of cases, and that a recovery of sorts can follow all kinds of treatment presumably on the basis of its suggestive value; but the criteria of recovery have to be carefully inspected in this connection. The quality of the recovery can only be gauged by the ability of the patient to withstand the strain of life over the subsequent years.

Sexual Aberrations (Inversion, Perversion and Fetishism).—It is conceivable that in a considerable proportion of these conditions there is a constitutional factor, *e.g.* a specially strong anal erotism; although it often is impossible, in a reductive analysis, to distinguish beyond a peradventure the constitutional from the "conditioned" and the psychogenic.

Homosexuality.—A constitutional factor suggests itself in a number of homosexuals (fixation and repression), on two accounts:

(*a*) That an apparently significant number of them show not only strong artistic interests, but also special artistic ability. They are fond of the arts, music, drama, ballet, painting, etc., and often show more than the average skill in one or the other; they have excellent æsthetic taste, tending to the exotic (cf. "The Picture of Dorian Gray"); and many of them follow appropriate careers, *e.g.* the stage and interior decoration.

(*b*) On the physical side, it has been shown that they tend to

show in a higher percentage than heterosexual controls, physical characteristics belonging to the opposite sex (*e.g.* horizontal pubic hair).

Some homosexuals appear to be the victims of early conditioning (in a number of cases, the first sexual experience appears to have been a homosexual assault at the hands of an older man), but it is doubtful whether this is ever permanently effective without some sort of predisposition, constitutional or psychogenic. Other cases are clearly the result of faulty upbringing, especially explicit parental prohibition in early adolescence, so that all heterosexual interest becomes repressed. Such late repression is readily accessible to psychotherapy.

A third group, much commoner, appears to be determined largely by unconscious factors, consisting of :

(*a*) an Œdipus situation ;
(*b*) an unconscious picture of the mother (she is consciously idealised) as a fearsome, dangerous object.

The unconscious fear of her is evidently a fear of castration, since the female genitals are pictured as capable of inflicting damage, *i.e.* of castrating.

According to Freudian theory, this is explained by—

(*a*) the perception that the female lacks a penis, this perception implying a threat of castration ; and
(*b*) a regressive identification of the vagina with the mouth (vagina " dentata ", and therefore dangerous).

The result of the conscious mother identification coupled with the unconscious fear of the woman is that the patient becomes capable of falling in love only with people who would have resembled himself in her eyes in his earlier life, *i.e.* with younger men or boys. Another " solution " consists in identification both with the mother and with her sexual position, so that the homosexual puts himself in the same position as the mother with regard to the father, *i.e.* passive and feminine. The first solution is said to be determined by a pre-existing narcissistic type of libido-organisation, and the second by a pre-existing anal fixation.

There are many homosexuals in whom the sexual attitude is much less clearly defined.

Fetishism.—According to Fenichel, the repressed material behind fetishism is almost identical, but the choice of a " part-object ", *e.g.* a foot instead of the whole woman, is related to its

capacity to symbolise a penis, because the fetishist seeks to deny (*i.e.* is afraid, on account of castration anxiety, to admit) that the female has no penis. Exhibitionism is explained in Freudian theory, as essentially arising from a refusal to contemplate the same thing.

CHAPTER VIII

AFFECTIVE REACTION-TYPES: I. MANIC-DEPRESSIVE PSYCHOSIS

THE term manic-depressive psychosis was introduced by Kraepelin to characterise disorders of affect consisting either of elation or depression—disorders which had previously been termed mania and melancholia in the belief that they were quite separate diseases.

The first attempt to formulate a clearer conception was made in 1854 by Falret senior and Baillarger, who independently described recurring attacks of mania and melancholia in the same patient. This was followed in 1879 by certain observations by Falret junior, who published a paper on what he termed *folie circulaire*. This he described as "a hereditary affection generally found in a similar form both in ascendants and descendants". His paper contains a detailed description of the typical alternation of mood from periods of excitement to periods of depression. In addition, he specifically mentioned the existence of "mixed states", which he considered were transitory stages between attacks of mania and depression. In 1882, Kahlbaum spoke definitely of the phases mania and melancholia not as two separate types of mental disorder, but as two stages occurring in the same disease. He used the term cyclothymia to designate the milder, recoverable types, while the more grave, lasting types he called "vesania typica circularis". Hecker likewise used the term cyclothymia, and drew attention particularly to the non-dementing features. These observations preceded the observations of Kraepelin, who made a further advance when, in 1896, he formulated his conception of the manic-depressive psychosis. In this group he included the whole domain of periodic and circular insanity, simple mania, the greater part of the morbid states termed melancholia, and also a considerable number of cases of confusion or delirium. He considered that all these

conditions were representations of a single morbid process, and he showed that the different phases might succeed and replace one another in the same case—mania might lead to melancholia, with transition stages. His contribution was a stimulating and important one, because it not only conduced to a more careful analysis of symptoms in the individual case, but was of even greater importance from the point of view of prognosis; for Kraepelin declared that such attacks might occur throughout the life of the individual, and would never lead to profound dementia. He stated: "Usually all morbid manifestations completely disappear, but where that is not the case, only a rather slight, peculiar psychic weakness develops, which is just as common to the types here taken together as it is different from dementias in diseases of other kinds". The deterioration is characterised chiefly by a shallowness of mood, an acceptance of the situation, and a readiness to be guided—it is more a state of invalidism, which the patients themselves appreciate, than a true deterioration.

Ætiology

Hereditary predisposition is the most important predisposing ætiological factor. Kraepelin and numerous others have stated that 60 to 80 per cent are hereditarily predisposed. When this type of disorder exists in the parents, the same type is likely to show itself directly among the descendants, but other types of mental disorder may also occur, *e.g.* schizophrenia. The importance of the hereditary factor has been confirmed by Rosanoff, Handy and Plesset in their analysis of 23 pairs of monozygotic twins and 35 pairs of same sex twins who were probably dizygotic. Both twins were affected in 69·6 per cent for the monozygotic and 16·4 per cent for the dizygotic. Women are more liable to this disease than men; it is estimated that 70 per cent of the patients are women. So far as the influence of race is concerned, the Jews show a higher percentage of manic-depressive cases than any other. (See also under "Ætiology", general chapter.)

In considering the mental and physical endowment of manic-depressive cases, Kraepelin has remarked on the fact that intellectually such patients reach a good standard, and relatively few could in any way be considered weak-minded. On the physical side, he emphasises symptoms of physical degeneration, malformation, distortions, smallness of the head, hydrocephalus and infantilism. Many patients are reported to have had

infantile convulsions, nocturnal enuresis, and slowness in learning to walk or speak. Our experience does not correspond with Kraepelin's, and we believe that the physical anomalies mentioned above are no more frequent in manic-depressive cases than they are in the ordinary population. Kraepelin inclines to the view that manic-depressive cases suffer from a disorder of metabolism, and mentions in support of this the fresh colour of the skin, the luxuriant growth of hair, and the elastic, vigorous movements of the manic; contrasting with the depressed patient's pale, wrinkled skin, dull eye, stoppage of growth of the nails, scanty menses, and scanty lachrymal secretion.

Kretschmer has attempted to differentiate mankind on the basis of their physical state. He has termed the short, stocky people with thick necks his "pyknic" type, in contrast with the thin, visceroptotic "asthenic" or leptosomatic type, and the long-limbed, muscular "athletic" type. The former group-type is usually associated with people showing a manic-depressive psychosis, while the latter types are more frequently seen in cases of schizophrenia.

From the purely mental side, Meyer, Hoch, Kirby and Bleuler, have pointed out that the mental make-up which frequently characterises the individual in whom a manic-depressive psychosis occurs deserves close study. The manic-depressive disposition is one in which the affect swings from states of elation to states of depression in people who are generally recognised to have frank, open personalities. They are either bright, talkative, optimistic, aggressive people, who make light of the ordinary affairs of life, or else they take a gloomy outlook, bewail the past, make mountains out of mole-hills; or there is a combination of the above moods, rendering the person emotionally unstable and variable. Reiss gives his cases in percentages:

Type of pre-psychotic temperament.	Psychoses.		
	Depressive.	Manic.	Combined forms.
Depressive temperament . .	64·2	8·3	27·5
Manic temperament . .	35·6	23·3	41·1
Irritable temperament . .	45·5	24·4	30·1
Cyclothymic temperament .	35·3	11·7	53·0

Quoted from Kraepelin.

The variability of affect may never go beyond normal limits. The mood of most people does swing to a certain extent, but

such changes are transitory, and interfere little with daily activities. Some "gastropaths", some sexual "neurasthenics", and many who suffer from obsessions, are probably closely related to the manic-depressive groups.

When manic-depressive disorders arise from a clear sky, without any definite precipitating factor, they are termed constitutional or endogenous. There are cases styled *reactive depressions* (and there are also, but more rarely, reactive excitements) because the condition follows upon some obvious exciting cause. These are sometimes illnesses of the classical manic-depressive variety, in which the precipitating factors are unusually clear (the "psychically-produced melancholia" of Lange). Others with similarly obvious precipitants show an ability to react to intercurrent stimuli (such as the doctor's visits), combined sometimes with attacks of weeping, or of anxiety, various hysterical symptoms, and a tendency to blame others rather than themselves,—or if they are self-accusatory, it is in a tentative manner, seeking reassurance for their blamelessness. These are the so-called "psychogenic depressions" of Kraepelin, and they are more properly classed with the psychoneuroses.

Psychopathology

A number of suggestive indications of the psychopathology of these conditions will be derived from a study of the case-histories to be given below. The following general account is largely derived from MacCurdy's *Psychology of Emotion*.

(*a*) **Manic states.**—The elation that is so prominent a symptom of manic states is to be regarded as the mood appropriate to the fulfilment of a wish; its pathological intensity is a measure of the strength of the wish. What makes the elation pathological is not that there is nothing in the conscious content that would justify it if it were true—there often is, in the form of fleeting grandiose ideas, for example—but that there is nothing in the external circumstances that apparently justifies the elation. The reason for the elation lies outside of consciousness, although often very close to it, breaking through sometimes in the fragmentary utterances of the flight of ideas. What happens is that from some very strong wish that has been repressed into unconsciousness, the repression is at least partly removed, and the patient feels and behaves as if the wish had been fulfilled. Sometimes the wish is for some adult gratification, *e.g.* marriage, but

more often the wish is one that has developed at the childish stage of mental development and has persisted into adult life, *e.g.* for the death of a disliked parent. Sometimes external circumstances contribute to the wish-fulfilment, and so precipitate a psychosis. For example, the hated relative dies—let us suppose it is the mother of an individual who has from childhood had an abnormally strong liking for her father, and so, as a child, wished her mother out of the way (the "Electra complex" —the feminine counterpart of the "Œdipus complex"). This wish was repressed at the time and ever since. Then if the mother dies the wish is fulfilled, and the now adult woman, with the childish fixation of her affection on her father, has the chief obstacle to her exclusive possession of his affection removed. She becomes elated, but the elation appears causeless, *i.e.* pathological, and the fulfilment is poorly formulated in consciousness, if it appears there at all—either because repression continues to operate to some degree, or because the conscious formulation of unconscious wishes is a difficult task. The degree to which conscious expression is attained varies very much. Often the releasing causes of a manic psychosis are entirely within the patient's own mind, consisting entirely in phantasy.

If, on the other hand, there has been a strong feeling of guilt associated with the wish, adult or infantile, its fulfilment, whether in fact or phantasy, is apt to lead to a depression, which again appears pathological, especially because here repression continues to operate much more decisively, since the ideas are altogether unpleasantly coloured, and must be kept completely out of consciousness.

(*b*) **Depressions.**—In many depressions a precipitating cause is not recognisable. In others, the depression results from disappointment or deprivation. In a third group, the precipitant is the reanimation, often by some external event, of an unconscious trend ("wish") which, if allowed to reach consciousness, would ultimately destroy the personality. Hence a gigantic effort is made at repression (inhibition), and the inhibition becomes generalised, so that all thinking is interfered with. The trend may have a strong feeling of guilt attached to it, because something antisocial is the object of the trend, *e.g.* the death of a near relative. As in the manic, such trends may be either infantile or adult in origin. In any case, repression of the guilty trend having occurred, depression appears as the conscious correlate of the now unconscious guilt-feeling. The depressive ideas which appear in consciousness are largely

rationalisations, but may have also some disguised relation to the repressed wish.

The psychoanalytic view of the psychopathology of the depressive phase is that the following factors are involved :

1. A constitutional factor in the form of inherited accentuation of oral erotism.
2. A special fixation of the libido at the oral level, that is the patient's erotic interests have lingered round the mouth zone when they should on the contrary have developed to the genital zone with complete object love. The fixation is considered to be at the second oral stage when ambivalence first becomes possible (biting is an aggressive act, not co-existent with suckling).
3. A severe injury to infantile narcissism brought about by early disappointments in love, especially love of the mother.
4. The occurrence of the first disappointment in love before the Œdipus wishes have been overcome.
5. The repetition of the primary disappointment in later life as the exciting cause of the depression. But for a detailed understanding of this theory it is necessary to refer to Abraham's paper on the Development of the Libido (*Selected Papers on Psychoanalysis*, 1927).

Symptomatology

Manic phase.—We have become accustomed to describe four main varieties of mania, termed respectively (1) hypomania, (2) acute mania, (3) delirious mania, and (4) chronic mania. The cases which we include in the group of chronic mania run a course so different from the cases in the other groups that it will be best to consider the chronic manias together under a separate heading. All of these varieties, however, are characterised by three main symptoms, which vary in duration and in intensity in each case. These three symptoms are (*a*) elated though unstable mood, (*b*) flight of ideas, (*c*) psychomotor activity. These basic symptoms, although present in every case, are to be considered as a background or setting for the development of other symptoms. In some cases the elated mood may predominate clinically, whereas in other cases it may be the restlessness or the over-talkativeness. Other features usually complicate the picture, and irritability, cantankerousness, suspicion, a clouding of consciousness, with delusions, hallucina-

tions, disorientation and lack of insight, may all appear. Such symptoms as irritability, suspicion, hallucinations, etc., are usually transitory, occurring at the height of the illness, and are not of the same ominous significance as they would be if they occurred in a setting of clear consciousness.

Another important general point which should always be kept clearly in mind is the fact that practically in all cases the attacks are acute in onset, the history dating back only for a few days or a few weeks.

While such conditions as hypomania, acute mania and delirious mania can readily be recognised, we wish to point out that the differentiation of these states is not by any means clean cut, and that many cases pass through such stages without any definite gradation ; some may never pass beyond the hypomanic stage, while others may from the very beginning be either acutely excited or delirious.

Manic States

Hypomania

Hypomania is the mildest variety, and although it is characterised by the individual symptoms previously mentioned, *e.g.* elation, over-activity, flight of ideas, these are not greatly developed. The patient continues to have a keen realisation of his position and environment, and does not exhibit such extreme disorder of conduct as to bring him into conflict with his fellows. For a time he is merely considered a " live wire ", witty, a man with ideas and aggressiveness, a social success; and it is only in the further course of the illness when he becomes interfering, irritable, domineering, and has too many schemes on hand, that his friends suspect that something is wrong. He tends to monopolise conversation, expresses his views dogmatically, drifts from one topic to another and shows a flight of ideas. His schemes, though feasible, are never thoroughly worked out. He is inconsistent and changeable ; yet he feels more fit than ever before. When reasoned with, he is intolerant of criticism, becomes sarcastic or rude, changes the subject, thinks that the person who does not see eye to eye with him is a fool, and does not hesitate to say so. He is lacking in moral control, and may indulge to excess both sexually and in regard to drink. It is frequently on the basis of such disordered conduct that he comes under institutional treatment or is apprehended by the police and taken to prison ; *e.g.* a man with a very distinguished

record was apprehended for buying motor cars with worthless cheques and it was not until he recovered that he became fully conscious of the significance and seriousness of his action. Under institutional conditions such a patient is most difficult to manage. He resents restraint, wants to better the ward arrangements, is arrogant towards officials, staff and other patients, and constantly lodges complaints, writing long letters to the Board of Control, the directors of the institution, the Home Secretary, Members of Parliament and others. In his conversation, all manner of trivial details are introduced, but the talk never develops into incoherence ; whatever he says can be followed and understood, but the patient rarely completes any topic. His memory is excellently preserved. Although many incidents may be distorted, ready explanations are given (*folie raisonnante*). Perhaps the most striking symptom of all is the extreme restlessness ; such a patient must be doing something all the time ; he feels that he can do everything better than any one else, writes long letters, takes part in all manner of games, is never still, and yet does not seem to experience an ordinary sense of fatigue. There is no clouding of consciousness ; his orientation for time, for place, and for person is correct ; and there is no evidence of hallucinations or delusions. As a general rule, he does not realise that he is seriously ill, his judgment being impaired.

Case 22.—Hypomania. Summary : An enterprising successful man almost continuously ill for the past sixteen years with alternating attacks of depression and elation : now in a state of hypomanic excitement : over-active, talking continually and writing numerous letters : both talk and writing showing obvious flight of ideas and play upon words (rhyming and punning) : his mood elated, but changing rapidly to irritability when he is crossed : and the content of his utterances showing a strong erotic trend.

P. S., 50 years old ; a professional man. He has been ill more or less continuously for 14 years, with alternating attacks of depression and excitement. One sister was stated to have been in a mental hospital, and another was described as a " nervous wreck ".

The patient himself had been an extraordinarily capable man, who had taken a high place in examinations, and had reached a position of great distinction. He was always of an aggressive type, very much a leader, described by some as too independent, by others as an agitator, and, by his son, as one who could not brook opposition.

He has been treated in various mental hospitals. In his first excited attack in 1919 he was so exalted that it was suspected he might be a case of general paralysis. At that time he said that he was very wealthy, that he was the deputy of Lord

Kitchener. He was taken to prison because of insulting behaviour towards a Jew, whom he accused of being a German spy.

The state which he has shown since he has been under our care has been essentially a hypomania.

He had been admitted to a Mental Hospital but was transferred to a private home. His condition there was described as follows :

After arrival he stated that it seemed as if he had entered Paradise after escaping from Hell, but he immediately wished to alter the domestic arrangements to meet his own whims. He woke early, and passed the time whistling in opposition to the blackbirds and thrushes. When asked by the nurse not to disturb the others, he abused and cursed her. At breakfast he talked incessantly, and made offensive personal remarks. He pointed out that one of the Matrons did not look well—that no doubt she had " spent the night on the tiles ". During the day he wandered about, acting in the most unconventional and irresponsible way. He called on the local lawyer, and wasted his time, telling him of all the actions he intended to bring. He troubled the doctor, who in consequence tried to avoid him, but this could not be done, as the patient stood beside his motor until the doctor was forced to appear and listen to his rambling talk. He threatened to get the banker into serious trouble, so that the latter complained. He disturbed the postmistress, and abused her loudly before the public, so that she also was compelled to lodge a complaint. He called on strangers, who were relatives of the staff, and demanded tea. He hinted by innuendoes, by winks and gestures, that one of the Matrons drank, and that he was going to keep his eye on her. At table, in the presence of others, he was disrespectful to her. He suggested that gross immoralities were going on, and he thought this must be so because there were " one male attendant and twelve beautiful nurses ". He himself would go to the kitchen quarters to talk to the maids, and when reproved by the Matron, flew into a temper and went to bed. He made a formal proposal of marriage to one of the nurses, and decided to divorce his wife for desertion. He told all his intimate affairs to complete strangers, such as his coming marriage, his intended divorce, and so on. At table his conversation was most objectionable, as he discoursed among the ladies about public conveniences. He asserted that he himself was a lady-killer, and provided details. He was in communication with many lawyers, requesting actions to be brought, and demanding money. On one occasion he forged the name of the lady in whose house he was staying, and sent a telegram to his wife demanding £25, which was forwarded immediately.

A good example of his condition is obtained from the following letter, in which he makes his proposal of marriage :

" My dearest G.—Y'day, I fondly believe, was as happy a day as I ever spent in this weary world of Drink, Work, & Sin. All on A/c. of you ' Matey '.

" Do you not believe in love at first sight ? I do most emphatically assert that *the moment I met you at N. station my fate was sealed.* I am not an old Turk, or even Mahommedan, but I believe in *FATE.* And if I have your ' promise true ' (' which ne'er forgot shall be ' mind) then ' *I* am yours, and *YOU* are mine '—(For ever and Beyond) as the grand old Hymn phrases it. ' And *ye* sall walk in silk (real—not celanese) attire an' siller hae tae spare '—bonnie sang that, a' aboot *L O V E* ?

' And we shall all the beauties prove,
Of Hills and Valleys, Seas and Towns, etc., etc., etc.'

" When I give my promise I make good. With St. Paul it is a case of ' What I have said, I *have* said ' always.

" But perhaps you will rejoin : ' You have a wife ? ' Yes, but after many years' treacherous thieving, lying, failure to do that which she vowed, viz.: 'Love, *Honour* & Obey', instead of putting me into vicious Asylums, I am not risking her company again. So, as I *know* she won't (*and cannot even if she would*) resist my Divorce Action for her Desertion of me in 1921, you must wait until Autumn for Ct. of Session Judge's decision. The cost is small for undefended actions nowadays under the 1922 Act, which allows ' desertion ' as a reason for granting Divorce. (It used to be that Adultery must also be proved, but that was amended.)

" So you are not taking an adulterous *lunatic* (?) If you'll have me, of course I'll settle a big sum on you for your own use, and make over my insurance and estate by Will in your favour, less one or two legacies for Charitable Institutions.

" Meantime you are my nurse—I am your Guide, Philosopher, Humble Servitor, and Lover. I could not sleep after 5 A.M. for thinking of you—and my songs were all of thee, my ideal woman, for face and figure and grace, and gracious womanly sympathy for a man without friendly relations when he is in ' these places ', but whose relations were proud of him when his income was large. ' Telle est la Vie ', m'amie fidèle.

" ' I fear no foe with thee at hand to bless ', as Toplady wrote together, in his immortal Hymn, ' Rock of Ages '.

" Tout à vous."

The above letter, with its underscored passages (here printed in italics), interpolations, brackets and flight of ideas, yet at the same time coherent, is completely characteristic of a hypomanic state.

Since his arrival under our care his condition has been very much as already outlined. He is diffuse and circumstantial in his conversation, his statements are apparently quite accurate, and dates in his career are given rapidly and without confusion, and are remembered in minute detail, even to the hour and the day when certain things happened. He talks so continuously that it is almost impossible to get in a question, but he usually answers correctly and to the point ; a few seconds later, without

any break in the continuity of his flow, he is talking about something totally different. Yet after a long digression he is capable of coming back to the main point at issue—usually, however, only to leave it again. His mood is one of constant elation. At times he is definitely euphoric, and his list of wrongs, which is very long, he recites in a whimsical, jovial way; but every now and again, especially when interfered with, or when his wishes are not immediately conceded, he becomes very irritable, often obscene, and always scurrilous and threatening. There has, however, not been any evidence of hallucinations, nor does there seem to be the slightest impairment of his intellectual faculties, except, of course, that he has no realisation of his condition, and therein shows defective judgment.

He spends a great deal of his time writing letters to various members of the staff, and he also writes to the Sheriff of the County, the Lord Chancellor's Visitor in Lunacy, the Board of Control, and his own relatives and friends. A good example of the kind of letter which he writes is the following:

"Herr Der Kaiser H——.—(Superintendent of Gartnave—Hell). Gartnavel.

"Please read, and transmit, *for action* enclosed letters to Rev. C——, and Captain of the Staff B——.

"Your early attention to these matters may be accounted unto you for righteousness (long overdue) to a sane and *ille*gally detained transfer from English Asylum run by your pal, A. J. C., thief, robber and adulterer. By your tormentor, P.

"*P.S.*—Last communication from wife or family dated May 1924. Is she dead? Is S. home from C——? Is she mentally helpless? or what?

"*P.S.*—How pleasant a dwelling place is No. 6 Male West in the absence of any female nurse. Mr. L. (attendant) has experience, tact, firmness, the will to work *silently*, etc., etc. Women, *au contraire*, jaw, jaw, yap, yap, tea swill and swank, gad about, talk scandal, and lie in their Daily Reports.

"All of which things will I affirm on oath to H. P. MacM., and Rollestons Royal Commission. P."

Another letter, addressed to the Matron, is also typical:

"Matron B.—Do you want to get hung at the Yard Arm as Pirates used to get hung for Piracy on the High Seas?

"If not, better come to terms with P. before the Directors are apprised of *your* piratical ways at G.

"And that may be sooner than you dream.

"Do your duty first—attend to your own private down-town pleasures when off duty here. Otherwise the consequences may send you into retirement without a pension, and with only a bad character from your last place. P."

So long as this patient's threats are not taken too seriously, he is quite pleasant to get on with, but he has to be handled with a considerable amount of rope. He is able, however, to conform to regulations to a wonderful extent; he has now had the

privilege of parole for a good many months, and has not in any way misused it.

The case is a good example of the constitutional reaction-type—repeated attacks, with no sufficient precipitating causes to be found.

In the following case there is a clear indication in the content of the patient's utterances of the factors leading to his illness :

Case 23.—Hypomania. Summary : A brief mild hypomanic excitement in a hitherto quiet, docile youth, following upon a transitory mild depression. The hypomanic elation showed the usual characteristics—over-activity (with erotic tendencies coming to the fore), an infectious and excessive gaiety, over-talkativeness with some punning and rhyming and lack of sustained attention. The flight of ideas and the general over-activity are not so marked as in the previous case and the whole condition was comparatively short-lived—features which are probably related to the essentially shy, quiet type of personality in whom in the present case the illness developed.

L. M., 24 years ; male ; single ; farmer. Admitted June 1920, discharged August 1920. The patient had been a very quiet, sensitive, docile youth, who was not fond of company, avoiding the society of girls especially. He had been clever at school, and had just missed obtaining a medal in his last year. Since leaving school he had worked on his father's farm. He had seemed to think that having done well at school he was too clever for farm work. Nevertheless, he worked hard on the farm, except when suffering from " stomach " troubles—he had headaches, and had to go to bed sometimes after food. During the War he showed no anxiety to join the army, but afterwards he expressed regret at not having done so. In the early months of 1920 he was mildly depressed, but nothing remarkable was observed till April, when he began to behave oddly and was removed to a nursing home. There he was mildly elated, talked diffusely and circumstantially, rhyming and playing on words, and was distractible. He was restless and sleepless, and in the latter part of May he had brief influenzal symptoms, his sputum being blood-stained and watery, and containing pneumococci and pneumobacilli, micrococcus catarrhalis and diphtheroid bacilli. On admission to hospital from the nursing home he showed all the above mental symptoms to a mild degree. He walked about aimlessly, smiling and laughing. Anything presented to him distracted his attention. He was mischievous, and tried to caress the nurses.

The following is a sample of his speech in response to questions: (Do you want to do some work ?) " Yes, I want to get out and practise music for a while." (Do you want to earn a living ?) " Yes, I got gold disc with a lion in the centre, with a wild cat down below and a tree above, from the King." (Why ?) " For bravery, service to my country—and writing letters to my friends." (Have you always been happy at home ?) " No,

at times I was very angry—had wanted a shift—had seen these things too long—got into arguments." (When you were young what did you do ?) " Well, that was a long time ago. I may have felt queer—I hurt my chest climbing trees—my lungs grew, but my stomach was too small—I could have gone without food for a long time." (Do you sleep well ?) " I don't care to sleep—I've so much energy." (Do you dream ?) " I dreamt I was flying—and if that doesn't prove that your spirit roams at night when you're in bed—electricity in your backbone which attracts eyes." (What else ?) " I'd like to be married—hadn't money—I was shy—there's a change in me—I was kind of entranced—lifted clean out of myself."

In addition he mentioned that he felt that his stomach would have to be very different before he could get married, and that he had read many sentimental books, and " thought it might be very nice sometimes—buying rings and then taking a tiff ".

His memory was good, except for events of the very recent past, which had not been attended to and therefore were not well retained. Orientation was slightly interfered with for the same reason. Insight was lacking for the nature of his illness—" I was supposed to be in consumption ".

Within ten days he became less restless, his elation gave place to uneasiness, and his talk became more connected and relevant. Within two weeks of admission he had returned to his normal state, *i.e.* a docile, quiet and agreeable fellow, rather self-conscious in manner.

Several trends were obvious in the content—the compensatory phantasy of the award of a medal (which he had missed at school), which also served to compensate his lack of War service ; the remark indicating dissatisfaction with his employment on the farm—" he wanted a shift " ; his erotic preoccupations and overt tenderness (caressing nurses) ; and his references to his bodily ill-health. The conditions which these trends indicate combined to produce a mild degree of depression, followed by an elation, in which his failings were compensated in phantasy, and in which his personality underwent a change of which he was conscious—" I was shy—now there's a change in me ".

Acute Mania

There is no sharp distinguishing line between hypomania and mania—the one grades into the other. There are cases in which a state of acute excitement develops at once without any previous hypomanic stage. Acute excitement may be preceded by a short period of sleeplessness and irritability. In this stage the elation, flight of ideas and over-activity are all more intense, and, in addition, there may be a certain clouding of consciousness with disorientation and great impulsiveness. The patient

affirms he " never felt better in his life " ; he has an air of utter superiority, he orders every one about, and his conversation and conduct are so disordered that residence in a mental hospital is imperative. The mood is merry, gay, infectious, but periods of irritability and anger are frequent. At such times his conversation becomes obscene, and his conduct unrestrained. Violent assaults are made on the officials and nurses, the furniture and bedclothing are broken and torn, the walls may be smeared with excreta, but just as suddenly there may be a return to a state of good humour, and apology may even be expressed for the previous conduct. The speech shows a typical flight of ideas, and this may proceed to incoherence. He is extremely distractible, and his attention can be held only momentarily, because whatever he sees or hears he comments on. Such a patient is " on the go " night and day. He may not be quite clear in regard to time or environment ; he tends to misidentify people, and to greet perfect strangers as old friends.

Hallucinations are occasionally present, but they are transitory. The delusions expressed are of a wish-fulfilling kind, and are in harmony with the patient's excited mood.

It is impossible to carry out an accurate examination of the memory and intellectual functions, but there is nothing to indicate that they are disordered *per se*. The insight and judgment are very poor, as a secondary result of the disorders of affect and attention.

The following case illustrates the more acute type of manic excitement, and shows the rapid transition which occurs from one stage to another :

Case 24.—Acute mania. Summary : Rapid onset of an acute manic excitement in a healthy young woman of energetic happy disposition : extreme restlessness : excessive talkativeness with continuous screaming at times : elation reaching at intervals a pitch of ecstasy : distractibility so great that comprehension was vastly impaired and the patient disoriented in consequence : shamelessly erotic behaviour along with a pronounced religious trend in her talk ; gradual subsidence with occasional exacerbations of destructiveness : complete recovery with insight.

A. L. A young lady, 32 years old, single, a school-teacher, had been ill for four days previous to her admission to hospital. She had come from a healthy stock, and had developed quite normally. She was a bright, happy, cheerful girl, who at school took many prizes in English, arithmetic and French, and after leaving became a pupil teacher. She was fond of fancy sewing, played the piano, sang in a choir, liked dancing and company, mixed with boys as freely as with girls, and was a

general favourite. She may have been somewhat over-sensitive, and is stated sometimes to have imagined slights where none were intended. On the whole, however, her personality was that of a very steady, normal, efficient girl. For about one year previous to her breakdown she had been teaching a special class of physically defective children. A few days previous to the onset of her illness she was noticed to be more " on the go "—at the pictures, at a dance, and attending a meeting in church. She showed an unstable emotional state, burst into tears without provocation, and next moment would be laughing and saying that she was all right, " just needing a rest ", " just tired ". Soon she became more talkative and restless ; she took little food, she did not sleep, except under the influence of a drug ; she tended to recall the past, and to talk about former imaginary slights. Subsequently, she expressed peculiar ideas, declaring that her mother was dead, and when reassured about this, that her friend upstairs was dead. She declared that she was acting under God's orders, that she had spoken to God, and a good deal of her conversation consisted in her repeating what she said God was telling her.

At the time of her admission she asked the doctor to kiss her, and because he refused she said she could not trust him. She talked incessantly, accused the doctor of having been drinking, and then immediately began to talk about God, and about how God meant her to suffer. " I have got a pain here," pointing over her heart. " It is me that is going to have the baby ; God has made me say it now that I am going to have a baby : it was my fault—his fault—he was selfish ; it is that that has nearly driven me out of my mind." She explained how God meant everybody to be happy—God had told her to have a baby, and, at the same time, she felt sure that she was going to die. This idea of death constantly recurred throughout her conversation. At times she refused any nourishment—she would not even take fluids. She screamed at the pitch of her voice, saying that the doctor was to " die, die, die ", shrieking it till her face was livid, the veins congested almost to bursting, and her pulse racing at about 160 per minute. On account of her great excitement she had to be tube-fed, and had to be given paraldehyde to help her to rest. The intense excitement was accompanied by great motor restlessness. She was distractible, commented on things around her, misidentified people, and was disoriented both in regard to time and place. Her conduct at times suggested that she was seeing visions. Her condition approached a state of ecstasy, when she would sing " How blessed are the messengers that preach the Gospel of Peace ", and then would continue the air in a kind of recitative, interspersed with questions and conversation. She maintained that she still heard God's voice talking to her, believed herself to be God's spokesman, and frequently identified herself with God. In contrast, she was foolishly erotic in her behaviour, made

attempts to embrace the medical officers, exposed herself, and was quite shameless.

In the course of a few weeks improvement began to take place, but at intervals she had very excited periods, when she smashed the crockery, tore her bedclothes, smashed the glass panels in her room, and flung the fragments at the other patients. These periods gradually became fewer and briefer, and finally she reached a stage where she was able to discuss her illness, and gained complete insight for the fact that she had been mentally ill.

Here, then, was the history of an acute illness of rapid onset, rapidly passing through the various stages of the manic reaction, and terminating in an excellent recovery. The condition seemed to be partly explained by exogenous causes, *e.g.* the strain of teaching, and the fact that she was the main support of her home. Her psychosis exposed erotic trends, and the fulfilment of her wishes, at the expense of sane thinking.

Delirious Mania

This is the extreme stage. It may spring from a hypomania, and then pass through a stage of acute mania, or may develop at once without the other stages having preceded.

The individual is totally disoriented for time, place and person. Conversation is incoherent, and the patient is so excited that he can only be restrained by a powerful hypnotic. He is never at rest; he tosses and rolls about, is in a ferment of activity bodily and mentally, and unless this is controlled by means of drugs or otherwise he rapidly exhausts himself. Auditory and visual illusions and hallucinations, and suspicions and delusions develop. Such patients behave in the most shameless way; they not only do not take any pride in their personal appearance, but they are careless in all their habits. They have no realisation at all of the serious nature of their illness, and do not therefore co-operate in treatment.

Such cases were first described by Luther Bell in 1849 and were known as Bell's mania. From their acute nature and high death-rate they were also named (1) typhomania, (2) delirium grave, (3) collapse delirium. If recovery occurs the condition, when arising *de novo*, does not usually recur, or at least there is a long interval between attacks. Kraines (*Am. Jour. Psych.*, 1934) has given an excellent review, and suggests that they should continue to be known as Bell's mania.

The following case illustrates the delirious type of excitement:

Case 25.—Delirious mania. Summary: Extreme manic excitement of rapid onset in a young woman of an enterprising, hard-working dis-

position. Continuous wild excitement, regardless of physical needs of any kind : talkativeness so incessant and disconnected as to amount to incoherence : great elation : attention given to nothing for more than a second or two : intercurrent infection : gradual subsidence with playful happiness in the meantime : ultimate complete recovery with insight, but amnesia for the period of extreme excitement.

M. A. An unmarried woman, 26 years old, was admitted to hospital in a state of great excitement. She would not co-operate in an examination, answered questions at random, talked in a fragmentary, almost incoherent way, and had no appreciation of time or place, or people around her. She tore her clothes, refused her food, jumped in and out of bed, spat on the bedclothes, and often would run up and down the ward in an aimless way. It was impossible to gain her attention. Her excitement was so intense, and her co-operation so poor, that it was necessary to tube-feed her. Her mouth was in a foul condition, her tongue was thickly coated, she was careless and inattentive to bladder and bowels, and she had bruises on her arms and legs. There was no evidence of any organic disease, but physical examination on account of her great restlessness was very difficult. Her weight was 6 st. 3 lb. After a few days her mouth became much cleaner, she looked better, but she was sleeping very poorly at night, was still very restless, tended to be flighty and flippant in her talk, and was tremendously elated. She talked in a low, hoarse voice, and was very difficult to follow. During any examination she would shift about in her bed, attempt to get out, play with her hair, tuck the sheets round her arms, and so on. When asked how she was, she said, " Just daft, dearie. Knife and fork—no, they would not do it." She paid very little attention to questions, and answered more or less at random. She said she wanted " One, two, three sugars : Aunty Jinty filled her pockets—dickey birds—it's the highest—you can roll round as much as you like ".

Six weeks after admission she was still restless and inaccessible, and her temperature now rose in the evenings often as high as 103°. Two weeks later it was found that she had a swelling of her left leg, which seemed to be caused by a thrombophlebitis, which reacted to treatment. This condition was accompanied by an irregular but gradually declining temperature. At this time she was constantly wetting, and a catheter specimen of her urine showed a considerable bacilluria. Gradually she became less restless, her temperature came down to normal, she began to take her food well, and slept for from seven to eight hours every night. She still was flippant in her answers, and when asked what place this was, she replied, " I suppose it is a blooming hospital ". What is my name ? " Walter." What is my business ? " Nothing at all." She then laughed uproariously, and said, " Excuse me for laughing ". When asked what had caused her illness, she said, " An explosion in San Francisco ", and enjoyed this reply very much. Her whole

attitude was still one of great elation; her laughter was of a merry, infectious character, and there was a great deal of restless energy about her conduct.

After a period of two and a half months she was able to give a comprehensive account of the onset and development of her illness. She stated that she had no recollection of having been excessively energetic or excited. She remembered having been taken to a nursing home, but of events following this she had no remembrance until several weeks after her admission to this hospital. She also recalled that when her family doctor had come to see her she had called him Earl Kitchener, and had thought he actually was Kitchener.

This young lady's father had died from a shock: her mother was stated to have had epileptic fits, and to have lost all memory before her death, at the age of forty-five.

The patient herself had been a delicate child, who had suffered from the ordinary childish ailments, but in addition had had two separate attacks of chorea, from which she had made good recoveries. Her personality was of the leader type, a steady worker, perhaps rather older than her years, but inclined to be very active in whatever she took up.

Her illness had a very rapid onset, during which she became over-energetic, over-talkative, sleepless, and did not take her food; her friends explained it on the basis of excess of work. She had been helping in the work of the Crippled Children's League, which necessitated a great deal of strenuous activity, including such things as office work, teaching a class of boys, helping them to finish off their toys, visiting in their homes, and helping to arrange outings in their summer time.

During her period of convalescence she rapidly put on weight, and at the time of her discharge she had come up to her usual level of 7 st. 7 lb.

This case was one with a rapid onset, which quickly passed through a stage of acute excitement, until at the time she came to the hospital she was delirious, and had no memory of what happened during a period of six weeks. The type of reaction was characteristic of the manic-depressive psychosis. The thrombo-phlebitis which developed during the course of her illness was purely incidental.

Depression

Depression exhibits three main grades of severity, termed respectively simple or mild depression, acute depression, and depressive stupor.

We again recognise a triad of symptoms which is present in all of the above grades, namely, difficulty in thinking, depression and psychomotor retardation. Many other symptoms may be superadded—delusions, hypochondriacal, self-accusatory, or per-

secutory; hallucinations, irritability, etc. The mood change gives the impression of being a fundamental feature. The depression is not infrequently accompanied by anxiety. The other features are such as might be expected to go with a depressed mood, for example difficulty in thinking and a small output of talk. Sometimes there is considerable talk with much reiteration, while instead of reduction in activity there may be motor agitation (see under "Mixed States").

The most important feature of depression in general, from the point of view of care and treatment, is the danger of suicide. Suicide is not necessarily an indication that a person is mentally ill; but a large proportion of those who commit suicide have been so affected. East, in an analysis of a thousand consecutive cases of attempted suicide, estimated that about one-fifth were certifiable as insane. Gaupp, without attempting to make a distinction between certifiable and non-certifiable, found that among 124 cases 44 were definitely insane, while one person was considered to be mentally sound; the others were described as psychopathic and as showing poor mental equipment and balance. A more recent study by Sievers and Davidoff shows that of 150 cases of attempted suicide referred to a general hospital only eleven had been seen previously by a psychiatrist. This corresponds to our experience. We have been impressed by the large proportion of cases of attempted suicide admitted to the Royal Infirmary, Edinburgh, and Guy's Hospital, London, who have never previously seemed to require psychiatric guidance or control. The rapidity with which recovery occurs is also a factor to be noted and is in striking contrast to the prolonged treatment of the average case of depression.

We have also been struck by the trivial nature of the precipitating factors in some cases, for example, in a husband requested by his wife to sleep for the time being in an attic to make room for a guest; in a girl who had been "walking-out" with a soldier of whom her father disapproved, so that being afraid to return home she walked into the Thames, near London Bridge, instead. Such people are no doubt in some ways psychopathic, but not always to an extent which brings them to notice before the suicidal attempt itself. Sometimes spite enters as a basis for the suicidal gesture, but it is a gesture which is sometimes carried to the point of successful self-destruction. The type of mental disorder most likely to be associated with suicide is depression of the anxious, agitated type characterised by hypochondriacal bodily delusions and the futility of existence. The

mental and executive retardation of the depressions of the manic-depressive group may not infrequently act as a safeguard but cannot be relied upon.

Simple Depression.

This type is characterised by depression and by a general slowing, both mental and physical. The bearing of the man is altered. He has a sad, careworn expression, his brow is wrinkled, his eye is dull, and he looks older than his years. He describes himself as a failure, or hopeless, or a disgrace. Thinking is difficult and slow. The slowness may not be apparent, and the only evidence of retardation may be the complaint of difficulty in thinking. He is unable to take an interest in what goes on around him, and thinks of himself as a man apart, and that it would be better if he were dead. His answers are usually monosyllabic : he speaks in a low voice, in typical cases with a delayed reaction-time. Sometimes questions have to be repeated before an answer is obtained. What he does say, however, is relevant. He blames himself for trivial misdemeanours in his past, makes mountains out of mole-hills. In the psychomotor field the retardation is also conspicuous. The patient sits idly in one place, gazing at the ground, and when asked to do anything there is usually a delay of a minute or two, and then the action is carried out in a slow, deliberate way, as if his limbs were weighted. He has to be assisted with his dressing, his food, and often has to be urged to attend to the calls of nature. The patient understands everything that goes on in his environment. There is no clouding of consciousness, there is no disorientation, no memory or intellectual defect. The patient himself recognises the need for treatment in a special hospital, and may come to the out-patient department of a general hospital, or apply voluntarily for admission to a mental hospital.

Milder forms of depression occur, which often masquerade under some other guise. Patients will consult the doctor in general practice, or come as out-patients, complaining sometimes of mild depression, but more often of anything but depression. They have vague or emphatic complaints of headache, often of an ill-defined and ill-localised type and very persistent, of dyspepsia of various kinds, including lack of appetite, feelings of weight in the abdomen, a bad taste in the mouth, constipation, blurring of vision, irritability, especially to noises, lassitude, general weakness and (what is very common) fatigue or actual exhaustion. When thoroughly examined, they present

nothing that will satisfactorily account for their symptoms. They are probably continuing at their work, but finding it very difficult, and on closer inquiry it will be found that although their difficulty is at first attributed to the complaints just enumerated or to the exacting nature of their work, as a matter of fact they cannot concentrate, and it is an effort for them to keep to the task in hand. Reading may be easy enough, but when it comes to writing, it is difficult for them to do it, words and phrases come with difficulty, and if the latter requires any invention it takes a very long time. Sleep is frequently, but not always, disturbed, and it is always unrefreshing. It is especially difficult to get started in the mornings. It may be impossible to get a clear statement of mood disorder from these patients; they may even deny that they are sad or depressed in any way. But when a patient presents a number of the above symptoms and when no adequate physical lesion can be found, and especially if the condition has persisted more or less unchanged for some months, and if there has been a previous similar attack perhaps some years before, it is probable that one is dealing with what is primarily a mental disorder—in these cases a mild depression. If, further, it is found that the patient has been of an anxious, gloomy, foreboding disposition, or, on the other hand, of an habitually or even unusually cheerful turn of mind with perhaps very transient episodes of depression of spirits (the "cyclothymic" temperament), the conclusion is strengthened. A family tendency to affective disorders is also of confirmatory value.

Such patients as these do not usually enter the portals of a mental hospital. They can be treated outside, and are sometimes better so treated. After a time, usually months, they recover gradually or suddenly, and the particular method of treatment they were undergoing at the time gets the credit of their cure; but that is fallacious; they recover often in spite, rather than because, of the physical treatment meted out to them. In a few instances there is not this happy result. We have known cases, almost monosymptomatic in character—perhaps only a persistent headache, without physical signs, but with a good deal of concern about it—who committed suicide.

Case 26.—Summary: A second attack of simple retarded depression of acute onset in a quiet shy girl, with a suicidal attempt early in the illness. Inactive, hopeless, slow and brief in her replies, with ideas of unworthiness, but some insight. Recovery in two months with insight, probably hastened by stimulation of interest in simple occupations.

A. B., 18 years old, is a good example of a simple retarded depression. She had had a former attack one year

previously, which had only lasted for about one week, and from which she made apparently a good recovery. The family history indicated suicidal tendencies, because a paternal grandmother had taken her life when she was sixty-two years old, and a maternal uncle had committed suicide at the age of forty-five. This family history seemed to have a definite bearing on the case.

She had always been a strong, healthy child. She was not nervous, but was quiet, shy, reserved, and not inclined to make friends easily.

She did quite well at school, but was described as being more practical than intellectual, and was especially interested in housewifery tasks. It was while she was attending a course of instruction at a School of Domestic Economy that she broke down. The illness developed acutely, and three days before her admission she suddenly told her parents that she had drunk a bottle of eye lotion that had been in the house. On the night following this she got out of bed, and attempted to leave the house. It is of interest that preceding the onset of her previous attack she had overheard talk about suicide. This reminded her of similar incidents in her own family, and she was depressed for about a week afterwards.

At the time of her admission she was in a dull, depressed state, feeling hopeless, and that she had not been learning and concentrating as she should have done. She feared in consequence that she would become a burden on her friends. Suicide had therefore seemed the simplest solution of her difficulties. She was slow in answering questions, replied for the most part in monosyllables, readily admitted that she was melancholy, and that her mind was not at peace, but was occupied with morbid feelings and thoughts. As a result she had not been sleeping well. She said, "I seem just to have been slipping along, and not doing my duty. I feel as if I had got everybody into a mess. I thought I was not so efficient as others, and that I could not hold my own with them." Her answers to questions were always quite coherent and relevant. She denied ever having suffered from ideas of reference, from hallucinations or delusions. Her memory, her grasp on school knowledge, and her intellectual faculties generally were not impaired. She realised that she was ill and in need of treatment in a mental hospital, so much so that she came as a voluntary patient. Her general physical condition showed that she was in good condition, and there was no evidence of disease. She had an erosion of her lower lip, due to the eye lotion which she had swallowed.

After a short period in bed, she was allowed up, an attempt was made to cultivate her interest in the occupational department, and this she readily took to. She found that she was able to do certain simple pieces of work comparatively well.

the course of two months she made a good recovery. She put on weight, her sleep improved, she realised more clearly than heretofore what her actual difficulties had been, and was able to return home.

A case such as the above illustrates very clearly a simple, depressed, retarded state, occurring in a somewhat shy, sensitive girl. There is no reason to suppose that she will not be able to carry on satisfactorily in the future.

There are not a few cases of depression belonging to the group of affective reaction-types which do not correspond at all closely to Kraepelin's classical description as given above. In some of these cases retardation is not to be detected, at least by the ordinary clinical methods; yet the depression may be profound. Case 6 (*infra*) is an example. In others, instead of depression, there is a total loss of feeling—the patient complaining bitterly of the lack of any emotion whatsoever, including a loss of affective response to those whom he formerly loved. As our appreciation of reality depends so much on our ability to "feel ourselves into" the activities of other people (or more technically to project our feelings as well as our perceptions), patients suffering from emotional deficit of this kind frequently complain that everything seems unreal to them. (This is probably not the only basis of such feelings; they may arise also, as A. Lewis in the *Journal of Mental Science* points out, in association with disturbed states of consciousness such as perplexity and dream-like states.) This *feeling of unreality* may be distressing in itself and may even be the chief complaint.

The following is an example of the so-called "reasoning" type of depression, where retardation was not in evidence:

Case 27.—Summary: An unretarded depression in a single woman who had had a previous attack of mental illness. Definite precipitating factor. Extreme depression, without slowing, but with carelessness in dress and comparative inactivity at first. Insight fairly complete during illness and utilised in an attempt to help herself. Several suicidal attempts, ultimately successful.

G. H. She was a single woman, 32 years old, a native of Ireland. This patient came to the hospital of her own accord, saying that she wished to be admitted as a voluntary patient.

She had been born in Ireland, but came to Scotland when about sixteen, and learned typing and shorthand. After a number of years she returned to Ireland, where she had a long attack of mental illness of approximately three years' duration. Four months before her admission to this hospital she left Ireland and returned to this country, where she took a temporary posi-

tion as a typist, but within the course of two or three weeks she became depressed.

At the time of her admission to the hospital she said frankly that she would prefer to die, but she feared that death might not end her misery. She insisted that she was not insane, but that she had become introspective, and on this account that her sufferings were terrible. She described it as a perversion of her personality, with an atrophy of her affections. She was enveloped by her own misery, buried her face in her hands, and had frequent outbursts of crying. She was unable to employ herself, and paid little attention to her personal appearance. Her extreme introspection is well shown by the type of expression she used: "This pain is with me always. I cannot get away from my conscious self. I keep comparing states of feeling."

An attempt was made to investigate the actual factors responsible for her breakdown, and she frankly enough told a story of unrequited love. She had returned to Scotland to renew acquaintance with a friend who had professed great affection for her. She told him of her previous mental illness, and discovered that under these circumstances he was not prepared to consider marriage. She strove bravely against this great disappointment, but eventually the strain became too much, as all her hopes had been centred on him. "Now", she says, "life is dead for me: my universe is shattered." It was for this reason that she had no wish to live, and was sorry to find that she was so healthy, because had she not been so well physically she might have found a more easy way out of her wretchedness. She had only refrained from suicide because she believed that such an act was wrong.

Physically, she was a large-framed, well-developed woman, who presented no signs of any bodily illness.

Following her admission, she declared that she was "trying to batter back her fearful tendency to introspection", and at times she thought that she might win what she described as her "terrible battle". To this end she attempted to interest herself in various ways, took her food well, slept well, and tried to make herself helpful to some of the younger and less able patients. For a number of weeks her condition was very variable; there were times when she was rather better, when she felt that she was getting the upper hand, but there followed periods when she felt that her struggle was overcoming and mastering her, and that her life was simply "a large pretence". She selected Foster Fraser's book called *Red Russia* from the library, and in talking about this, said that she had got some consolation from it, because she learned that other people besides herself (in Siberia) have to lead a life without hope.

Three weeks after she had been admitted she was found one evening with a strip of bed-sheeting tied tightly round her neck. After this had been removed, she had a severe emotional out-

burst, during which she cried convulsively and trembled all over. Following this episode she again improved, but a few days later it was found that she had again tried to strangle herself with a piece of cord which she had surreptitiously obtained from another patient. The following morning she snatched some methylated spirits from one of the nurses and drank a quantity of it, but the only result was that she became sick. During the course of the next few days she made two further attempts to strangle herself. On account of these repeated attempts to injure herself, she was discharged as a voluntary patient, and certified. She told the medical examiners that she wished that they had come to kill her, that her life was her own, that she had a right to take it if she wished to do so, and that she would have actually accomplished her object unless the nurses had been very vigilant.

Eventually, four months after admission, she had made so much improvement, and was so anxious to be discharged, that she was taken to the house of friends, who said that they would be responsible for her until arrangements could be made for her to return to Ireland. The evening after she had gone, when she had retired for the night, a noise was heard in her room. When her friends went to see what was wrong, they found that she had swallowed a considerable quantity of lysol. Prompt measures were taken to wash out her stomach, and she was immediately recertified and returned to the hospital. Her friends stated that on the night she had arrived home she had seemed bright and happy, and had spent a very pleasant evening. Such an act was not anticipated by them. Her friends asserted that they never kept lysol in the house, and that the patient must have bought the lysol one day when she was out, and kept it for the first suitable occasion. When she had recovered sufficiently from the effects of the attempt, she stated quite emphatically that the deed had been long premeditated, and all the time she had been in hospital (even although she had improved) her feelings and her outlook had remained quite unchanged. She cried bitterly throughout the conversation, and seemed in the uttermost depth of depression and complete hopelessness. Several months later she again created great anxiety, as she smashed a thick glass skylight window, and then pulled herself up on to the roof, clad only in her nightdress. Her escape was soon noticed. A nurse went up after her, and was successful in bringing her down. She said afterwards that once she got to the roof she realised that if she did take her life it would mean great trouble for others, and therefore she had not acted at once; if she had thought only of herself, she would have jumped immediately.

About this period she willingly reviewed her illness, and described the period of depression she had suffered from while in Ireland. Her condition then she described as being similar to what it was now. She said, "I was perfectly sane, but the mental pain was so intense that I wanted to end it all".

At that time she attempted to commit suicide by drowning, and for this reason she was certified. She had become careless in her appearance, and had taken her food in a ravenous way—"I know that that means that the animal part came uppermost". At no time did she have hallucinations. Her recovery was described as being a complete one: life seemed worth living again, she took an interest in everything social, and felt that she had a broader outlook on life than she ever had before. It was very much in this spirit that she returned to Scotland, and met with her great disappointment.

This patient was eventually transferred to another hospital, and after being discharged from it she accomplished her end by committing suicide by drowning. The interesting points about this patient, besides the suicidal determination she exhibited, were her clear insight, the absence of any retardation, and the success with which at one time she concealed the depth of her depression and her suicidal intentions.

Acute Depression.

In this stage the retardation is more marked. The patient may never make any spontaneous remark; he is asocial, sits apart, refuses to mix with his neighbours in any way. The whole attitude is one of great misery and dejection. The patient accuses himself of the most heinous wrongdoing, of having committed the unpardonable sin, and of bringing misfortune on others. There is nothing for it, he says, except to go to prison to expiate all his misdeeds. Hypochondriacal ideas are frequently expressed; the patient may believe that he has ruined his health because of early sex practices, that his body is wasting away, and that he will never be able to apply himself again. His bowels, he believes, are stopped, and his brain is wasting. The patient is thoroughly convinced that no one ever suffered as he does, that he is doomed, that it is hopeless to think of the possibility of getting well. Sometimes he feels that his whole personality is changed, that he is altogether different from what he was before. The environment seems unreal to him. Occasionally hallucinations, illusions and delusions occur, and orientation may not be quite correct (from inattention), but the memory and the intellectual faculties are well preserved. The patient realises that he is ill, and needs careful looking after. Bleuler has stated that the depressive delusions of such patients usually concern themselves with conscience, as delusions of sin; with health, as delusions of disease; with fortune, as delusions of poverty. He draws a distinction between such depressive delusions and the katathymic hypochondriacal delusions ex-

pressed by the schizophrenic. "Usually the difference consists in the fact that the depressive delusion of disease postpones the worst for the future, while the katathymic hypochondriacal worries about the present. The depressive patient believes he suffers from closure of the intestines and will perish in a particularly disgusting way, while the hypochondriac asserts that he actually suffers from intestinal inactivity, and demands, and expects, relief."

Depressive Stupor.

This condition may be defined as a state of intense psychic inhibition during which regression may occur to an infantile, if not more primitive level. The patient, usually, is confined to bed, is mute, inactive and inco-operative. His bodily needs require attention in every way; he has to be fed, washed and bathed. Precautions have to be taken to prevent the retention of fæces, urine and saliva. In some cases all attempts at movement are strongly resisted. In other cases the muscles are more flaccid, and the body and limbs can be moulded into any position. On the surface it may seem as if there was a total absence of feeling or emotion, but that is often more apparent than real, for, after recovery, many patients give a vivid account of the distress which they have experienced. The idea of death is believed by some to be almost universal in stupor reactions, and may be regarded as a form of expiation for the wickedness for which they hold themselves responsible. Some patients may have a clear appreciation of their position and surroundings throughout the whole period of the stupor, but in the majority a considerable dulling of consciousness occurs.

During all these stages of depression the *physical health* suffers greatly. The patient becomes weak, loses weight, has a poor appetite, a coated tongue, and constipation. The circulation is enfeebled, and there is cyanosis, especially of the extremities.

Case 28.—Summary: Depression with hypochondriacal ideas of a somewhat grotesque kind in a previously healthy but somewhat anxious man of 52, following influenza and business worries: extreme taciturnity, refusal of food, retention of urine and general resistiveness—in short, the manifestations of a type of negativism: clear orientation: fairly rapid improvement with thyroid in large doses and general care and encouragement: interest in occupational pursuits followed by recovery.

B. W. A severe grade of disturbance occurred in a married man, 52 years old, who for about one year previous to admission had been experiencing a good deal of business worry.

About six months before admission to hospital he had suffered from an attack of influenza, and was in bed for a period of about ten days. He gradually made some improvement, but two months prior to his admission he seemed to change completely. He expressed the idea that he might have cancer, then that he had syphilis; he did not wish his wife or children to come near him in case they should get infected. He feared to go to the lavatory lest it would become choked, and infection would spread all over the house. This condition was followed by a period during which he would talk only in monosyllables. It was difficult to get him to take his nourishment; he tended to retain his urine, and on account of the difficulties of management he was sent to this hospital. He would not speak or answer questions when spoken to. He became restless, moaned and cried, and said, "I cannot, I cannot". He refused to take his food, and resisted being touched; and it was with the greatest difficulty that a physical examination could be made.

This man had come from a healthy stock. He had developed normally, and was described as a "wild youngster, with lots of go". He did well at school, and after leaving became a successful business man. He had been married for ten years, had two children, and had a happy married life. He was always even-tempered and good-natured. He took life seriously, was rather inclined to worry, but was generous to his friends, devoted to his family, and considerate to every one. He had many outside interests, including art, drawing, and latterly photography. His principal hobby had been his garden.

At the time of his admission he was in a miserable physical state, greatly emaciated, with small abrasions over the back of the left scapula and over both shins. His bladder was distended, and he had to be catheterised immediately. There was no evidence of any gross organic disease. For the most part he lay in a dull, depressed state. He answered one or two questions in monosyllables, but usually he refused to reply to questions. There was no evidence of any hallucinatory or delusional formation. He was able to tell the month correctly, but refused to reply to questions as to the day or the year. He seemed to realise quite clearly that he was in a mental hospital. He had to be tube-fed, and had to be catheterised. His condition, in short, was one of stupor. Even five weeks after admission he was more or less unchanged, except that artificial feeding had improved his general health. It was decided to give him a course of thyroid, and this was pushed to the extent of 13 gr. per day. Coincidently with this treatment his pulse was increased in frequency, and a steady improvement was effected, so that he began to show more initiative, shaved himself, went out walking, spoke a little more, and started to take his food better. Gradually it was possible to interest him in the occupational division, where he soon began to do satisfactory work, and after a residence of several weeks at a convalescent

home at the seaside he made a complete recovery, returned home and resumed his work.

This case is therefore a rather more pronounced type than the case previously recorded. It is true that the history of influenza several months previous to his actual breakdown may have had an important bearing on the development of his illness, but at no time was his condition accompanied by any actual toxic state, nor did a blood examination show anything indicating that he had so suffered. It seems therefore that although his influenza was an important ætiological factor, it acted more by lowering his general resistance than in any specific way.

Alternating States.

Some patients alternate continuously for years between states of depression and states of elation, with little or no interval of normality.

Case 29.—Summary: Alternating depression and elation over a period of thirty-five years with brief intervals of apparent normality, but later without normal intervals. At first, chiefly mild depression and subjective uncertainty, with slight restlessness: gradual increase in signs of depression (*e.g.* diminution in activity) in subsequent episodes: then exaggerated self-satisfaction (mild elation) over successful work. Then depression again, of greater duration, followed by elation, completely spontaneous this time. Similar alternations continuing over a long period of years, but with the passing of time a gradually increasing lack of emotional restraint (considerable exaltation or deep depression) with corresponding deterioration in judgment (grandiose ideas, grossly exaggerated opinion of his own abilities). Elated periods characterised by aggressiveness, frequent irritability, and pronounced erotic tendencies. Some hallucinated episodes. Intense depression with suicidal attempt, preceding exitus.

D. P. A good example of a persistent alternating state is afforded by the history of a patient who was first admitted to hospital in 1889, when he was twenty-six years old, and who for the next thirty-five years, until his death, suffered persistently from recurring attacks of excitement and depression. At the time of his first admission he expressed the feeling that his brain was failing, and spoke about a strong hereditary predisposition, which had made him afraid. From thinking about this he had become excitable and nervous, felt that he could not stand the strain of business, and decided on that account to put himself under observation. He did not express any delusions, and a note was made in his history to the effect that it would be difficult to detect any abnormality. During the period of his first admission he gradually gained control over himself, and after a period of four months he was discharged as recovered.

He was readmitted in December 1889, as a voluntary patient. He stated that after leaving in August he had resumed his

occupation, but in the course of a few weeks found himself unequal to it, and had placed himself under care in another mental hospital. He stayed there for a period of three months, and then, on his return home, felt himself still unable to take up his work, and decided to put himself under treatment again. At the time of his admission he talked intelligently and rationally, but he showed a striking lack of confidence in himself, was depressed, unstable and rather restless. In a short time, however, he rapidly gained control, and in February 1890 he was discharged as recovered.

In November 1893 he was admitted for the third time, but previous to this admission he had been a patient in still another asylum. He showed the same symptoms as previously. He talked quietly in a low voice, and complained of nervousness and inability to stand the strain of business. He was depressed, dull, unable to rouse himself, to shake off his doubts and fears. Gradually he improved, and in the course of five months was discharged as recovered.

His fourth admission was in February 1895, when he stated that he would like to stay about the place, as he felt the need of protection. He was discharged on June 3, 1895, but readmitted on June 26, 1895. After leaving he had gone to a farm, but while there he became so depressed that he started to write letters urgently entreating to be allowed to return. He felt incapable of exerting himself or of doing anything at all with his mind. At this time he was encouraged to interest himself in the steward's office, and for a period during the steward's illness he carried on the duties of the steward. As a result of this—no doubt as a reaction to it—he became too pleased with himself; he felt that he was indispensable, and was fussy and excitable. This condition was in great contrast to his previous behaviour.

He was readmitted in March 1899, having been discharged previously in December 1896, but in the meantime he had been a patient in another asylum. On this admission he was depressed, frightened lest he should become insane, and said that he frequently felt stupid and inadequate.

Gradually, in the latter part of 1901, he began to mix with the other patients, and finally became so excited that he had to be removed to another ward. He was very nasty to the officials, and excited many of the other patients. Gradually these symptoms passed away, and he developed a hypomanic state. He was exalted, was perhaps too active and energetic, played golf, danced, mixed a great deal with the other patients, both men and women, and showed a certain lack of common sense. At this time he acted as editor of the hospital *Gazette*.

During subsequent years his condition constantly varied from one of mild depression to one of mild excitement. The variation was not great, but the alternations in his mood were definite.

In July 1907 he became very exalted and irritable. He struck an attendant, had exaggerated ideas of his own abilities, thought that his poetry was better than that of any one in the land (it was very bad); declared that he was going to marry a lady with £40,000, and "be upsides with the medical officer". He wore his watch chain as a bangle, rode in a wheeled chair and said it was a motor, shouted and imitated an officer drilling soldiers.

On May 20, 1912, he was allowed to go out for a walk, but took the opportunity to escape. While absent from the hospital he raised some money by pawning his belongings and took the train to London. On his journey to London he threw his gold watch and chain out of the carriage window, and then started to take off his clothes, much to the alarm of the other passengers in his carriage, who fled. After he had divested himself of everything, he paraded the corridor, and eventually was taken in charge by the guard, and was handed over to the police when the train arrived in London. He was taken to one of the London County Council Asylums, and was transferred to his former hospital on February 21, 1913. The medical certificates on which he was brought back stated that he was alternately angry and suspicious, plausible and friendly. He wrote stating charges of immoral conduct against various persons, which he was unable to substantiate. He was impatient of contradiction, believed harm was meant when no such intention was entertained, and wrote amorous letters to certain ladies.

His subsequent history consisted of alternating attacks of depression (during which he would retire to bed and complain of all sorts of bodily symptoms), and periods of excitement when he would behave in a very self-confident, egotistical way. Latterly he tended to develop hallucinatory states, and one afternoon while the other patients were at dinner he upset the fire buckets in his ward, and clipped off part of his beard, stating in explanation that he was being tormented by devils, and that they could not cross a running stream. On one occasion, when allowed out with an attendant to visit his tailor, he walked the attendant round by a circuitous route, and left him standing outside, while he himself went to call on a lady with whom he had previously been friendly. Much to this lady's astonishment, he proposed immediate marriage to her, and asked her to go to the registrar for the ceremony to be performed, so that he could go home with her and take up his position as her husband. The lady was so frightened and startled by his visit that she called at the hospital the following day and asked to be protected from any such further episode.

During the latter months of this patient's life he became tremendously depressed. He blamed himself for his conduct in the past, and became intensely suicidal, so much so that on one occasion after having asked permission to write a letter, and

after having been given his eye-glasses, he suddenly took off his glasses—while the nurse was standing beside him—placed them in his mouth and swallowed them; but fortunately the X-ray photograph showed that they had stuck at the cardiac end of his œsophagus, and they were successfully removed. He made other determined attempts to injure himself, but eventually passed peacefully away.

Chronic Mania.

In 1904 Schott gave a careful systematic description of this condition. He reported four cases who had persisted in states of excitement for thirty, twenty-five, twenty-one and seventeen years respectively. These four cases had had previous manic attacks, and there was nothing in the final attack to differentiate it from the others, except that recovery did not take place. All four patients continued to be easily excited, quarrelsome and mischievous. The mood was elated, but if the patient was thwarted in any way the mood changed rapidly to intense irritability and anger. Hallucinations were not present, and any delusional ideas expressed were transitory.

Von Hoesslin, in 1909, and Kraepelin have both described a number of cases similar to those of Schott. Other writers, including Rehm, Kirby, Stransky, and Sanger Brown, jr., have rather complicated the picture of chronic mania by confusing the true chronic manias with chronic alternating states. We all know that manic-depressive states may persist independently and continuously for many years, but it is not so well known that a state of persistent and chronic mania can continue indefinitely. The term chronic mania should be reserved for cases showing excitement of a manic nature uninterruptedly over an indefinite number of years.

The symptomatology does not seem to differ in any way from cases acute in nature, and recoverable. The salient feature in the cases which we have had under observation is that the majority of them have started after the age of forty. Consequently in acute manic excitements occurring for the first time after the age of forty, we are inclined to be much more guarded in our prognosis than for those commencing before that date. Wertham (*Amer. Jour. Psychiatry*, July 1928) in his excellent review of this topic describes three changes which occur during the course of the illness: (*a*) a tendency to fluctuations with relatively quieter periods intervening; (*b*) reduced overactivity and intellectual productivity with a tendency to stereo-

typy ; (c) transient delusional ideas indicative of an intellectual weakening. He believes that the majority, if not all, of these patients suffer from a " psychobiological rigidity " dependent on the age of the patient, the premorbid personality, and a reduction of intelligence. For instance :

Case 30.—Summary : Chronic mania. Sudden outbreak of an elated, over-active, talkative state in a widower of 44 : good-humoured, playful, grimacing, distractible, incoherent in talk, with much playing on words (superficial sound-associations) : unchanged since onset five years ago.

J. Q., a widower, 44 years old, was admitted to the Glasgow Royal Mental Hospital five years ago. This man had become ill very suddenly, and had been engaged in his work as usual, when early one morning he got up and went to a neighbouring estate, where he liberated all the horses from the stables, and behaved in an excited, irrational way. When taken to a near-by hospital it was found that he was talking incessantly about all sorts of totally unrelated subjects. He addressed the Medical Officer as King Edward, again as King George, later on as the Pope, and again as " Geordie Boyle ". He stated that he had visited Windsor Castle and let the horses out to grass.

When admitted to this hospital he was very restless, now sitting up on his pillow, and now leaning over the side of his bed. He continually made clicking mouth-noises, such as are addressed to horses, and seemed to be exhorting his horses to do this and that. He made all sorts of weird facial grimaces, winked, threw his arms about, and conducted himself in a thoroughly absurd and excited manner. When asked questions, he snapped out answers before the question was completed, and then wandered off into long rigmaroles, in which there was a well-marked clang association. Given the word " Humpty-Dumpty ", he immediately answered, " Sat on a wall ". " Little Jack Horner ? " " Sat in a corner." Given the stimulus word " Heaven ", he replied by saying, " Hell, help, hurry, hurrush, home again ". He was flippant, but seemed to be thoroughly enjoying himself, and he often winked to the attendant after he had made a particularly silly joke. Some indication of his flight of ideas may be gleaned from the following : " They were all stolen from me—King of Spain, Queen of Spain, twins, Heavenly twins, Esau—he sold his soul for a mess of pottage. Shah, Shaw of Persia I suppose you are." The word " bell " was then interpolated, and he immediately said " bells, Bell's queen, hellish, bellish, embellished, embellished by her ". " How long have you been here ? " " God knows—since yesterday : say a day and a half." It was impossible to get him to co-operate in any systematic examination, but it was possible to establish the fact that his memory and his general comprehension were satisfactory. Asked if there were anything wrong with him, he replied by saying, " Mad, sir. Mad as a mad dog, sir."

This state of intense excitement has continued unabated during the past five years. He is very similar to-day to what he was on the day of admission. There are periods when his excitement becomes so intense that he has to be confined to bed. At other times when allowed up, he spends his time pacing about in a rapid way, gesticulating. When interfered with, he is apt to be irritable and assaultive towards the other patients, but usually he is good-humoured, jocular, shows a typical flight, is very distractible, and has a keen enough appreciation of his condition. There has never been any evidence either of hallucinations or of delusions.

Physically he remains in extraordinarily good health. He is a big, strong, well-built man, with a bullet-shaped head, well placed between his shoulders—a good example of the "pyknic" type.

Another case, which need only be mentioned in passing, and which shows very much the same features as the one noted, persisted for a period of twenty-eight years.

Case 31.—Summary: Chronic mania. Continuous state of over-activity, elation and talkativeness with exalted ideas, beginning suddenly at the age of 45, and lasting without interruption for 28 years.

The patient was a married woman of 45, who was admitted to hospital in 1897. The duration of her illness was only ten days previous to admission. At that time she was in a state of violent excitement, talkative, elated, said that she was Queen Victoria, and had an indefinite number of children. She was constantly throwing her arms about, jumping about in her bed, singing and dancing. This state of intense excitement, accompanied by relative clearness and intactness of memory and general intelligence, never died down, but always the reports remarked on the condition of intense excitement, which was treated by means of drugs, baths, occupational work, out-door exercise and so on. None of these methods of treatment seemed to make any difference to her, and up until the day of her death in 1925 she continued mischievous and excitable.

These two cases, which are typical of many, began after the age of forty.

Case 32.—Chronic mania: Sudden onset of restless talkative state in a woman of 55, after much mental and physical strain associated with illness and death of mother: continuously over-active, elated, playful and distractible over a period of three years till death from pneumonia.

Another case of about three years' duration was that of a single woman, of 55, who had been a normal, healthy, thick-set, well-developed woman, full of life, who enjoyed games, was sociable, good-natured and kind-hearted. She had nursed her mother for a period of eight days previous to her mother's death, and during that time she had been in constant

attendance, had had practically no sleep, and never had her clothes off. At the time of her mother's death the patient was grief-stricken, but two days after the funeral she became talkative. She talked from morning till night, reiterating her objections to the fact that certain of the relatives had received a legacy.

Following her admission to this hospital she was in a restless, sleepless, talkative state. She was noisy and excited, refusing food, and on several occasions having to be tube-fed. "What is your name?" "Just Maggie. I am not gentry. I got a hat with blackberries. The minister does not know I am here—we always went to church." "What is your age?" "Fifty-five. I am not a bairn. I have nursed a lot of trouble: that is why I am here. My mother was just like the grannies in the ward. She was a lady—she married beneath her." She was distracted by everything that happened around her, commented freely on people and things, and often showed a typical flight of ideas. Frequently she would emphasise her remarks by thumping the examiner. When asked to read the Cowboy story, she said it was "blethers" (*Anglice*, "nonsense") and threw it on the floor. All the time she was happy, full of smiles and laughter. Her memory, her retention, and her general grasp on school knowledge and general information were all excellent. She had a correct appreciation of place and time, but it was never possible to get her to co-operate, and eventually, about three years after admission, she died from pneumonia.

Case 33.—Chronic mania: Sudden onset in a widow aged 48 years of an excited, talkative, inco-operative and destructive state with in the beginning some hallucinations: continuous happy, playful over-activity, with only minor variations in intensity for twenty-two years (to date).

C. T. P. A widow, 48 years, was admitted to hospital in 1905, and has continued in a state of excitement ever since.

At the time of her admission she is described as having been ill for about ten days, during which time she was incoherent and rambling in her talk, declared that she saw visions and heard voices, and talked incessantly except when asleep. She refused food, and it was only with the greatest difficulty that she could be kept in bed.

This condition of excitement persisted for several months, and, in addition, she resisted everything that was done for her: had to be spoon-fed, broke several of the windows, and made it impossible to control her.

Nine months after admission she was still impulsive, dangerous and treacherous. For a time she was less noisy, but her restlessness continued in an unceasing way.

As late as 1914 she showed mild variations, being at times very restless and exuberant, constantly laughing and gesticulating, sometimes hopping around on one foot, and singing over and over again the chorus of "The Hungry Army", apparently her one and only tune. At other times she was quiet, and would

lie about on sofas and in corners, but usually she assumed a somewhat grotesque position, and either winked or laughed when one attempted to talk to her. No description could do justice to her extraordinary grimaces, gestures and grotesque contortions.

There has been no change in the past few years. She is still in a condition of chronic mania, laughing and joking, kicking up her heels, and always seeming to be in the most boisterous spirits. She will not occupy herself in any useful way.

Mixed States

Kraepelin has described " mixed states ", which he forms by a combination of the cardinal symptoms of the manic and depressive states. He differentiated six principal types as follow :

(1) Maniacal stupor.
(2) Agitated depression.
(3) Unproductive mania.
(4) Depressive mania.
(5) Depression, with flight of ideas.
(6) Akinetic mania.

These conditions, according to Kraepelin, not only occur singly in the course either of an acute excitement or an acute depression, but as transition stages during the change from excitement to depression.

In our experience these mixed states, with the exception of agitated depression, must be regarded almost entirely as transition phases. If they occur by themselves they cannot, as a general rule, be recognised as such. Indeed, the only " mixed " state besides agitated depression about the existence of which there is little doubt is the condition described as *maniacal stupor*, and this, undoubtedly, is usually a transition stage between a depressive stupor and a maniacal attack. The following is an example :

Case 34.—Manic stupor: A shy, timid Italian girl of 18 who became mute and incontinent, but retained certain simple responses to her environment: then passed into a typical manic attack: recovered incompletely and without insight: became seclusive, expressed some religious ideas and relapsed into her former condition of mutism, etc., from which again she passed into an infectious elation, but this time with curious inhibitions in her flow of talk; once more recovery, again without insight.

A young Italian girl, 18 years old, who had always been shy and timid, was admitted to the hospital in a state of mutism.

There was no evidence of infective-exhaustive factors, or of hallucinations, so that the diagnosis seemed to lie between a katatonic and a manic-depressive condition. The expression of the patient was impassive, but not unobservant. She obeyed commands promptly and quickly, her movements were free and graceful, and when given a pad and pencil she would cover pages with scribbles. She was incontinent both as to bladder and bowels, and on several occasions she smeared herself with excreta. She reacted very slightly to pin pricks. There were no assumption of fixed attitudes, no stereotyped movements, no catalepsy ; on the other hand, there was no evidence of depression. Retardation or blocking or negativism could be inferred from the mutism.

This girl had had a previous attack, which lasted for a period of eight months. Before her first attack she had complained of some headache, and one day while in church said that it was full of cats. On admission to hospital she presented features similar to those seen in the condition above described, but later she exhibited a playful mood, free, graceful movements, some distractibility, flight of ideas, and sound associations—a typical manic state.

She recovered from this attack, but at the time of her discharge she had very little real insight into her condition, and was rather careless and indifferent.

For five months she was able to remain at home. At first she did a certain amount of housework, but gradually she lost interest, became seclusive, sat in a room by herself, and could hardly be got to leave the house. On one occasion she expressed the wish to become a nun, complained of seeing devils at night-time, and seemed afraid.

During her second attack the patient gradually developed a condition of elation, becoming talkative and restless. Her talkativeness was peculiar in that there was no steady flow of words, as is usual in the frank manic, but rather an abrupt, inhibited mode of speech, a short sample of which is as follows :

"You know I'd love—you know—let me have a pencil—you know, you know—you know sometimes when—we didn't have any—we didn't have any news—you know sometimes (hums a tune)—I love the Italian band. You know sometimes we——" The content of her remarks was not specially odd or peculiar. She was extremely alert, and was much more in touch with the situation than her conduct seemed to indicate. She laughed excessively, but her laughter was gay and infectious. She was distractible, and showed occasionally clang associations.

She made a good recovery from this attack, but again without any real insight.

The essential part of the picture had been her elated mood, with restlessness, alertness and talkativeness. Apart from her make-up, there was little that could be considered ominous. At the beginning of the attack the association of mutism with

a slightly happy, smiling mood and free movements constituted a fairly typical example of the mixed phase of the manic-depressive psychosis. A similar mixture was shown later by the association of inhibited talkativeness with bright, happy, alert behaviour and increased psychomotor activity.

The differentiation of " mixed " states has its usefulness, in that they are found to run a rather more prolonged course than the frank excitements and depressions.

Perplexity Reactions.—A state of perplexity has been described especially in manic-depressive cases, but also in involutional melancholia, schizophrenia, infective exhaustion psychoses, and in psychoses accompanying Graves' disease.

Characteristic symptoms are subjective perplexity, an affect of distress, a paranoid tendency and a tendency to externalise thoughts, *e.g.* instead of saying, " I am a fat woman," the patient says, " They say I am a fat woman." The basis of this reaction is considered by MacCurdy to be a splitting of attention.—The patient retains contact with the environment but at the same time is preoccupied with inner thoughts and is puzzled by the discrepancy.

Physical Symptoms.—There are no outstanding physical symptoms characteristic of the manic-depressive psychosis. The chief physical changes are disorder of sleep and emaciation. These two symptoms are just as difficult to control in the manic as in the depressed case. A history of sleeplessness or loss of appetite, or both, is often said to have been the first indication of the patient's being out of sorts, but a careful analysis of the case history usually shows that these symptoms were dependent on some already existing mental change. Control of these two factors is the keystone of treatment, particularly in the acute phases. It can be said that practically every case of acute or delirious excitement, and every case of acute depression, suffers from sleeplessness and from a disorder of appetite; the manic patient, on the one hand, is so restless, so distractible and so busy that he has no time either to sleep or to eat; whereas the depressed patient is so tormented by depressive ideas, and feels so unworthy, that he does not consider himself entitled to any food that is offered him, and either refuses it altogether or states that he has no appetite for it. In consequence the body weight diminishes, often to an alarming degree. One of the first signs of beginning improvement is an increase in the bodily weight, usually with a relish for food, and improved sleep.

Particularly in depressed patients there is a sluggishness of the whole gastro-intestinal tract, and if any "toxæmia" is present, this is secondary, and not primary. Very careful investigations have been carried out both of the condition of the alimentary tract and of the toxicity of the urine and blood serum, but no satisfactory or uniform results have ever been obtained.

It has frequently been asserted that practically all cases of depression have a high blood-pressure, while in mania the blood-pressure is reduced. We have not been able to confirm this. There are no significant differences in the blood-pressure in mania and depression, and frequently in depression one gets a lower blood-pressure than in cases of mania.

The menstrual function tends to disappear at the onset of any mental illness, and it frequently remains absent during its whole course. Return of the menstrual function is sometimes an early sign of improvement.

These are the main physical symptoms. None of them are in any way pathognomonic of the manic-depressive state, and all of them have to be looked upon merely as incidental to the acute mental disturbance from which the patient is suffering, and as having no specific ætiological relation to it.

Diagnosis.—The majority of cases, taken as a whole, are so clear that there need be no hesitation in stating that the case corresponds to the manic-depressive reaction-type. In such instances the cardinal symptoms dominate the picture, and the diagnosis is strengthened by the history of an acute onset in a person who had formerly been considered quite healthy, though to a certain extent moody and unstable.

There are, however, many difficult cases, where one observer might emphasise one group of symptoms and another an entirely different group. We are all familiar with the occurrence of features which point to a severe degree of regression and deterioration, such as hallucinations, extreme apathy, peculiar attitudes, incontinence of urine and fæces, and utter shamelessness. These features it is now the custom to designate schizophrenic, meaning that for the time being at any rate there has been a severe disintegration of the personality. The occurrence of such symptoms always causes prognostic pessimism, but the significance depends largely on the setting in which they occur, and so long as the mood and the thought and the conduct of the individual in general are kept well in harmony, there is no need immediately to change the diagnosis to a schizophrenic state. There are

undoubtedly many manic-depressives who show just such schizophrenic features, and there are, on the other hand, many schizophrenics who show manic-depressive symptoms. It is better to keep an open mind, without trying to be too definite in one's diagnostic grouping. The excitement of the manic-depressive is often difficult to differentiate from the excitement of the acute schizophrenic. In mania the mood is a gay, happy, jolly, infectious one: the patient carries you along with him, and there is a warmth about the manic which one does not find in any other of the psychoses. In schizophrenia the excitement is a blind, impulsive, episodic state, during which the conduct is bizarre and largely determined by hallucinations and by the delusions which are so commonly present. It is extremely difficult to differentiate clinically the various types of stupor. The stupor of the manic-depressive may be in clinical appearance identical with katatonic stupor and the stupor which one sees so frequently in toxic-exhaustive states. Hoch, in his book on Benign Stupors, has attempted to differentiate between benign and more malignant forms, but his work, although suggestive, helps very little in the practical differentiation. The cases on which his views are based are not to us very convincing. Here again, the most useful guide is the history of onset and the personality of the individual.

Careless observers are apt to mistake the manic phase for the onset of an organic disease such as general paralysis, or vice versa. There is no excuse for this, because the physical signs and the serological tests should be conclusive. There are, of course, many manic-depressives who have had syphilitic disease, and who may show a positive blood Wassermann; but the absence of clinical symptoms pointing to organic types of reaction along with negative findings in the cerebro-spinal fluid, should be sufficient to rule out the diagnosis of such a condition as general paralysis.

Course and Prognosis.—The manic-depressive psychosis has on the whole a favourable prognosis. This is especially true for the single attacks and the intermittent types which occur so frequently in young people during the second and third decades. Rennie (*Amer. Jour. Psych.*, 1942), in an investigation of 200 cases, reported that 93 per cent of the patients recovered from the first attack but that 79 per cent had recurrences. The early attacks either of mania or depression may be managed satisfactorily under home conditions, but if the attacks are repeated their duration is apt to become more prolonged, care and management become complicated, and recourse must be had

to institutional treatment. Although ultimate recovery is not often in doubt, regarding the duration of the attack there is little to guide us. When the relatives of the patient press for an opinion, it is best to state that the attack may last for a period of from three to six months. Many cases become well in a much less time, but others may run even a longer course, and a few pass into a chronic state, which may persist for an indefinite number of years.

It is generally accepted that cases determined largely by exogenous factors have a much better prognosis than the cases which seem to depend on purely hereditary or constitutional conditions. Much depends also on the previous personality—if this was a well-balanced one, with wide interests, the outlook is the more cheerful. When attacks recur after the age of forty years, or, of greater significance, when the attacks appear for the first time after the age of forty years, the prognosis must be much more guarded, because the tendency is now greater for periodically recurrent forms to appear. Furthermore, attacks of excitement of the manic type occurring after the age of forty years have a rather graver significance than attacks of depression, and such attacks of excitement are not infrequently followed by a state of chronic mania. In patients at this time of life the possibility of arteriosclerotic changes has also to be kept closely in mind, because their presence has an indirect prejudicial effect on the prognosis. The cases which do not clear up tend gradually and insidiously to show a certain degree of deterioration, which shows itself in a lack of interest, a shallowness of thought, selfish conduct, a lack of personal pride, and a *laissez-faire* attitude. This deterioration, however, never attains the depth seen in other types of mental disorder, and usually the intellectual faculties are well preserved.

Many have believed that where hallucinations are present during a manic-depressive psychosis the outcome is less likely to be favourable, and the course of the case is likely to be longer. Such a view has been disproved by the figures of Pease (*Amer. Journ. Insanity*, 1912), who, in a statistical survey of 800 cases, showed that 219, or 27·3 per cent, had hallucinations, and of these 55·7 per cent recovered, whereas out of 581 non-hallucinating cases, 53·4 per cent recovered. The tendency, however, seemed to be for the hallucinatory cases to recur more frequently than the non-hallucinatory. The actual duration of the attack does not appear to be lengthened when hallucinations are present.

An improvement in the bodily health, accompanying an abate-

ment of the acute mental symptoms, is usually of happy augury.

Treatment.—The fact that the manic-depressive psychosis is considered a constitutional disease has led to the belief that treatment must be largely symptomatic, and a matter of emergency. It is true that, irrespective of what is done, many cases get well of their own accord, while, on the other hand, other cases tend to have recurring attacks, or else never entirely clear up.

The immediate therapeutic outlook in depressions, whether manic-depressive or involutional, has been transformed by the introduction of "shock" treatment, first by the cardiazol method and now by electricity. These, and leucotomy which is applicable in very chronic cases where the former has failed, are described in the chapter on special methods of physical treatment.

Nevertheless each case must still be treated on its merits. If an attempt is made to sort out the essential facts, then we believe it is possible to gain greater therapeutic access, and so a working basis can be established more often than is generally supposed. The exogenous and precipitating factors demand careful investigation.

Whether the attack is one of mania or depression, there are certain general principles of treatment which must always be kept in the forefront. Many of these principles apply to other types of mental disorder as well.

The relatives frequently are very averse to consider anything savouring of treatment in a mental hospital. They argue that the patient's mind is clear, and that therefore such a drastic step is not necessary. They are usually inclined to consider that the patient's condition would be aggravated rather than benefited, that if he was excited he would become more so, and if depressed that his melancholy would be increased by the sights and sounds around him. The tendency of the relatives is to imagine that a change of air is all that is necessary. If the patient is depressed, they usually attempt to pursue a policy of stirring him up, of "working his condition off". No worse mistake is possible. The essential principle is to reduce life to a very simple level. No special demand should be made, but the patient should be gradually encouraged to acquire satisfactory interests and habits, and to build upon these.

There are certain cases where the social conditions are such that special arrangements can be made either in the patient's own house or else under good conditions in a nursing home, but as a general rule care and treatment in a mental hospital should be recommended at the earliest possible stage of the illness.

If it is decided to treat the case under home conditions or in a nursing home, family interference should be reduced to a minimum, and the patient placed under the care of suitable and well-trained nurses. Relatives can often deal satisfactorily with a physical illness, but in a mental illness, except in rare instances, they actually do harm.

There are some cases of depression which, under these conditions, can be safely nursed at home, and who are better at home than in an institution. In addition, there are a small number of hypomanics who will do better with considerable freedom rather than under hospital conditions.

Whether the patient is depressed or excited, treatment in bed, and preferably in bed in the open air, should be adopted in the beginning. The verandah system of open-air treatment has come much into vogue in mental hospitals. While the patient is undergoing bed-treatment, everything possible should be done to investigate the bodily conditions. The question of focal infection, of gastro-intestinal stasis, of cardio-vascular disease and of endocrine imbalance, should be considered. The modification or correction of such conditions may contribute to an excellent recovery.

A light nutritious diet is essential, and the patient should be weighed regularly each week.

Much can be done to promote sleep by seeing that the patient is under comfortable conditions, by attention to the diet, and by employing such simple remedies as a glass of warm milk or some other nourishing food at bedtime.

There are other points which must be kept in mind, depending on whether the patient is in a state of depression or excitement. The chief cause for apprehension in the treatment of any case of depression of the type under consideration, no matter how mild it seems, and no matter how earnestly the patient has assured one that he could not possibly harm himself, is the danger of suicide. It is essential that such cases should be under careful and constant supervision day and night, and that they should not be left alone for any reason whatsoever. If the relatives refuse the assistance of nurses, the medical man should state frankly that he cannot accept any further responsibility for the care of the patient. How many tragedies happen year by year simply because the relatives and friends shut their eyes to the real danger! The dangerous period is either in the early or in the late stages, when the conflict between the desire for life or the choice of death is in its most acute phase. The suggestive effect of suicide must also be recognised, because

there are certain localities which are associated with it, and in certain families there is even a recognised method. While the only real safeguard is constant supervision, it is important that this supervision should be exercised in as tactful and as unobtrusive a way as possible, because where the patient feels that he, or she, is " policed " the impulse may be heightened.

When the depression is great the patient often refuses to take food, and under these circumstances it is wise to start artificial feeding without too much delay, and before the patient has seriously lost weight. The food should be light, nourishing, stimulating, and as much variation as possible should be introduced. Often nurses get into the habit of employing the same materials, principally milk and eggs, but the medical man should see that green vegetables, beef juice, sugar, stout, and such things, are introduced into the feed as indicated. Where tube feeding is long continued, the stomach should periodically be washed out, and it is often of great benefit to the patient to have a day or two entirely free from feeding, and in the meantime to give salines per rectum. In many cases it is advisable to have a test meal, so that a fractional analysis of the stomach contents can be made. Such patients also must have their bowels and bladder carefully regulated, owing to the possibility of obstinate constipation or of retention of urine. In cases either of depression or of excitement, especially where there is much restlessness, baths—either in the form of an ordinary warm bath, or the so-called continuous bath—help in producing a state of relaxation leading to sleep. The continuous bath is more extensively used in America and on the Continent than in this country. This bath is rather larger than the ordinary, and is so fitted that there is a constant inflow and outflow of water, which is passed through a mixer, and is kept at a uniform temperature. While the patient is in the continuous bath it is wise to keep a cold cloth on the forehead. The patient may remain in such a bath for long periods both day and night, and in many cases excellent results have been obtained. Douching and spraying are also helpful. Packs are associated with the idea of restraint, and therefore they are not so applicable as the other hydrotherapeutic measures mentioned.

In sleeplessness, attention to the above details will help, but hypnotics may have to be employed so that the patient may not become exhausted. They should be used as sparingly as possible. Many drugs are employed, but our experience is that in each case one has to find out which drug is going to suit the individual

patient best. Paraldehyde has the advantage of safety, and it produces its effect quickly. It may be given in from 1 drachm to 3 drachm doses, but each drachm should be given with an ounce of water with syrup of orange as a flavouring agent. Veronal and trional, each in from 10 to 15 grain doses, act extremely well, and sulphonal in 30 gr. doses is particularly useful in states of excitement. Of this latter drug it is not wise to give more than 90 gr. in one week, owing to the danger of toxæmia, of which hæmatoporphyrinuria is the first evidence. Potassium bromide either by itself in doses of 20 gr., or combined with chloral hydrate in 10 to 15 gr. doses, gives very satisfactory results. It is only in cases of emergency that hyoscine hydrobromide becomes necessary. If this drug is used, it is best given hypodermically in the form of a hyoscine compound, consisting of $\frac{1}{100}$ gr. of hyoscine, $\frac{1}{6}$ gr. of morphine and $\frac{1}{200}$ gr. of atropine.

It has recently been claimed that in many cases of acute delirious mania the important factors in producing the acute and dangerous symptoms are the accompanying dehydration and hypochloræmia. It is claimed that the administration of common salt, either by mouth, or in unco-operative patients by subcutaneous saline injection, greatly diminishes the death-rate (Larson, *American Journal of Psychiatry*, 1939, lxxi).

In the stage of convalescence, tonics are helpful in building up the general strength of the patient. In the co-operative and convalescent stage the value of occupational therapy should be kept in mind. In states of depression, occupational therapy is often of great value, because it does tend to arouse interest and to create a feeling of success, while in excitement it helps in creating a definite outlet for the excitement of the patient.

Perhaps the most important thing of all in the way of treatment is to give the patient some better understanding of the factors which have been responsible for the illness, so as to prevent a possibility of recurrence. There are many people who have a cyclothymic temperament, and who, irrespective of treatment and of analysis, will continue to have periodic attacks. But there are many others where the attacks are precipitated by definite exogenous factors, which often can be avoided or corrected. It is important to point this out, not only to the patient, but also to the relatives, for only too often it is injudicious handling and training which are responsible. Social factors must be taken as seriously into account as the more purely medical ones.

Continuous narcosis has also been used (see Chapter XIII).

CHAPTER IX

AFFECTIVE REACTION-TYPES: II.—INVOLUTIONAL MELANCHOLIA

THE involutional period is a physiological epoch common to men and women, bringing in its train certain mental and bodily changes. The mental faculties in general become less acute. There is a tendency to bewail the past, and to feel that the future has nothing in store. The mind is occupied with the "might-have-beens", and in consequence doubt, indecision, fear and anxiety readily show themselves. The glands of internal secretion begin to fail in their functioning, and the bodily health is lowered.

It is impossible to state definitely when the involutional period begins and when it ends, but, roughly, it may be put from forty to fifty-five years in women, and from fifty to sixty-five years in men.

When Kraepelin made his broad differentiation between the manic-depressive psychosis and schizophrenia, he kept cases of depression occurring at the involutional period apart, and termed them melancholia. Some years later Dreyfus reviewed the material on which Kraepelin had based his findings, and concluded that the great majority of "melancholias" should be included in the manic-depressive group, that cases of involutional melancholia corresponded to mixed states of manic-depressive, and that there was no such entity as involutional melancholia. Altogether, Dreyfus investigated 81 cases, and of these 34 were personally examined, 8 were not personally examined, and 39 died. He considered that 2 cases should be left undiagnosed, that 4 were doubtful, and that all the rest were cases of the manic-depressive psychosis. Of these cases 66 per cent recovered, 8 per cent developed arteriosclerotic symptoms, and 25 per cent died either of some intercurrent disease, or as a result of suicide. Kraepelin accepted and concurred with the

conclusions of Dreyfus. Kirby, in commenting on the work of Dreyfus, has made the significant statement: "In a number of cases the manic-depressive symptoms were plainly in evidence, the cases having been improperly placed with the melancholias. In a considerable number of other cases the author's conclusions that manic-depressive symptoms were present is based on extremely meagre data." We agree with this conclusion of Kirby's, and are not willing to accept the Dreyfus-Kraepelin findings. We believe that there is a group of cases which we can term involutional melancholia distinct from manic-depressive states. In Scotland cases of involutional melancholia are very common. If we take the figures at the Glasgow Royal Mental Hospital for a period of five years—from January 1, 1915, to December 31, 1919—we find that 299 patients (160 women and 139 men) were admitted between the ages of forty and seventy years. Of these 65 women and 32 men showed anxiety states characteristic of the involutional period. The great majority of these patients had never previously suffered from any attack of mental illness, and cases in which there was a definite history of previous attacks were grouped not as involutional melancholias, but with the manic-depressives. In the county mental hospitals (*e.g.* Inverness District Asylum) the figures for such states of melancholia are much greater than those here recorded. We believe from a study of this group of material, that we have sufficient evidence that involutional melancholia is a relatively common type of mental disorder, and has certain features of its own. These features are *depression without retardation, anxiety, a feeling of unreality and hypochondriacal or nihilistic delusions,* the last being in the allo-, somato- and auto-psychic fields.

The above definition is merely a tentative formulation, and certain reservations must be made. There is no one of the above-mentioned symptoms which is peculiar to the involutional period, but their occurrence together is unusually common at that time of life. A very similar syndrome may occur at an earlier age in the twenties and thirties in women, and before the fifth decade in men. A series of 80 cases of agitated depression of various types have been carefully examined by us, and there were at least four, not at the involutional period, whom it was not easy to distinguish clinically from many cases of involutional melancholia, nor was it wise to attempt to distinguish them. We mention this matter as one for further study and observation.

The general plan which we have adopted is to reserve the term involutional melancholia for those cases who have never

previously suffered from any form of mental illness. There is no known reason why a person should not suffer from manic-depressive symptoms during the earlier period of life, and then at the involutional period exhibit an agitated state. When such is the case, it is considered better to keep it in the manic-depressive group. The term involutional melancholia is a convenient label for a certain group of cases occurring at the involutional period, because cases exhibiting the characteristics given in the above definition are unusually common at that epoch.

The most characteristic involutional qualities lie in the content of the psychosis, especially in the apprehension, hypochondriasis and nihilism, and these qualities are the result of the psychological changes associated with advancing years.

Ætiology

In certain cases the involutional period itself seems to be the most important factor. This is possibly more true in women than in men, because the physical concomitants of the menopause are well recognised. The mere fact, however, that many people reach the involutional period without having previously shown signs of mental disorder is an indication that those who develop this type of disorder have stouter mental and physical qualities than those who break down from the more purely constitutional disorders, such as manic-depressive and schizophrenic psychoses. Nevertheless it is stated that schizophrenic psychoses are unusually frequent both in the ascendants and descendants of these patients. There is often a history of exciting factors, either psychic, physical, or a combination of the two.

But the underlying type of personality in many of them has certain characteristics which can bear emphasis. They have a record of hard work behind them. They are sensitive, meticulous, over-conscientious, over-scrupulous, busy, active people who take a pride in their work and have a high sense of duty towards others. Titley has described them as showing " a narrow range of interests, poor facility for readjustment, asocial trends, inability to maintain friendships, intolerance and poor adult sexual adjustment, also a pronounced and rigid ethical code and a proclivity to reticence and sensitiveness ". It will be readily appreciated that such a type of pre-psychotic disposition has little or no relationship to the manic-depressive constitution.

Naturally the theory has been advanced that in women at

least such conditions were due to hormonal alterations associated with the menopause; and with the modern discoveries in the chemistry of the hormones, attempts have been made to give this theory a basis of objective fact. But the best work shows no significant alteration in the excretion of ovarian hormone; and the clinical claims for the therapeutic efficacy of œstrin administered either by mouth (1000 units or more per day) or intramuscularly (10,000 to 50,000 units twice a week) have as yet no statistical basis.

In the group of material which we examined in the Glasgow Royal Mental Hospital, we found that 57 per cent of the women and 70 per cent of the men broke down as the result of psychic factors, whereas physical factors were of importance only in 21 per cent of the women and 6 per cent of the men. The psychic factors which are usually stressed are the death of near relatives, financial and business worries, unfortunate home conditions, and the breaking-up of the home. These figures are in agreement with those of William Mabon, who found that in his involutional cases 47 per cent were of psychic origin, 34 per cent of physical origin, and 17 per cent were due to a combination of these. We have already pointed out that in the country asylums the percentage of such cases is greater than is the case in urban asylums, and therefore the fact of environment as a predisposing cause should be kept in mind.

Symptomatology

It has been indicated by the definition given above that the symptoms centre round a state of anxiety and agitation, accompanied by delusions of a depressive nature, frequently hypochondriacal or nihilistic. This state, although common to the great majority of cases, shows all kinds and shades of variation, so that no two cases are ever exactly the same. Kirby has attempted to differentiate four main types:

(1) Cases showing a simple form of anxiety or general uneasiness, apprehensive anticipations, with or without ideas of sin.

(2) A severer form, showing anxiety, with fear, perplexity, and allo-psychic concepts.

(3) Cases presenting a sensory somatic complex: abnormal bodily sensations, hypochondriacal trends, and feelings of unreality.

(4) Cases developing with arteriosclerosis.

These types may be recognised, but they could very well be increased to as many more. Their differentiation in this way does not make matters clearer, for any patient during the course of the illness may show all the grades described by Kirby. Furthermore, it seems wrong to complicate the picture by emphasising the occurrence of such states with arteriosclerosis. There are bound to be cases of this type, where the occurrence of arteriosclerosis complicates the picture. But the arteriosclerosis need not exert any specific action unless it is so marked as to give rise to definite arteriosclerotic symptoms, when the case would much better be grouped with the arteriosclerotics than with the involutional melancholias. We have mentioned this here because we wish to emphasise that the real involutional cases seldom show any involvement of the intellectual faculties. Considering the depth of distress which they exhibit, their intellectual clearness always stands out prominently. Farrar has described three main forms, which he has termed, first, " melancholia vera ", which is characterised by a self-accusatory state, with clear consciousness. The patient may also express some somato-psychic delusions, and a slight degree of anxiety is present. The second type he has termed " anxietas presenilis ", an allo-psychosis, in which there is an extreme anxiety and feeling that things in the world outside are unreal. These cases of the second type are supposed to be complicated to a greater degree by arteriosclerosis, and the prognosis is considered less favourable than in the other types. The third group he terms " depressio apathetica ", in which there is simply a state of apathy, without the expression of much affect, and in which the prognosis is considered to be relatively good.

MacCurdy, in his *Psychology of Emotion*, has also described four main groups :

1. Ridiculous delusions : insufficient emotional reaction : antisocial conduct : indulgence in infantile sexuality. This is probably a schizophrenic reaction-type.
2. Hoch's organic insufficiency, characterised by lack of interest, apathy, mild hypochondriacal ideas and mild restlessness.
3. Cases that are really simply another recurrence of a manic-depressive state.
4. Cases with fears of impending death, of poverty and of bodily disease.

This last group is termed true involutional melancholia.

These again are arbitrary subdivisions which do not by any means always hold.

In short, we must not attempt to group cases too closely along any of these lines, but as with other mental states we must recognise that the psychotic picture is largely determined by the character traits present in the individual in his normal, healthy state, and that the mental picture may vary just as one individual does from another.

The outstanding feature in all this group of cases is the anxious depression, and this has often been preceded by a stage during which the patient has complained of tiredness, of feelings of inadequacy, of being easily fatigued, and of sleeplessness. They may also have physical symptoms, such as feelings of pressure in the head, difficulty of thinking, flushing, vertigo and irritability. The appearance and the attitude of such patients is one of great misery; they feel frightened, are restless, wring their hands, moan and groan, tend to rake over their past, the slightest faults becoming the most terrible crimes. They feel that there is no hope for them, and fear that they are to be thrown out, that they will be taken to prison, and that they will be tried and put to death. Such patients in their misery will often attempt to mutilate themselves, and the danger of suicide is great. In addition, they are very resistive to care and treatment, refusing food because they feel they are not entitled to it, or because they are suspicious lest it be poisoned; and, besides blaming themselves, they hold themselves responsible for the condition of the others with whom they are associated.

There is as a rule very little clouding of consciousness; they are correctly oriented, the memory is good, and the individual realises to a certain extent that he is ill.

In the most acute types of disorder, hallucinations of a terrifying nature may occur, and a certain amount of disorientation is present.

Physical.—Any physical change which occurs apart from accidental intercurrent disease is secondary to the mental state. The most impressive sign is the rapid loss of weight, due in part to the intense agitation, and in part also to the refusal of food, and to a disturbance of the gastro-intestinal system. Many of these patients complain of inability to take their food, of a loss of appetite, and of a feeling of weight and pressure after meals, and their bowels are apt to be constipated. There may be a transitory glycosuria. There are frequently

vasomotor disturbances, with complaints of flushing, sometimes excessive perspiration, and other indications of involvement of the sympathetic nervous system.

It has been supposed that in all anxiety states there is likely to be a high blood-pressure and a high blood-sugar curve. These are not uniform findings, nor can we by means of them distinguish between true and pseudo-anxiety states. We were at one time inclined to believe that cases with considerably increased blood-pressure and with high blood-sugar curves might possibly tend to run a more acute and more favourable course than the others, but this does not seem to hold good. Dr. Whitelaw, Director of the Western Asylums' Research Institute, has examined for us upwards of 35 cases of varying degrees of anxiety, and, although he found that the blood-sugar curve was uniformly high in all cases, it has been impossible to differentiate the favourable cases from the unfavourable by this method.

Psychopathology

MacCurdy makes a consistent attempt to explain the type of mental content common in involutional melancholia. There is an increasing egoism equivalent to a progressive restriction of external interests, one of the results of which is a preoccupation with death, because pure egoism finds no satisfaction in this life. The idea of death is an epitome of the all-round loss of interest. But egoism implies in itself resistance to the idea of death, so that at one and the same time there is a revulsion from death and a wish for it. The presence of the two tendencies is shown by the presence together of apparently contradictory tendencies in the form of apprehension and of delusions of impending death, or of apprehension of death together with suicidal attempts. Sleep being a symbol for death, insomnia is accounted for by supposing that these patients are afraid of sleep because it has this (unconscious) symbolic meaning. Delusions of poverty are mild forms of delusions of death, money being the chief symbol of social value—a value which the patient feels he has lost. If the loss of interest in the world is projected, nihilistic delusions appear—the very existence is denied of that which is no longer interesting. Irritability and negativism are likewise attempts to exclude reality. Hypochondriacal trends are supposed to be compounded of self-centredness and autoerotism.

Involutional melancholia can be summed up as a regression

to the " primary subjective phase " of the minimum of mental effort (= death) and autoerotism (= hypochondria). Anxiety is the natural reaction to ideas of murder, torture, etc., which are symbolisations of the unconscious desire for death and derive their intense motive power from the latter.

The most striking aspects of the following case were the interrelations of the content of the delusions, the day-dreams of her childhood, and her unsatisfactory married life. Evidently her revolt from her husband's coarseness had caused her to return to her early dreams, but with the realisation that they could now never be fulfilled—hence everything she had dreamed of was gone—" all buried ; . . . under the earth ". The precipitating factor was evidently the birth of her third child.

Case 35.—Summary: Involutional melancholia. Onset in fifth week of normal puerperium in cultured woman of 38, with a family history of suicide and an unsatisfactory married life. Mild anxiety and self-consciousness, followed by complaints of fatigue, then by depression accompanied by nihilistic delusions and later by suicidal attempts. On admission, depressed, mildly agitated, with nihilistic delusions and ideas of transformation of her personality, but with a certain amount of insight; finally suicide. Probable relationship of content of delusions to phantasies compensatory for the disappointments of her married life.

A. B., a cultured, married lady, 38 years old, became mentally ill five weeks after the birth of her third child. The symptoms first were those of a " neurasthenic " state, during which she complained that things had been too heavy for her, and that she was easily tired both mentally and physically. An attempt was made to treat her in a nursing home, but while there she became gloomy, depressed, and began to express delusional ideas, believing that she had no money and no children, and saying that her husband and her children were dead. For a time she seemed to improve, and gained in weight, but suicidal tendencies appeared, and on one occasion she jumped out of the window and fractured her collar-bone.

This patient had a family history of suicide, as both her grandfather and a maternal uncle had taken their own lives. Her father had died just before her third child was born, and this also had been a great shock to her. As she did not make progress, she was brought to a mental hospital.

A letter from her own doctor stated that her confinement had been perfectly normal, and had not been accompanied by any rise of temperature. During the fourth or fifth week after her pregnancy, she seemed to become self-conscious, concerned herself about trifles, a spot on the face, and the like. The doctor also stressed the fact that her married life had probably not been entirely satisfactory to her. He described the patient as refined, cultured, and religious, and her husband as coarse,

godless, and with no interest in life beyond hogs and his own gratification.

At the time of her admission to the hospital, she is described as believing that the world had entirely changed,—that formerly there had been no sin or unhappiness, but now everything was horrible and dirty. She stated that the food was beastly, and that there was no necessity to take food, because she could live eternally without it. On another occasion she stated that the Golden Age was past, that everything was now dirty and unclean.

Physically, she was a tall, squarely-built woman, who had the appearance of good health. Her hair was almost grey; she looked older than her years. The thyroid gland was visible and considerably enlarged, the increase affecting each lobe as well as the isthmus. The swelling was of medium and uniform consistence, and no pulsation was palpable. There was no exophthalmos. Her facial expression was one of depression and anxiety, and she showed her agitation in pacing to and fro, and in occasional wringing of her hands. She was willing enough to answer questions, and gave the impression of making an effort at keeping herself under control. She understood clearly why she was in the hospital. She constantly recurred to her delusions with much display of feeling. She believed that the world had changed, and compared the brightness, beauty and purity of what she calls "the golden days" of her earlier life with the ugliness, squalor and sinfulness of the present. Everything is different—sun, moon and stars are not as they were, "the beauty of the earth and the glory of the sky" do not now exist; the seasons are not as the seasons of yesteryear; the flowers, the trees, the birds are not arrayed in the glory of old times; people display only repulsiveness, deceit and all forms of wickedness. Even the children are innocent and of good report in name only. "All, all is gone, those days of bygone splendour, and things can never be as I once knew them." She herself has been completely changed; body, soul and spirit have been altered, until she has become but a weariness to herself. There is nothing to live for, no joy, no hope. She wishes everything were at an end. But she did not say she would end her own life. She had no wish to discuss things apart from these colossal changes, but when subjects among her old interests (art, literature, etc.) were touched on, she would talk with momentary animation and freedom, only to come back sharply and soon to "the things that really matter". Her intellectual faculties were very well preserved, her memory was good, and she had a realisation of her own disordered state. Occasionally she showed little impulsive acts, during which she would strike a nurse, and then immediately afterwards would express great regret. A few months after her admission her condition was more or less unchanged. She was quiet, composed, polite, but she was still possessed by a marked feeling of unreality,

and continued to express the belief that things were different from what they used to be. Many determined attempts were made to organise her activities, and she took an interest in physical exercises, in reading to a number of the ladies, and in doing pieces of work.

A careful investigation of her personality was made, in order to obtain some light on the onset and development of her illness, and it was striking to see the close relationship between her original disposition and the psychosis. Intellectually, she had always been much above the average, heading her class in German, and being particularly gifted at languages. She had always read a great deal, used to tell fairy stories to herself, and was imaginative. In her day-dreams she used to want to become great and happy, and to be a great authoress, " people to be fond of me, and everything to be beautiful around me ". All this would come to her mind, thoughts of a beautiful home, of a husband, children and happiness. Later in life she had become a successful authoress, her books being closely modelled on her own life. It was evident that there had been considerable conflict, because she had dreamed of a rather spiritual, artistic type of existence, which her husband's nature rendered entirely impossible. In consequence her life had undoubtedly not come up to her expectations. She talked at this time as follows: " The beautiful furniture, the beautiful needlework—all the excellent trams in X—— (the most perfect in the world), such clean and beautiful people in them, clergymen, professors, county gentlemen, officers —think of them all, all buried: these things are literally under the earth. All the lovely scents, the lovely, lovely clothes that everybody had—the beautiful industries. I used to sell beautiful crochet, and beautiful baby-clothes of beautiful Irish work, always on St. Patrick's Day in London. That is all over—all these beautiful ladies have gone, there is none of that now—all is gone—absolutely, and here am I. We are now at a standstill, all the wonderful inventors and their things are buried, the wonderful telescopes and phonographs are buried. I wish I had never seen the world, and how I have ruined it."

About a year after her admission she was discharged to the care of her friends, in a slightly improved condition. Later she committed suicide.

Case 36.—Summary: Involutional melancholia. Restlessness, insomnia and loss of weight with rapid development of hyperthyroid signs: then depression, apprehension and suicidal attempts, with delusions of guilt, suspicion and bodily change of a somewhat grotesque kind: recovery after eight years of illness.

C. D., a married woman, 40 years old, was admitted to the Glasgow Royal Mental Hospital in 1919. She had been a pleasant, happy girl, who had always been somewhat reserved, but had enjoyed good health. She had assisted her

mother in a private dressmaking business. Twelve years previous to her admission she had married, and had three healthy children. About thirteen months before admission she developed a swelling in her neck, and became restless, sleepless, and fell off in weight. In 1919 she was admitted to a general hospital, where she developed delusions of suspicion, and was depressed and suicidal. She thought that she was going to be smothered, that she should not really be alive, that the nurses said she was to be "burned in the furnace", that she "had blasphemed, and therefore must die"; and that she was "all dried up", and "if put in water would sink like a stone". After three months' treatment in hospital she was taken home, where she gained some weight. Gradually, however, she lost interest in the home and in the children, saying that she had forgotten them. As it was not safe to leave her alone she entered the mental hospital as a voluntary patient.

Physically, she was a poorly nourished woman with marked exophthalmos. There was a soft, generalised fullness of the thyroid gland: the eyes were prominent, but there was no sign of v. Graefe. The pulse rate was 100 per min., though sometimes it was slower. There was a fine muscular tremor of the hands and arms, and there was also a distinct sallowness—almost a bronzing—of the skin, but the patient stated that she had always been swarthy, and could not say whether the colour of the skin had in any way changed.

Mentally, she was described as a gentle little woman, who constantly said that she should not be here, and that she should be cast out, and who repeated all the depressive ideas recorded above. She did not cry nor fret, but took her meals satisfactorily, and in spite of restlessness kept to her bed. She begged constantly to be allowed to go "far, far away". She repeated, too, that she was dead, that her body was dried up and dead, and her feet cold, whereas she was quite warm. She maintained that she ought not to take her food, that she ought not to see her husband, but, at the same time as she expressed these ideas, it was possible to get her to do a little sewing, and she also interested herself in reading.

Four months after her admission she showed little improvement. The depressive ideas were as prominent as ever, and she rarely said anything except with reference to them, stating that she was a board, that she was petrified, and that she must get away to the water and lie there as she was never going to be dead. She felt that she had ruined and destroyed her children.

A year after admission she was physically much better. The exophthalmos and the goitre had diminished, she was quieter and more collected, and, although she constantly talked about being buried alive, she seemed fairly well at her ease with the people in the hospital.

During the ensuing years her condition remained unchanged.

Four years after admission her blood-pressure was 110-80. She was in a chronic melancholy condition, but was a capable dress-maker, and worked steadily. When spoken to she reiterated that she was " a bad lot ", that she was " just fit to be burned ", that her body was changed to a stone, that she was " unfit to live ". She seemed to be unshakable in these beliefs.

" I'll never die.—Oh, don't write anything down.—What is the use of writing, wasting time on me.—I know I will never die—I am too wicked.—It is too deplorable to write down. Oh, if you would only put me under the ground out of sight.—Oh, the agony I am in. I said I wished the Zepps would come and kill me—why did I not get a trouble sent me that would take me away like an ordinary human being ; but they put me here —thought it was my mind that was wrong." *Q.* " Was it not ? " *A.* " No, it was not my mind. It was my wickedness. I am not a human being at all.—I am nothing.—I cannot describe what I am—I have been like this for four and a half years, and will be for everlasting.—Oh, Doctor, get a hole dug—put me in it and cover me up—there is no place on earth for me.—I am sure that at one time I never wasted a moment—never grudged work—nor did anything wrong,—but my whole body is dead now, I have not a breath left in it, and have not had for years—my people all the time thinking it was my mind." *Q.* " Have you a pulse ? " *A.* " There is a thing that beats, but it is not a proper pulse.—I have had a thousand meals that I should not have had.—My meals go no further than here (putting her hand on her throat)—I have not a single organ in my body.—Sound me and you will find that out." *Q.* " Are the trees dead ? " *A.* " Yes, but they come alive again."

In 1923, while still in very much the same condition (that is, four years after admission) a blood-sugar estimation was done, and read as follows :

100 grms. glucose given at breakfast time.

Blood-sugar	12 hrs. fast	. . .	·094 per cent
,,	40 min.	. . .	·188 ,,
,,	85 ,,	. . .	·143 ,,
,,	130 ,,	. . .	·192 ,,
,,	175 ,,	. . .	·145 ,,

Eight years after admission she was in a rather better mental state. She was now able to go out with her husband, and spent a week-end at home. While doing this she behaved quite well, and she admitted, rather unwillingly, that she had enjoyed herself. Gradually, a further improvement took place, and she was discharged in a completely recovered condition.

One of the most interesting points about this case was her recovery after eight years of illness, and in spite of some symptoms which were regarded as ominous at the time. Not only was the affect not deep, but there was almost an incongruity—she

was fairly well at her ease in the hospital, yet she constantly talked of being buried alive. The concurrence of ideas of death and of living for ever is an interesting example of ambivalence.

The exophthalmic goitre was in all probability merely incidental.

Case 37.—Summary: Involutional melancholia. Gradual onset of depressed, anxious, apprehensive state in a man of 65; ushered in by apprehension over financial losses, followed by depression, loss of interest, irritability, insomnia and headache: stereotyped anxious queries and stereotyped expressions of distress: increasing automaticity of actions and emotional expression: noisy, gluttonous and careless of his appearance: but ultimate recovery in two years.

E. F., male, 65 years old, was admitted to the hospital in a very restless, depressed, excited state. He threw his arms and legs about, knocked his head against the wall, pulled at his hair and cheeks, and frequently made strange noises. This condition had been of about six months' duration.

He had been a strong, healthy man, successful in business, and had been married for a period of about thirty-eight years. He had always been reserved and silent but kindly, and had very few interests outside his business. Three years before his admission he had been able to retire, but during the War years his investments began to depreciate, and he worried greatly about his financial state, and exaggerated his losses. He began to fear that his income would be insufficient, though his family asserted that he had no grounds whatsoever for such an assumption. His habitual reticence gradually gave place to a deepening depression; he brooded about himself, took no interest in the daily papers, and continually accused his eldest son—on whose advice he had acted in regard to his investments—as the cause of his ruin. He was sleepless, suffered from headache, and complained that his head felt as if it was in a vice. He was irritable over the smallest things, and was totally unable to rest. For a minute or two he would sit down but then would be up, jerking his legs, pulling at his hair or his face. A holiday at a farmhouse had been tried, but while there his excitement increased, and as he seemed to be getting rapidly worse he was brought to hospital.

The patient's condition was one of great depression and anxiety. He said that he had always been a nervous man, and that he could not seem to control his movements or what he wanted to do. He answered all questions on general topics without any hesitation or confusion, and his memory for remote and recent events was good. His knowledge of current events had been gained by hearsay, as he had not been able to sit down and read a newspaper for many months. He knew exactly where he was, and expressed deep regret at the worry that he was causing his wife and family.

Physically his condition was satisfactory. There was no

evidence of any organic disease. His hair was rubbed bare in patches over the temples.

Following his admission, he slept very badly, and he frequently had to get medicine to help him. He was always in a state of panic about himself, was constantly demanding an explanation of his condition, and wanted to know the prognosis. He was treated by means of tonics, prolonged baths, and as much nourishment as possible, but his excitement and restlessness continued undiminished. Whenever spoken to he was quiet, but when left alone he would continue to pace up and down the ward, shouting out some stereotyped phrase, such as "Oh, my God", at constant intervals. He never could give any explanation of why he shouted,—whether he was impelled to do it, or whether he derived any special relief from it. His stereotyped attitude was also seen by his daily queries. "Do you think I will ever get better?" "Is there anything wrong with my brain?" "Am I insane?" "If I could stop the shouting would I get home?" "What is it that makes me shout?" "Could I live as I am just now in a tenement?" These questions, or similar ones, were repeated day after day. Attempts were made to interest him in various kinds of work both in the garden and in the house, but he never could be made to apply himself to anything.

Five months after his admission, his excitement and his manifestations of grief became more and more automatic, and were often continued, though with diminished vehemence, even when conversing. At this time his weight was persistently falling. He never passed a night without more or less frequent outbursts of shouting. It sometimes happened that he did not sleep at all; he would then jump in and out of bed, and pace the floor of his room shouting "Oh, my God," or meaningless and inarticulate sounds. He stopped before the mirror, where he examined his reflection, and increased the din by striking the chest of drawers with his fist or the back of his hair-brush. When in this highly excited condition he would pull at his nose, or pull his too closely cropped hair. During the daytime he was even more noisy, and attempts to keep him in check were unavailing. Later his appetite became capricious, and gluttony alternated with abstemiousness. His sons usually brought him cakes and other "tit-bits". These he would put away in a drawer in his room, and at odd times in the day he would bolt various articles of food either in the way of fruit, fancy cakes, or confections. While he was still a patient he was left a certain amount of money, which completely made up for all the money which he had lost as a result of his investments, but in spite of this his state of anxiety and depression continued. He continued to express abhorrence of his own conduct, and constantly asked "Why do I make this noise? Can I not help it? Will you not give me something to keep me quiet?" Gradually a certain amount of improvement was effected in his condition, and after

a period of two years he was able to be discharged.

During the whole of his illness his intellectual faculties remained perfectly clear. A certain continuity of personality and subsequent psychosis is clear in this case. His financial losses were the precipitating cause, but were not in themselves by any means sufficient to account for such an illness ; and their redemption lead to no immediate improvement. The fact that his chief topic in his illness was his health suggests strongly that his financial losses merely served to bring to the surface the general concerns of advancing years. The stereotypy of his utterances (" Oh, my God," etc.) and his deterioration in personal habits, both of which would have seemed prognostically ominous, are interesting in view of the fact that he ultimately recovered.

The following case illustrates the maintenance of affect combined with stereotyped utterances.

Case 38.—Summary: Involutional melancholia. Gradual onset of miserable depressed condition in a single woman of 51 : irritability and ideas of persecution, with increasing depression, delusions of guilt and repeated attempts at suicide : on admission, unco-operative, refusing food, and unresponsive to questions, but expressing ideas of unworthiness : partial recovery and discharge. Rapid return of depression and insomnia, with noisy agitation and delusions of unworthiness and of persecution : also nihilistic and hypochondriacal delusions : stereotyped utterances.

G. H., a single woman of 51, was admitted to hospital in May 1919. Her occupation was housekeeping. She was stated to have been a healthy child, but experienced a good deal of trouble with her stomach. In 1917 she suffered from severe attacks of hæmatemesis. She was operated upon, and an appendectomy was done at the same time. At the time of her operation menstruation ceased, and has not returned.

About a year previous to her admission, she was observed to be unusually irritable, over-sensitive, worried over trifles, developed the idea that the doctor was persecuting her, and " wished her stomach to remain sick ".

In January 1919 she attempted to commit suicide by drinking lysol, and in consequence was sent to a private nursing home. In the middle of May she was taken home, but she was so depressed that a nurse had to be with her. On the 23rd of May she scratched her wrist and throat with a drawing pin, which she swallowed, and a few days later she swallowed a thimble.

The medical certificates described her as having the delusion that she was the greatest sinner in the world. She kept her hands firmly clenched, and uttered a low moan every few seconds. It was impossible to secure her attention, or to induce her to speak.

On admission, she was depressed and miserable in appearance. She moaned vaguely at intervals, did not reply to questions and refused to co-operate in any sort of examination. She had

to be spoon-fed. At times she would become very agitated, thought the nurses were signalling, and that she would be blamed for it. She did not sleep well, and on several occasions was given a hypodermic of hyoscine. As a general rule she kept her head buried in the bedclothes, and refused to respond in any way. When roused she would make no attempt to discuss her illness, but only uttered a series of pitiful wails, and asked to be allowed to go home. At other times she would blame herself for trivial faults, would say that she had done wrong and had told lies, but always followed up her remarks by saying " I was never immoral, doctor, I was never immoral ". In May 1920, an improvement set in. She was exercising good control, occupied herself, began to take a normal, healthy interest in things, and seemed to be making a good recovery. Her improvement steadily continued, so that in June 1920 she was able to be discharged.

She was readmitted in August of the same year. Following her discharge, she remained well for only a few days. Steadily she became more depressed and sleepless, and finally was so noisy that she disturbed every one in the house. She wept, said that God would never forgive her sins, and that she was going to be murdered, and asked those around her to protect her from being poisoned. She spoke somewhat as follows : " Mother is dead. It was not mother at all : she was changed. The children are drowned, my poor brothers are shot. Everybody is good but me—a poor sinner going to Hell. I have got cancer, and I have got asthma. There are three men in that room waiting to kill me." She refused to take food, and had to be tube-fed. In December 1920 she was much better ; was reading and knitting and going to the hall for her meals. Then again she became depressed and miserable, lay in bed with her head covered, and frequently requested that she be kept always in Gartnavel. Her condition has varied considerably since that time. She has periods when she is relatively well, but others again when she is much more distressed.

In May 1925 her mental state was unchanged—in the main one of agitated depression. She constantly reiterates " Tell me before God that I am not to leave hospital to-day, or to-night or to-morrow, or to-morrow night or the next night, or any day or night this month or next month. Don't be cruel to me, doctor. Answer my question ", etc. She eats and sleeps well. She goes down to the occupation class and does good work. All the time she is working she is moaning to herself in tones of the greatest misery, " Dear God, I love you with all my heart and with all my soul and with all my might ". After several attempts, the physician managed to engage her in conversation for about twenty minutes, during which she showed herself to be perfectly clear and accurately oriented. She gave a lengthy account of her own illness, and how she had gastro-enterostomy performed, and of her brother's illness with accurate details.

In the account she showed great circumstantiality, no flight of ideas, and a distractibility only in so far as the question of her leaving hospital arose, when she immediately burst forth into her former appeal.

The following case illustrates an anxious distressed state with blocking of thought :

Case 39.—Gradual onset of agitated depressed state in a married woman of 55 : delusions of unworthiness and impending punishment : agitation (for a time), insomnia and refusal of food : diffuse self-accusatory and hypochondriacal delusions : subjectively, poverty of thought and (objectively) tenseness with the restlessness : condition gradually getting worse.

L. C., a married woman, 55 years old, had a history of having been ill for eight months. During this period she had complained of bodily weakness, and of inability to do her work. Various methods were tried to help her, but her condition became progressively worse, and she became so depressed, expressing so many ideas of unworthiness, that she had to be admitted to a nursing home.

A sister of this patient had committed suicide.

The patient herself was described as always having been a healthy, normal girl, who had been efficient, popular, and made friends with every one with whom she came in contact. She married when she was 30 years old, and has three healthy children. Her married life was very happy, but she was always a great worker, and did not care much for amusements or for social activities.

When admitted to the nursing home she was in a very depressed and agitated state, blamed herself for having done wrong, said that she had not brought up her family in the way she should have done, that she was certain a punishment would come to her, and that ruin would affect not only herself but every other member of the family. There were great agitation, restlessness and sleeplessness, and periods when she seemed to become strained and tense. It was difficult to get her to take her food, and usually she had to be spoon-fed. Her mind, however, was clear ; she was able to give a good account of her life, and there was no indication of any disturbance of her memory or of her general intellectual faculties.

Physically she was well nourished, but she was evidently constipated, her tongue was coated and her stools fetid. There was no evidence of arteriosclerosis. Her urine showed a glycosuria, which gradually cleared up.

Treatment was directed towards getting her to talk freely about her difficulties, but this she was never able to do. Whenever she made any attempt to talk about her illness she immediately started to cry, blamed herself for having done wrong, and said that it was so awful that she could not speak about

it. An attempt was made to treat her physical condition by improving her general health, and by giving her intestinal disinfectants. Eventually, however, the difficulties of nourishing her became so great that she had to be certified and sent to a mental hospital. At this time her agitation and tenseness continued, and the difficulties of management were consequently great. She seemed to be quite unable to talk about her difficulties. All she would say was that something had come into her life which she could not explain, and which made it impossible for her to undertake the ordinary duties of a wife and mother. She believed that she had committed many unpardonable sins in word, in deed and in thought, and that there was no hope for her future. Usually she was found sitting in bed in an awkward position, and with an expression of great sadness and apprehension, as if she was sure that something dreadful was going to happen to her. She did not speak spontaneously, and when spoken to she answered only occasionally, and after a long pause. She spoke in a low voice in a monotonous tone. Every attempt to do anything for her was opposed, and she now had to be regularly tube-fed. She seemed to understand everything that was said to her, and she had a correct appreciation of time and place. When asked "Is it an effort for you to speak?" she replied "I cannot speak". "Why?" "I have nothing to say." "What is causing your trouble?" "I don't know. I have no ideas at all. I cannot think about anything." "Would you like to go home?" "I doubt I'll never go home." "Are you afraid of something?" "I am too hopeless to get better; my life was not like any other person's. I didn't want any of my own people to come and see me: I was afraid of them. It was a terrible thing." "What were you afraid of?" "I had a feeling of being unworthy—terrible fears I could never speak to any one in the right way." At another time she remarked that she was different from other people. "How?" "I am not the same way built." "Is your body different?" "Yes, I am awful short in the body." Later expressions were very much of the same type, but usually she could not be got to reply at all. Many attempts were made to try and interest her, but these have never been successful. When she is got up she sits huddled in a chair, or stands in a crouched attitude looking miserable. Sometimes, when spoken to, her lips will move, but no words come. It has been possible to demonstrate that her memory is good, because she remembers accurately the names of those who attend on her. Simple calculations are done readily and correctly. On one occasion, with the idea of trying to help her, a persistent attempt was made to get from her a description of exactly how she was suffering and what was worrying her, but during the whole conversation she showed a state of great agitation and anxiety, wringing her hands, and evidently making efforts to express her feelings, but with limited success. She said, "I would like to tell you,

but it is too awful. I must always have been slow. I am ashamed, because it seems that I had not the feelings I should have. I have not been a right mother to them. I have been too selfish. I am awful bad at telling you right." In reply to further questions, she said, "I do things I should not do; I am ruining everybody". After still further questions, she said, "The doctor told me I had trouble". "What trouble?" She did not reply for a long time, although she was making efforts to do so, and finally, after a long time, she said, "I never thought I had venereal disease", and then again, "I would like to give myself up. I have done wrong. I blame myself for everything."

This patient has now been in the hospital for approximately three years, and her condition has become gradually and steadily worse. She has become more and more difficult to care for, and is confined to bed, where she still continues to show the picture of great dejection and misery, and where everything has to be done for her. She recognises her friends, however, when they call, and occasionally is able to say a word or two to them.

The picture in this case is different from many other involutional melancholias, as it is characterised by great tenseness, and by a blocking of thought without special psychomotor restlessness. There has never been at any time the expression of hypochondriacal ideas, nor has there been any special peevishness, so that we were inclined at first, in accordance with Hoch and MacCurdy's views, to give a good prognosis, but the condition has got steadily worse rather than better.

Course and Prognosis

The course of this condition is apt to be very prolonged. Those who develop mental illness at the involutional period of life have lost most of their adaptive capacity, and in consequence it is difficult for them to throw off such a type of illness. Roughly, we cannot look forward to a patient getting well in a period less than from six to nine months, and not infrequently the course is very much longer. So long as the affect is well maintained, and so long as there is no organic involvement of the brain, we need not despair of such a case up to the end of eight years from the onset or (very rarely) even more. Hoch and MacCurdy, who made a comprehensive survey of 67 cases (*Arch. Neurol. and Psych.*, January 1922) found that the average period before improvement set in was nine and a half months; 33 improved during the first year, 5 during the second year, 1 during the third year and 3 during the fourth year. The same writers also attempt to distinguish between the cases which get well and those which tend to persist. Further

differentiation is made on the basis of symptoms, and they stress the fact that severe hypochondria is absent in the recoverable cases. In the recoverable type there is much emotional reaction, usually in the shape of great anxiety, with restlessness, and prominent delusions of death and poverty. In contrast to this they draw attention to the restriction of interest and affect in the more chronic types, and to the replacement of frank fear reactions by moaning, whining, seclusiveness and insufficient depth of affect. Death and poverty ideas are just as common in the one type as in the other, and therefore have no prognostic significance. In the more chronic cases there is an almost constant severe hypochondria, and the three symptoms of peevishness, hypochondria and restriction of affect are definitely associated in Hoch and MacCurdy's opinion with a bad prognosis. These are points which are useful enough to keep in mind, but they are not absolutely accurate guides. Hoch and MacCurdy do not define what they actually mean by "severe hypochondria" —it might seem "severe" to one observer and not to another. In our opinion the most important point is the question of affect. If the affect is well maintained, then there is no reason to give up the case, particularly if this persistent affect is accompanied by a certain co-operation and interest in work. If we are able to get such patients to work, even in a mechanical way, the outlook is so much the better. If a closer study were made of the personalities of the people who develop this type of disorder, some guiding principles might be found, as in the case of manic-depressives.

The other important point to determine in prognosis is whether or not there is any complicating organic process, causing a failure of memory and efficiency. If such is present, then the prognosis must be viewed much more gravely than would otherwise be indicated.

Diagnosis

The symptoms of this involutional disorder are so obvious that there is no great reason to confuse it with any other type of mental disorder. Its possible relationship to the manic-depressive psychosis on the one hand, and to anxiety psychoneuroses on the other, must be kept clearly in mind. We have shown already in sufficient detail why we believe that such cases should be kept apart from the manic-depressive states. The manic-depressive psychosis is a more purely constitutional reaction; it occurs earlier in the life of the individual, and it tends not

infrequently to recurrence. Furthermore, the symptomatology is considerably different. The manic-depressive psychosis exhibits a slow, retarded state, affecting both the mental and the psychomotor functions, but the involutional states are characterised by anxiety, by feelings of unreality, by delusions in the allo-, somato- and auto-psychic fields, and often by hallucinations of a terrifying nature.

Involutional melancholia is occasionally difficult to distinguish from a paranoid state occurring at the involutional period (Kraepelin's paraphrenia), but in the latter the absence of any special affect, except in relation to the paranoid ideas, and a certain degree of intellectual and emotional deterioration are sufficient to differentiate such cases.

The differentiation from arteriosclerotic brain disease should not be difficult so long as the latter term is used exclusively for those cases showing cerebral symptoms—for instance, headache, vertigo, convulsive attacks and loss of memory and judgment. The fact that peripheral sclerosis accompanies an involutional psychosis is of no special significance, apart from the presence of such symptoms.

Treatment

The first question to be considered is whether to treat the patient at home, in a nursing home, or in a mental hospital. If the patient is well-to-do, and can afford to have special nurses, the case can often be treated satisfactorily either in the patient's own home or in a nursing home. The great danger is the possibility of suicide, and in such cases the relatives should always be warned of the grave responsibility they take. The average involutional melancholic is best treated in a mental hospital.

It is essential to safeguard the patient in every way, and particular attention must be devoted to maintaining his strength by nourishing food and by sufficient sleep. The first point, therefore, is to promote complete rest in bed. By the time such patients come to mental hospitals they are often so devitalised that the main thing is at once to give them sufficient rest, and to improve their bodily health by sufficient nourishment. The rest is often best accomplished in bed on a verandah or elsewhere in the open air. This has often a very quietening effect, and may help towards sleep at night. Such patients determinedly resist taking food, largely because they feel they have no appetite for it, or because they feel they cannot pay for it. In this connection we would strongly advise that tube-feeding be begun before too

great a reduction has taken place. If the patient is tube-fed early in the course of the illness, the result is very beneficial; and, besides, to avoid its repetition the patient will frequently take meals voluntarily.

Regarding *drug therapy*, it has been commonly supposed that opium in various forms acted particularly well in this type of case, but we have never had any success with it, either as tincture of opium, nepenthe, omnopon, or any other preparation. Hypnotic drugs in this disorder have to be used in the same way as in any other. We have to find out what seems to suit the patient best, and employ it. The drug varies in the individual case; it may be paraldehyde, bromide and chloral, sulphonal, veronal, trional, or some other preparation. We have found paraldehyde (in doses of from 1 to 2 drachms), and bromide and chloral (in doses of 15 gr. of bromide and 10 gr. of chloral) three times daily, to be the most useful drugs to employ. Occasionally we have used veronal in small doses of 2 gr. given thrice daily, and in certain cases this has seemed to act well by allaying the agitation.

Occupational therapy is of great value. At first the patient may work in a very routine, mechanical way, but occupational therapy helps to engage his interest, and the accomplishment of simple tasks creates a feeling of self-confidence and self-satisfaction which leads to improvement and recovery.

Hydro-therapeutic measures we have not found specially applicable. It is a most difficult thing to get patients suffering in this way into a bath or into a pack, and the amount of anxiety and agitation which occurs in connection with these methods contra-indicates them. Furthermore, such patients are apt to believe that pack and bath treatment are methods of coercion rather than of cure.

From the *psychological* point of view, many patients get comfort out of talking over their troubles, but in the acute stages it seems to us that anything in the way of analytic treatment should be avoided, and suggestions and explanations of a psychoanalytic nature should be withheld. Some patients will benefit from talking over their troubles, but others seem to be made worse. The way must be found very gingerly, or a serious catastrophe may be precipitated. Once the patient's condition has sufficiently quietened down to permit a review of the whole illness, and of the causes which have precipitated it, there is not the same danger, and we believe that it is wise to attempt to give the patient a better understanding of how the illness has

developed along common-sense non-psychoanalytic lines. By doing so, a recurrence may be prevented.

In every case the general physical state should be carefully attended to, and anything in the nature of focal sepsis or definite organic disorder should be treated just as carefully as in ordinary physical illness. The general physical state is often helped by means of tonics of iron and arsenic. The main thing, however, is to safeguard the patient, to maintain his health at as good a level as possible, and to give him plenty of time to make a readjustment.

The danger of suicide should always be kept in the forefront, and can only be obviated by unremitting attention and observation day and night.

It is in depressions that the results with *convulsion therapy* (see the chapter on Special Methods of Treatment) have been most striking, and most of all, in the involutional melancholias. Statistics bear out individual impressions to an extent which is uncommon.

CHAPTER X

SCHIZOPHRENIC REACTION-TYPES

We believe that the term schizophrenia is more applicable than the term dementia præcox to the group of cases now to be described.

In 1896, after Kraepelin first made his important differentiation between the manic-depressive psychosis and dementia præcox, the latter term was more or less generally accepted. The term has, however, two principal drawbacks: first, many so-called "dementia præcox" patients do not show a permanent dementia; and second, many of them have developed outside the adolescent period. These objections are valid, but, in spite of them, the term "dementia præcox" has usually implied a rather hopeless prognosis. This is unfortunate, and in too many instances has led to an attitude of therapeutic nihilism.

In 1911 Bleuler introduced the term "schizophrenia" to designate all cases of functional mental disturbance, with the exception of typical manic-depressive cases. He suggested that all such conditions as dementia præcox, paranoid states, hallucinoses, prison psychoses and conditions which might be referred to as abnormalities of make-up were manifestations of one underlying morbid process, which could be briefly characterised as a "splitting of the personality". There is no doubt that Kraepelin's opinion of the prognosis is in the majority of cases correct, but Bleuler's wider conception allows for the improvement or arrest which is not uncommon. "This disease (schizophrenia) may come to a standstill at any stage, and many of its symptoms may clear up very much, or altogether, but if it progresses it leads to a dementia of a definite character" (Bleuler).

Schizophrenia, in its typical form, consists in a slow, steady deterioration of the entire personality, usually showing itself at the period of adolescence. It involves principally the affective life, and expresses itself in disorder of feeling, of conduct, and of

thought, and in an increasing withdrawal of interest from the environment.

Ætiology.

The cause of this condition is still obscure, and we can merely mention some of the more authoritative views, and point out the lines along which we believe further progress may be made.

The great majority of the cases start about puberty and adolescence, and it has been estimated that two-thirds occur between the fifteenth and the thirtieth year. It has been suggested that cases which occur later have been developing insidiously for a much longer time than has been supposed. Symptoms of a kind usually associated with schizophrenia certainly occur in later life. In 117 patients in whom a psychosis began after the age of forty, Strecker found katatonic[1] phenomena in 25. These katatonic signs, however, simply coloured a psychosis of another type, *e.g.* involutional melancholia.

At the beginning of the second decade there is a rapid increase in the number of cases, reaching a maximum at about the twenty-fifth year. Very few cases occur after the age of forty, and these are mainly in women (Popper).

Heredity plays a part (*vide supra* "Heredity") in schizophrenia. Approximately 50 to 60 per cent of cases have a family record of mental illness. The condition is rather more frequently seen in parents and children than in brothers and sisters. There is a large number of cases, however, in which hereditary factors do not seem to enter, so that heredity is apparently but one conditioning factor of many. The total figures for the probability of schizophrenia, according to the abridged method of Weinberg, are 16·4 per cent for the children of probands, 11·5 per cent for the siblings of probands, 7·6 per cent for half-sisters and half-brothers, and 3·9 per cent for grandchildren (Kallmann).

Kraepelin believed that the mental disease-process resulted from an auto-intoxication following a disorder of metabolism, and that this auto-intoxication was produced by a disordered secretion of the sex-glands. In support of this hypothesis, he urged the frequency with which the first symptoms showed themselves in relation to puberty, disorders of menstruation and pregnancy. Kraepelin's hypothesis has received a good deal of support in this country from the work of Mott and his pupils, and also

[1] For definition of "katatonic" see later in this chapter.

from the work of Gibbs and Lewis in America. Mott has in many papers attributed great causal significance to a disordered action of the whole endocrine system. In a large proportion of schizophrenic patients, according to Mott, there is a complete arrest of spermatogenesis, with regressive atrophy of the cells of the testicular tubules. These changes correspond with two kinds of change in the neurones: (1) those indicative of suppression of function, consisting of swelling of the nucleus, with vacuolation, disappearance of the Nissl granules and even destruction of the cytoplasm and its dendritic processes; and (2) changes indicating hypofunction, consisting in the appearance of lipoid granules in the cells of the cortex and basal ganglia and other structures of the central nervous system, to an extent far beyond physiological limits. Mott also considers that there are indications of a diminution in the oxidation-processes in the dementia præcox brain, especially in the supragranular layers of the cortex, where he found a diminution in the number of oxydase granules. Further, there is an increase of the neutral sulphur content of the whole brain, such as would result from incomplete oxidation of organic sulphur compounds.

The endocrine changes described by Mott occur particularly in the ovaries and testes, but correspond with changes of a similar type described by him in the adrenals and in the pituitary. The changes found in the medulla of the adrenal gland in dementia præcox are an increased number of nuclei, irregularity of their size and form, and deficiency of chromatin. There is also an increase of fibrous tissue, which often takes a pericellular arrangement, and an increase of fibroblastic nuclei (*B.M.J.*, July 21, 1923). Similarly, in the pituitary gland there is a regressive atrophy of the cytoplasm and nuclear changes of the cells of the anterior portion of the gland.

The general criticism of Mott's work which at once arises is that the clinical case records on which his findings are based are frequently most unsatisfactory.

Mott's work has been criticised by Miss Morse. She points out that while in many schizophrenics the ductless glands may show certain changes, these changes may result from causes unrelated to schizophrenia, and that it is very difficult in histological work to state what a normal endocrine standard is. It depends among other things on the age of the patient, the state of nutrition, and the nature and duration of the terminal disease. She studied a series of schizophrenic cases, 12 male and 15 female, under forty-five years of age, which had come to

autopsy. In 3 out of 4 cases in which sudden death occurred, the gonads were microscopically normal. She then proceeded to show that inanition is a very serious factor in producing a cessation of spermatogenesis, and also that in an acute disease, such as pneumonia, marked microscopic lesions may take place, consisting of a cessation of activity in the seminiferous tubules, frequent degenerative changes, and fibrous replacement of the degenerated tubules. In the case of the ovaries, the counting of primordial follicles in dementia præcox and control cases is indecisive unless serial sections are studied.

The statement of Miss Forster, a pupil of Mott's, to the effect that the ovaries of all dementia præcox women who had reached the age of thirty showed signs of early involution, and that even below that age there was a distinct diminution of follicles compared with a normal woman of the same age, is seriously questioned by Morse. In the latter's series of 15 cases of schizophrenic women, 9 showed corpora lutea and developing follicles. The ages of these patients ranged from twenty-three to forty-three, and the terminal conditions were chronic nephritis, pneumonia, septicæmia, influenza and pulmonary tuberculosis. Five of the 6 patients whose ovaries contained neither developing follicles nor corpora lutea died of pulmonary tuberculosis. In this last group two of the women had presented signs of infantilism. A state of genital infantilism has been noted in schizophrenia by others, especially by Gibbs. Miss Morse showed also that there is a histological relationship between the condition of the sex glands and of the other endocrine glands. Such a state of affairs is not peculiar in any way to schizophrenia, but seems rather to depend on the duration and nature of the terminal disease and the state of nutrition.

Lewis has found that schizophrenics suffer from a state of aplasia of the circulatory system and an atrophy of the sex glands. He found especially that the heart weight in a series of cases of hebephrenia and katatonia was strikingly below that found in cases suffering from other types of mental disorder. He pointed out that in addition to the circulatory changes the thyroid, the adrenals and the gonads revealed more or less constant gross and histologic departures from the normal, and he believed that these patients had suffered in the course of development from the imperfect and aberrant functional performance of these glands.

Another kind of evidence of abnormality is adduced by Gibbs, who found that a considerable proportion of a series of schizo-

phrenics had abnormal hair distribution—vertical pubic hair, and hair on the face and elsewhere, being frequent in his female patients, and a horizontal distribution of hair, often with scanty hair in the beard area, being common in males. Abnormalities in the texture of the hair, nails, and in size and consistency of the testes have been reported more commonly in schizophrenia than in any other mental disorder (Kirby and Gibbs).

Kretschmer found 34 patients of "dysplastic" physical type among 175 schizophrenics, and none at all of this type in 85 manic-depressives. By "dysplastic" physical types he denotes those approximating to the results of known glandular disease (*e.g.* acromegaly).

It will be seen that while the evidence of frequent endocrinopathy in schizophrenics is very suggestive, the most important contributions in its favour (Mott's) are still in the controversial stage. Even if a definite endocrinopathy were established, it would not necessarily be causally connected with the mental symptoms, but might be more properly regarded as a concomitant effect of a more general deficiency.

Campbell's analysis of schizophrenic deterioration led him to regard them in terms of schizophrenic "surrender", the challenge of life appearing to be too great a hazard. He suggested that this might point to an abiotrophy of component systems.

The point of view adopted by Adolf Meyer and his pupils differs considerably from that held by the purely pathological and anatomical investigators. Meyer does not by any means disregard the latter, but rather seeks to include, in a general biological formulation of schizophrenia, whatever is of established value in the field of physical pathology. The essence of his view is that schizophrenia is the outcome of progressive maladaptation of the individual to his environment. Schizophrenia is not a "disease", but a congeries of individual types of reaction having certain general similarities. "We must consider mental illness, not in terms of clean-cut groups, but of reaction-types." The individual may be loaded in various ways—by inheritance, by physical defects of an endocrine disorder or some grosser kind, by intellectual deficiency, or what not—but none of them is in itself a sufficient cause of schizophrenia. It is only when the subject, whether handicapped or not, has to face the usual concrete problems in his journey through life that reactions can appear which cumulatively lead to one of the numerous conditions which have been included under the designation of "dementia præcox" or "schizophrenia". It was from a careful

study of patients, and especially of their history before any breakdown was recognised by friends or relatives—a line of investigation commonly neglected—that Meyer concluded that "schizophrenia" is the end result of an accumulation of faulty habits of reaction.

The healthy attitude to life's difficulties and problems is a direct, aggressive, matter-of-fact one, designed to overcome the difficulty once and for all, with the result that the individual feels satisfied, and can proceed confidently to his next problem. On the other hand, the individual may shrink from facing the situation directly, and may temporise in the hope that something will turn up, or that the matter will be decided for him. In other instances he may evade the necessity for definite action by indulging in some substitute, which is never satisfactory; for example, if unsuccessful in work, he may indulge in day-dreams of wealth; or if unable to face the responsibilities of marriage, he may take to sex ruminations or to autoerotic habits. A sense of failure is no longer combated by renewed efforts, but by brooding over troubles and by blaming others. Such reactions, occurring only occasionally, are within normal limits; but if they become so frequent as to be habitual, they lead to total inefficiency and social maladaptation, so that the individual exhibiting them comes to be regarded as abnormal. Certain kinds of faulty reaction are especially pernicious, such as hypochondriacal trends—blaming one's health for one's failures—ideas of suspicion or actual fault-finding, fantastic religious motives and persistent brooding and seclusiveness. Reactions which are not morbid when used sparingly and in certain circumstances may become diffused over the whole conduct, and are increasingly used because, being habitual, they are easier than anything else. Negativism, for example, is healthy enough as mere stubbornness in certain directions; but when it extends to every activity as an "uncontrollable blocking factor" it becomes pathological, and constitutes what has hitherto been called a mental "disease".

A clinical example or two will help to illustrate the gradual development of a schizophrenic illness as an accumulation of mental reactions.

Case 40.—Q. M., who was admitted to the Glasgow Royal Mental Hospital at the age of 26, was reported to have been always "nervous". He had stuttered at the age of 15, and as the consequence of a fright, when he had been left alone in a schoolroom, he was kept away from school for a year. He was

easily led by companions, and very obedient to his parents. Once at school his teacher had drawn his face on the board and said it was "like the moon". He remembered this bitterly, and his personal appearance became an increasingly sensitive point. Partly as the result of this, he was shy, and felt "like a kind of clown" in company. When he left school at 16, he was apprenticed as an engineer, but as he developed Raynaud's symptoms his over-solicitous parents considered the work unsuitable. In 1914 (æt. 18) he enlisted, and was not discharged till 1917, but he saw no service, having spent most of his time in hospital on account of a supposed heart lesion. On his discharge he had an operation for cervical adenitis. He became increasingly preoccupied about his health, so that if he read a book in which a disease was mentioned he at once imagined that he had that disease. At 22 he courted a girl, but "I felt if I kept it up I'd go wrong in my head". He ceased seeing the girl, concentrated on his work, and felt better for a time. This failure only increased his general sense of insufficiency. "I never felt I was just a man. I wasn't taking my right place. I was going about things apologetic. I could never talk right clear. I could never take the place I should have taken according to my age . . . I never let myself go—for fighting or anything like that or taking up with a girl." After discharge from the army he had worked for his father, but his anxious preoccupation about his health, his sensitiveness about his appearance and his general feeling of dissatisfaction with himself interfered so much with his concentration that his head "buzzed", and he had done no work for ten months before admission to hospital. After leaving off work, his preoccupation increased, he became more and more depressed about himself, and more and more secretive, so that he did not wish to see any one, thought every one was looking at him and hinted at suicide. When admitted to hospital he was quiet and co-operative, but very jerky in speech and movements, hesitating in the middle of sentences as if his thoughts had been interrupted. Soon he began to express definite persecutory ideas. He was "being made an example of", and to "appear the biggest fool in the world". Finally, there was "a system being worked" against him. His conduct became impulsive—he escaped over the garden wall, and returned voluntarily, saying he thought "a race might do him good". Within four months of admission hallucinations appeared, and at times mutism, verbigeration and flexibilitas cerea. Physically, there was no evidence of organic disease.

This patient shows very well how faulty habits of reaction—shyness, sensitiveness, plastic obedience to others, extreme consciousness of inferiority (based on his physical appearance, his clumsiness of address and of speech and the remarks of others) and hypochondriacal preoccupation—can lead to invalidism

and then to inactivity, depression and ideas of reference, and finally to delusions, hallucinations, impulsiveness, automatic obedience, mutism and verbigeration. These, in fact, are the " symptoms " of the so-called " katatonic " form of schizophrenia.

The extent to which phantasy can console some one who cuts himself off from the more solid satisfaction of social intercourse and material achievements, and can ultimately replace these entirely to constitute a " psychosis ", is shown by the following case :

> Case 41.—Summary : A shy, sensitive, seclusive young man who showed increasing incapacity for social adaptation as he grew older ; fanciful preoccupation with a girl whom he had never met : misinterpretation of the remarks of others in the light of his phantasies and in accordance with his wishes : gradual loss of appreciation of reality, so that his phantasies became delusions (*e.g.* engagement-phantasy) in which he lived—hence bizarre conduct and increasing seclusiveness, with correspondingly increased sensitiveness and a feeling of guilt (for phantasied actions), leading to ideas of reference and self-accusations of an extravagant kind.

A young man, M. R., who was admitted to the Glasgow Royal Mental Hospital at the age of 22. He had been an excellent student at school, but when he began work in an office at the age of 14 he was very " nervous ", starting violently even when the house-bell rang, thinking it was a telephone call he had to answer. He tried several occupations in turn, with little success. He was very sensitive and had very few friends, and was increasingly lonelier as he grew older. Masturbation was frequent. His chief recreation was music, and for some years before admission to hospital he had been taking violin lessons. A girl whom he had never met attended the same teacher, who told one pupil about the other. A friend of the patient's informed him that the girl liked him, which " harassed " him, as he " did not know any way of getting an introduction ". For two years subsequently he ceased taking lessons " because they occupied too much of his time ", but he was induced to return " by thoughts of the young lady ". He tried to arrange for the girl and himself to play at the same concert, but their teacher refused, and this he thought queer. The patient understood his music-teacher to say on one occasion, " There is a child which is unwelcome in the world ", and he considered that the girl and himself might marry and adopt this child. He " thought a lot of stuff " about the girl, and five weeks before admission he began to believe that he was engaged to her, although he had never spoken to her. About this time he would say to his dog, " I'll tell you a nice story ", and laugh foolishly. Soon he began to accuse himself of a murder, with a sexual setting, recorded in the newspapers, and of causing a shipping disaster which had just taken place. He began to feel that people were " talking about him and laughing at him ", and that the girl was trying to hypnotise him. He became mildly

depressed and tearful, and during the three weeks he was under observation he did not improve.

In these sample cases the psychosis seems to develop more or less from the habits of reaction cultivated by the patient on his way through life. These habits make up in great part the "personality" of the patient as it was before they were sufficiently developed to constitute a socially recognisable illness. Meyer and Hoch have emphasised the frequency with which psychoses develop in certain types of personality, especially in the "shut-in", *i.e.* shy, seclusive type. The same general type of personality has been described by other authors by other names, for example, by Bleuler as "schizoid", as opposed to the "syntonic" or "cycloid" personality, in which, if mental illness develops, it tends to be of the manic-depressive kind. According to Bleuler, for the development of a schizoid illness there is required not only a "schizoid" personality but a characteristic "schizophrenic thought-process" as well. Farrar distinguishes five main types of "shut-in" personality: (1) the "backward" type, lacking ambition, absent-minded, often playing truant; (2) the "precocious" type, the bookish, serious, prudish, "model" child; (3) the "neurotic" variety, selfish and deceitful, with headaches and other minor ailments, temper-tantrums; (4) the "asocial"—seclusive and day-dreaming; and (5) "juvenile" type, which never seems to "grow up".

In more recent years Cotton of Trenton, New Jersey, has not hesitated to state that, in his opinion, the most important causative factor in the production of this type of mental illness is some area of focal sepsis. It is either a tooth or a tonsil, or the gastro-intestinal tract, or the genital tract which is at fault; and he has stated that since such areas of focal sepsis have been looked for and eliminated the recovery rate in this group of patients has greatly increased. His work, however, has been most carefully controlled by Kopeloff, Cheney and Kirby, and his results have not been confirmed (*v. supra*, chapter on Ætiology).

Jahn and Greving (*Arch. f. Psychiat.*, 1926, 105, 65) have reported alterations of the blood and bone marrow similar to those produced by the injection of histamine. They surmise that a histamine-like substance plays a part in the production of schizophrenia.

It is therefore necessary to admit that we do not as yet have a full and complete understanding of the various factors which may bring about such an illness as schizophrenia. We can only

say that there is a special type of schizoid personality, which is partly inborn and partly acquired. We do not believe that schizophrenia is in every case a malignant state, but we consider that in every individual so affected we must attempt to find these factors which are modifiable, whether they are physical or mental. From our experience, we believe that Meyer's formulation is very much the best and fairest conception, and that it gives us actually something to work with in a helpful and in many respects a satisfactory way.

Precipitating Factors.

Exciting factors in the sense of immediate precipitants of the illness are often apparently wanting; but a certain proportion of cases begin in association with such stresses as toxic-infectious illness, pregnancy and the puerperium, financial and domestic difficulties and love-affairs. Influenza is probably the commonest infection playing a causative rôle. Of 175 patients with psychoses associated with influenza Menninger estimated that one-third showed a schizophrenic syndrome. Of more long-standing factors, worry over masturbation is perhaps the commonest. The patient goes on for years ruminating over the habit till his feeling of guilt, no longer bearable, comes to be projected, first as ideas of reference, and later as hallucinations or delusions. The guilt-feeling may be treated in other ways —the patient goes into an ecstasy in which he feels himself forgiven; or he attempts expiation by castrating himself. A homosexual experience, long ruminated over, may act in a similar way.

Onset.—Schizophrenia is a type of mental disorder which, in contrast to the manic-depressive psychosis, develops slowly and insidiously over a long period of months or years. Farrar (*Psychiatric Bulletin*, 1916) has emphasised this when he said that the number of cases of this type showing tangible psychotic elements in the previous history increased in proportion as adequate life-data of those affected became available. "It may be a legitimate question whether in any præcox case the early history could be set down as negative if complete data were at hand." We are in substantial agreement with these views. In the vast majority of cases a close analysis of the history shows that the patient has exhibited peculiarities and oddities which perhaps did not seem to have any special significance until the grosser symptoms presented themselves. We believe, therefore, that closer attention should be paid to obtain-

ing very complete records of the development of the patient, and that the idiosyncrasies and perversities of childhood should be scanned with more seriousness, because by so doing we may be able to determine traits which are likely to be followed by more serious symptoms. We would particularly emphasise the importance of noting such traits as day-dreaming, fears, solitariness, undue sensitiveness and bashfulness. There remain, however, a small number of cases, particularly those showing katatonic features, in which the onset may be comparatively acute. Such cases of sudden onset were noted particularly during the War years 1914–18, where the schizophrenic type of disturbance showed itself in a simpler form, and with more frequent recovery, than is the rule with civil cases, and that impression has been confirmed by the present war.

Varieties.

Kraepelin differentiated three principal types, which he termed hebephrenic, katatonic and paranoid. Later he added a fourth variety, termed simplex. In the last edition of his text-book he has added numerous other forms, *e.g.* simple depressive dementia præcox, delusional dementia præcox, circular dementia præcox, agitated dementia præcox, and so on. No useful purpose is served by forming so many subgroups. The main groups are fairly distinctive, but even these are not clean-cut, and, if we wished, we could form almost as many groups as there were individuals. We prefer to use the term schizophrenia rather than dementia præcox and we suggest that it is preferable to group paranoid forms with paranoic and paranoid reaction types rather than with schizophrenia. In this discussion, therefore, we limit the grouping of the schizophrenic states to the simple, the hebephrenic and katatonic forms, but we would emphasise that these differentiations are made merely for ease in classification rather than because of any fundamental difference.

Symptomatology.

The detailed symptomatology is extraordinarily varied, but there are certain groups of symptoms which stand out more prominently than the others, and are common to all the varieties. The most prominent symptom is the failure of affect, or emotional blunting, showing itself in apathy and indifference. This description applies more definitely to cases of some duration. In the early stages the affect may be lively enough, but even in advanced cases it has been held, for example, by H. S.

Sullivan, that there are more evidences pointing to affective activity than would, on the surface, be suspected. The emotional deterioration leads to a state of mental facility, in which the patient is, up to a point, easily suggestible, and his conduct is more easily affected by those in contact with him. On the surface one gets the impression of a certain mild depression and feeling of failure. The patient does not seem to appreciate joy or sorrow or fear, but his attitude is rather one of indifference to his condition, and " I don't care " or " I don't know " is a frequently repeated phrase. Associated with this is a certain dreaminess and a lack of touch with reality ; the patient lives a life with which his relatives and his doctor cannot get in touch. The apathy and lack of interest are usually so marked that active attention to any specific problem is fleeting. On the other hand, passive attention is remarkably good, so that he may remember long afterwards events of which he had seemed to take no notice. Such patients may be induced to do some purely mechanical type of work, something which they can pursue without interfering unduly with their ruminations. Another impressive feature is the disharmony between the mood and the thought. It is this more than anything else that distinguishes schizophrenia from other types of mental disorder. Schizophrenic patients may express, without any show of emotion, ideas which in the ordinary person would produce remorse, or pity, or profound depression. Situations in which they find themselves, which would normally have a profound emotional value—as, for example, being placed in a mental hospital—are by them met with indifference. Frequently there are sudden, causeless outbursts of laughter, and a stereotyped, silly, smiling attitude, in which there is no real mirth or hilarity.

The disharmony revealed in these ways between mood and thought is not the only indication of a deep-seated psychic change. There is a general disintegration of all the mental functions, resulting in the appearance of queerness and oddity which is so striking to the ordinary observer.

The result of the mental disintegration is a widespread change in the patient's personality, which vividly impresses itself on his friends. The patient loses his pride in his personal appearance, gradually becomes untidy and slovenly and needs constant attention.

Ideas of reference, illusions, hallucinations and delusions constitute another group of symptoms which are present at one time or another during the course of the illness. Ideas of

reference are probably more common than the others. They arise from the patient's attitude, which is one of increased sensitiveness and suspiciousness, in consequence of which he believes that he is being spoken about, and that articles in the daily press have special reference to him and his affairs. He interprets the most commonplace occurrences as having some special reference to himself. Such a patient feels that the whole world centres round him, and that he is marked out either for persecution or for some great honour. Hallucinations of hearing are particularly common. For a time they may not exercise much influence, but often they dominate the patient so that the hallucinatory suggestions may be acted upon. It is frequently in response to such commands that impulsive and violent acts are perpetrated.

Visual hallucinations, hallucinations of smell and taste, are also frequent, but not so common as those of hearing. The striking feature about the delusional ideas is their changeable and transitory nature. Ideas of influence are very important. They take the form of a belief that the patient's thoughts are being read, or stolen from him, or that he is being influenced by wireless or by electrical machines. As a further development delusions of grandeur may arise.

The symptoms which have been described are all the more significant in that they occur in a setting of relative clearness, so that the patient recognises clearly time and place and the people around him, *i.e.* there is no disorientation or clouding of consciousness. In addition, the patient has a good memory both for things of long ago and for more recent events. The general intellectual faculties are unimpaired, and the remembrance and grasp of school knowledge are not interfered with. Any apparent intellectual deterioration arises from lack of attention and concentration.

The judgment of these patients is, however, greatly interfered with, and they have no proper appreciation of the serious nature of their illness. Gradually the thought-content becomes more and more involved, so that a formal disorder occurs, and incoherence, which may go to the extent of becoming a "word salad", is not uncommon.

Schizophrenic Thinking and General Behaviour

Some general account of the factors which contribute to the strangely disordered appearance of the schizophrenic's mind is

perhaps desirable. The peculiar qualities of schizophrenic thinking and behaviour generally are dependent principally on four conditions: (1) the schizophrenic turns away from reality (introversion); (2) his thinking is dominated by his complexes (topics with a strong affective colouring) to an extent not seen in the normal; (3) he regresses to a childish or infantile or archaic (as it is variously called) mode of thought; and (4) his personality undergoes a progressive disintegration. These are not separate and distinct conditions, but different aspects of one and the same thing. Different writers lay different stress on the various aspects.

It has been pointed out elsewhere (chapter " General Psychopathology ") that the individual's personality is the product of the interaction of his instinctive forces and his environment. His personality is not simply the sum of the qualities so produced. It is their combination into a new dynamic whole, in which some of the component forces are allowed direct or indirect expression and some are inhibited. Now if such a personality for some reason (*e.g.* persistent instinctual frustration) ceases to keep in contact with reality (introversion) the necessity for inhibition is removed. Modes of expression which are from the social point of view primitive and not permissible can then come into action. In other words, regression can occur, and tendencies hitherto unconscious, because inhibited, receive conscious expression. But a personality in which such expression is permitted is *ipso facto* no longer the same personality ; it is socially a deteriorated one. Moreover, since there is no longer the necessity for conforming to the real environment, which demands a consistent purposive adaptation, all the modes of instinctive fulfilment can be used in a go-as-you-please, haphazard way; now this and now that complex may receive some sort of conscious expression ; and the personality is not only deteriorated, but is disintegrated as well.

This concept of the schizophrenic's personality, with its introversion, dominance by numerous loosely connected complex-derived affects, and its regression to " archaic " modes of expression, provides a key to a general understanding of the clinical manifestations of schizophrenia. It should, however, be understood that the disintegration seldom is complete. Fragments, so to speak, of the old personality remain with the corresponding conflicts and inhibitions.

The vagueness which is so obvious a characteristic of the concepts which the schizophrenic entertains, and of his thinking

generally, has been likened to the assumed pre-logical nature of the thought of primitive peoples. But it is now fairly generally contended (cf. Bartlett) that the latter do not think pre-logically but logically, according to their lights. The vagueness of the schizophrenic's thought must be attributed largely to his introversion. The schizophrenic patient no longer seeks to commune with his fellows, but lives instead in a world of his own. There is then no need for clear definition in thinking, and the very lack of clearness itself helps to make possible another of the conditions mentioned—that as much as possible in his introverted world may be as his wishes dictate. The lack of necessity for communication with others makes possible such "telegrammatic" and metaphorical thinking as that described by Jung in the case of a dressmaker who fell ill in her thirty-ninth year. She said, for example, "I am Socrates". This delusional statement proved to be an ellipsis for the thought that like Socrates she had been extremely able and accomplished, and had been falsely accused and placed in a prison (the asylum) where she would have to die. That the vagueness and disconnection of thought which reaches its extreme development in the complete incoherence of some cases is largely dependent on the factors of introversion and dominance by affects, and that it does not depend as a rule on any organic cerebral change, is well illustrated by an occurrence that is not very uncommon; namely, that a patient whose utterances have long been unintelligible may talk coherently and entirely naturally for a time if he is overtaken by some severe physical illness which brings him up against reality with a shock, so to speak. A woman of 60, admitted thirty years previously as suffering from "dementia præcox" and who had remained in hospital ever since in an apparently demented condition, began during an attack of influenza to ask intelligently for the relatives and friends who had been dead to her those thirty years. Between the thought-processes in schizophrenics and the type of thinking found in primitive man there are certain impressive similarities, but writers on the subject have tended to go too far in their identification of primitive and schizophrenic thinking. Some schizophrenic utterances are superficially reminiscent of the "sympathetic magic" of savages. For example, a male patient, 30 years of age, was observed to carry always dead leaves next to the left side of his chest. Closer inquiry revealed that his mother, to whom he had been specially attached, had died in the autumn some years before, and that at the funeral he had seen the withered leaves strewn on her coffin.

He believed that his heart was weak, and that autumn leaves placed over it would have a curative effect, because they had been associated with his mother.

Ideas of death and rebirth, such as are common in primeval myths and in religious writings, are frequently found in schizophrenic patients, who tend moreover to act according to such ideas and to give dramatic representations of them. For instance, the stupor of some katatonics seems to be a dramatisation of the idea of death, and some states of ecstasy have as their corresponding mental content the idea of being born again. Such conditions, however, are not peculiar to schizophrenia. Religious trends in schizophrenics are sometimes of a type that would perhaps have been permissible in persons still claiming to be normal in the Middle Ages, but now bear the stamp of grotesqueness. One young man, for example, hears a voice saying, "Yea, we shall relish thee", while at prayer, sees a picture of the Last Supper scintillate and sparkle six times in one afternoon, finds that his room is illuminated with a bright unearthly light, and observes that a bottle of medicine momentarily assumes the shape of an angel. His personality being disintegrated, and working incoordinately, instead of as a harmonious whole, it has been said of the schizophrenic that he is at the mercy of his complexes. Whereas in the manic, as in the depressive, there is one prevailing affect, in the schizophrenic numerous affects, associated with as many complexes, are at work and at war with one another in the disintegrated personality.

This affective disorderliness probably contributes to producing the curiously chaotic appearance of the schizophrenic's mind. In the minds of normal people all things are possible—a feeling of love, or its opposite, or apparent indifference, may be entertained towards the same person: what determines the choice is external circumstance and the individual mind as a whole—that feeling comes uppermost which is most in harmony with the rest of the mental experience, conscious and unconscious, of the individual concerned. But in the fully developed and therefore mind-disintegrated schizophrenic this decisive solution is impossible. He hesitates between one feeling and the other, so that he may waver between strong like and dislike, between wanting and not wanting something—rejecting and accepting almost at the same time. This is the so-called "ambivalence". Hence something rejected which the schizophrenic still succeeds in inhibiting from full conscious expression does not remain totally inhibited, but, because it is still keenly wished for, crops up in an

indirect way as a projection, *i.e.* as a delusion or a hallucination. Thus a young married woman consulted a physician whose voice she soon afterwards began to hear following wherever she went. She wrote letters to him and to the hospital authorities, protesting vigorously against this persecution. Persuaded, however, to interview the physician again, she smiled a great deal, especially when reference was made to the voice, and said that it "spoke of love". Further, at the same time as she complained of the physician's persecution, she proclaimed her engagement to him. It is not surprising that such an ambivalent affective attitude which follows from the disintegration of the personality also contributes to it. Bleuler supposes that a similar "ambivalent" tendency is at the root of schizophrenic negativism, a stimulus evoking with equal readiness the appropriate (normal) psychological reaction and its opposite. But negativism is probably fundamentally an expression of the desire to shut out reality (introversion). In Bleuler's opinion, ambivalence is simply one aspect of the not yet fully understood disorder of association which he supposes to be the fundamental defect in schizophrenic thinking. It seems more likely that the disturbance of associative thought-process is the result of the affective disorder.

The combination of loss of contact with reality and domination of thinking entirely by the emotions centred round certain complexes makes all kinds of fantastic delusions possible. The patient in phantasy has anything he wants. For example, a young medical student talked of his will-power, and said that he had a motor-car, a house of his own, and that he was a doctor, having qualified at the age of 21, and was going to marry the girl of his heart. This is a mild example.

Guilt complexes, *e.g.* remorse for masturbation, also lead to compensating phantasies, at the same time as there exist delusions of reference (that every one can see his guilt, *e.g.* in his eyes). In such an instance the phantasy may be translated into acts of expiation. One young man, for example, mutilated himself by sawing with a safety razor blade completely round his penis just behind the corona, in an attempt at castration and "purification".

These are among the commoner instances of the very numerous types of "autistic" (introverted) and "katathymic"[1] thinking and consequent action found in schizophrenics. Other

[1] Katathymic thinking = thinking along the lines determined by some complex.

examples will be found in the case-records included in this chapter.

Physical.—Numerous investigations have been made of the physical condition in schizophrenic patients. Few of these researches have yielded any suggestive results.

Schizophrenics are commonly poorly nourished, ill-thriven people. During the period of their illness they often lose a great deal of weight, and their general physical condition is not up to the average level. We have already drawn attention to the work of Lewis, who has remarked on the lack of development, particularly of the circulatory system, the low blood-pressure and the well-marked vasomotor disorders, which one sees so commonly in this type of case. The hands, the feet, the nose and the ears show cyanosis and œdema.

Various special groups of symptoms have been noted by different observers, but there is a lack of uniformity. Dilatation and irregularity of the pupils and anomalies of pupillary reaction have been remarked upon. Bumke found that the pupillary response to psychic stimuli was abnormal in 33 cases, and in 69 per cent he found it lost. Kraepelin also quotes Hubner as failing to get the psychic pupillary reflexes in 75 per cent of 51 cases.

Changes have also been described in the condition of the tendon reflexes, and in the secretion of saliva. Convulsions or seizures sometimes occur. Kraepelin states that these seizures are mostly attacks of vertigo, or fainting fits, or epileptiform convulsions.

Investigations of metabolism have been carried out by numerous observers. Folin is reported by Campbell as stating that "from a destructive, negative or critical point of view, it is believed that the data prove the untrustworthiness of all the metabolism experiments, old and new, which report a characteristic increase or diminution of any of the urinary constituents included in the research as associated with any particular one of the ordinary mental disorders". It is not claimed that such characteristic abnormal metabolism may not exist, but simply that the experiments recorded in the literature are insufficient to demonstrate the fact. There is, however, a fairly general agreement that the basal metabolic rate tends towards the lower limits of the normal.

In katatonias following a periodic course, who are said to form only 2 to 3 per cent of schizophrenics, Gjessing as the result of painstaking intensive studies, continued over many

years, of the metabolic exchanges in patients of this type, has described certain disturbances of nitrogen metabolism which appear to run parallel to the periodic clinical alterations. Such illnesses are described as occurring usually before the age of 20, the onset being sudden with a state of confusion and excitement or in other cases of stupor, which clears up after days, weeks or, rarely, months, and repeats itself at varying intervals of longer duration, and are characterised by apathy, lack of insight and gain in weight. Ultimately there is a permanent state of mental deterioration which made Kraepelin change his opinion and place the condition among the dementia præcox group instead of among the manic depressives.

Gjessing distinguishes two types: (i) the "syntonic" type, so called because the metabolic changes synchronise with the changes in mental phase and with one another. These patients enter the excited or stuporose phase suddenly and emerge into comparative clearness. (ii) The asynchronous group, in whom the change of phase is gradual and the intervals characterised by apathy and lack of initiative, and where the metabolic alterations are chaotic.

Gjessing's results are important because they are the first record of uniformly recurring metabolic changes running parallel with clinical alterations, the correction of which by chemical means is followed by disappearance of the episodic clinical disturbances.

He began by eliminating focal infection, and gauged its elimination by the subsequent stabilisation of the blood picture, pulse and temperature.

The main methodological principle of the research was the simultaneous recording of many of the physical functions of the organism, over a considerable period of the illness, covering a number of phasic recurrences and intervals in the same patient.

In type (i) the metabolic changes are the same whether the phase is one of excitement or of stupor, but the course of the changes shows two sub-types. In sub-type A at the beginning of the phase (of excitement or stupor as the case may be) there is evidence of generalised sympathetic stimulation. It is of special interest that even in the stuporose phase although the patient is kept motionless the O_2 consumption rises. The excretion of total N_2 is also increased whatever the kind of phase, compared with the more or less quiet intervals. In these intervals there is an N_2 retention and therefore a positive N

balance, and N_2 goes on being accumulated until it reaches a threshold characteristic of the individual patient (between 15 and 28 gm. N_2) and then at the point of maximum N_2 accumulation, stupor or excitement, as the case may be, sets in. It is not the excitement that causes the excessive excretion to begin, as the latter may begin a day or two beforehand. Similarly in the excited or stuporose phase retention begins again before the end of the phase.

What characterises this group is that excitement or stupor sets in shortly after N_2 retention has reached its maximum. In the sub-type C stupor or excitement set in just before the lowest level of N_2 accumulation. The stuporose or excited phase coincides with a phase of N_2 retention and the quiet intervals begin when the N_2 store has reached the maximum.

Gjessing suggested that at the time of the change of phase in the N_2 balance, a toxic substance, derived through a disturbance of protein metabolism, may act through the blood-stream on the diencephalon.[1] With the object of emptying the N_2 store he used thyroxin in large doses (as much as 44 mg. in 8 days—intramuscularly 1 mg. increasing by 1-2 mg. each day) and later dried thyroid so that the N_2 consumption was stabilised at 10 to 15 per cent above normal. In this way it has been found possible to stop the periodic katatonic disturbance. He recommends immediate discontinuance of thyroxin if the pulse becomes irregular, and continuing with thyroid when it has fallen to 80 or 90. In type A thyroxin should be given during the last 8 or 10 days before stupor or excitement begins, and in type C shortly before the patient becomes quiet and stupor free (Gjessing, *Journ. Ment. Sci.*, 1938, lxxxiv. 608).

Schizophrenia Simplex

In this type there is an absence of any definite trend. There is simply a general falling away of interest. Kraepelin describes it as consisting of an " impoverishment and devastation of the whole psychic life, which is accomplished quite imperceptibly ". The change in the personality may be so insidious that it is not recognised as being due to any definite type of mental disorder, but such individuals seem to lack ambition, and are content to lead idle, shiftless lives, constantly changing their employment, being never satisfied with what they have. People who suffer

[1] Later work has not supported this explanation (S. W. Hardwick and A. B. Stokes, *Proc. Roy. Soc. Med.*).

from this type of disorder fill the ranks of the unemployed, the vagrants and delinquents. They are able in mild cases to carry on a coherent conversation, and give an appearance of normality which is not borne out on further acquaintance.

Such conditions frequently have their beginning in early adolescence. At school the potential schizophrenic is content to slip along. Afterwards he never reaches a position of any special responsibility, because he is apt to be dreamy, to be lacking in attention and concentration, and is content usually with routine tasks. Such a person may do good work, but always in a subordinate capacity.

As time goes on, a certain change may occur in his temperament, so that he becomes irritable, moody, distinctly asocial, and rarely takes part in the pleasures of his comrades. Even from his own family he becomes estranged. As time goes on, inability to sustain a conversation is noticed, and the thinking becomes disorganised, even to the extent of incoherence; but it is rare for such a patient to have ideas of reference, hallucinations, or delusions. The memory is well retained, and the chief feature is the extreme apathy or emotional dulling. We are all familiar with this type of individual. These are people who at one time have looked as if they might develop into something much better. They are quiet, pleasant individuals who gradually sink more and more into themselves, and who never fulfil the promise of their earlier days.

Case 42.—Summary: Simple schizophrenic deterioration. A quiet well-behaved patient with little initiative but performing simple routine tasks satisfactorily: shallow in his affective responses—a facile empty laugh, a lack of resentment at detention in hospital or of desire to leave it: absence of significant thought-content and complete want of insight.

A good example of this type is that of a single man (D. R.), 32 years old, who had served for a period during the War years. His history is faulty in certain respects, but the picture he presents is characteristic.

He had a history of having been ill for about two years.

At the time of his admission to this hospital he was quiet, looked a little dull, but smiled pleasantly, and answered readily and agreeably. His memory was good, and there was no evidence of hallucinations or delusions.

Following his admission he has been employed at various jobs about the hospital, and has always led a contented and happy life, quite satisfied with his surroundings, and never asking to be allowed away. A good idea of his condition may be obtained from the following questions and answers:

He said that he had nothing special to complain of, that he was quite happy.

"Do you think it strange being here so long?" "Yes, that's true."

"How do you account for it?" "I feel very well. I feel all right."

"Is your head right?" "My head feels quite clear."

"No strange thoughts?" "No."

When these questions were asked, the patient often laughed or smiled in a simple, foolish way. His laugh did not have the "infectiousness" of manic-cases. There was always an element of silliness in it. He stated that he felt just as well now as he had ever done, and denied hallucinations and strange ideas of any kind. His answers were given quickly and to the point. The impressive features were contentment and apathy; and yet he had been long resident under asylum conditions. He was able to tell the day, the month, the year quite correctly, and he was able to give a history of his life. He told when he was born, where he was born, mentioned the different members of his family, what he had done at school.

"Did you get on all right at school?" "Oh, yes."

"Were you clever?" Patient laughed, and said that he could always get through his lessons.

"Were you top boy in the class?" The patient laughed loudly, said that he was not, but that he had never been "kept back". He was able to do simple calculations correctly, and he had a good grasp on general information, but no appreciation of the serious nature of his disorder.

The picture, therefore, is a very good example of the so-called "simplex" type. The patient has suffered from a general slumping of his interest—a state of apathy and contentment, in which he calmly accepts his detention in a mental hospital. He is protected by the hospital, and has no fears; but neither has he any ambition of any kind, nor any great capacity for enjoyment.

In this case there is no evidence of any toxic disturbance, no area of focal sepsis and no discoverable ætiological factor apart from his War service, which had probably little or nothing to do in his case with precipitating such a reaction.

Hebephrenia

This type is very difficult to differentiate, because often in it there are some symptoms pointing more to a katatonic and others to a paranoid reaction. Hebephrenia, however, seems to occur at an earlier age than either the katatonic or the paranoid

varieties, and it is especially characterised by great incoherence in the train of thought, marked emotional disturbance, periods of wild excitement alternating with periods of tearfulness and depression, and frequently by illusions and hallucinations.

The people who develop a hebephrenic disorder have in their earlier days shown an unstable emotional condition; they may give a history of tantrums, and have often been of the over-pious, ultra-conscientious type, apt to be too idealistic, and to brood on obscure topics. Their acquaintances generally have looked upon them as queer. In such people the emotional response is shallow, and they laugh and weep without very adequate cause, or have sudden violent outbursts of anger, explosive in character and rapidly passing away.

Hallucinations of sight and hearing are particularly common in hebephrenics, and are usually in the nature of symbolic interpretations. They come and go during the course of the disorder. It is the vivid hallucinations which especially dominate the picture. Kraepelin particularly remarks on the changeable, phantastic, bizarre nature of their delusions, and he gives certain examples—"They have no brain any longer", "their back is broken in two", "their blood has been taken from them".

The hebephrenic patient often suffers greatly from ideas of reference; he feels that he is being watched and made fun of. Feelings of influence are common.

The most prominent symptoms are the incoherence in the train of thought, the strange, impulsive, senseless conduct and the vivid hallucinations.

The following are illustrative cases of the hebephrenic kind. In the first the onset was sudden, so far as is known (but the history is scanty). The very rapid deterioration to a condition of silly, impulsive activity, with inadequate and inappropriate emotional manifestations, great incoherence of speech and thought, hallucinations and apparently absurd ideas, *e.g.* of influence—in other words, the "molecular disintegration" of the personality—is very well shown.

CASE 43.—P. R., a young girl, 20 years old, who had been employed as a nurse, was admitted in a restless, agitated state, but a few minutes later she was smiling and happy. These phases rapidly alternated, even in the course of a few minutes. It was difficult to get her to co-operate in a satisfactory examination; she spoke in a simple, childish way, said that she wished some one would do an operation to her head and make her better. She told how she had worked in various hospitals, but had not

been able to continue steadily at her job, because she "seemed always to be working in a maze". Perhaps the question and answer method brings out certain points better than a mere description.

"You were at a fever hospital?" "Yes, just a few weeks."

"Why did you leave?" "I am not sure."

"Do you hear voices?" "No—yes—very seldom. I seem to be going sort of dead."

Later she admitted that she did hear voices, and that they terrified her dreadfully.

She was able to do simple calculations correctly, and answered some questions on general information correctly, but her diffuseness and inconsequent talk can be gathered from the following:

"Who discovered America?" "Well, I think it was a Murray. I had an old Aunt Sally who died and an old brother went to Hudson Bay."

She behaved in a disturbed, excitable way, and made such a noise that she had to be removed to a room by herself. While there she promptly smashed several panes of glass. Her impulsive, violent conduct continued at intervals. She refused food, so that for a time it was necessary to tube-feed her. Still later she deliberately poked her fingers into her eyes, and caused a certain degree of conjunctival hæmorrhage.

During her residence in the hospital she has continued to be hallucinated, and talks freely about her experiences. She says that voices tell her things have been done to her during the night. During the day also she hallucinates, and often she sits gazing at the ceiling in an ecstatic way.

Gradually her impulsiveness subsided; she began to look after her appearance, to help the nurses in the ward, but often she would have outbursts of weeping without any apparent cause. She was asked about this time why it was that she frequently sat with her eyes tightly shut, and only would open them for a moment or two at a time. She explained that when her eyes were wide open the doctor, or the sister in charge of the ward, or the nurses, saw what she was seeing, and that they were therefore seeing through her eyes, and to prevent this she shut her eyes. She also explained that she had two voices; the one which was speaking she called her "top voice", and what she said with the "top voice" was true; but there was a second voice, an "under-voice", which she apparently believed or felt was what her auditors at times heard replacing the true "top voice". Consequently we were getting false ideas by believing this second voice. She also expressed the idea that the doctors and nurses used her as a "medium" to affect the others. She held up the three middle fingers of her hand to illustrate the idea clearly to us; pointed out the first outside finger as representing the number "six", the finger in the

middle was herself, and the other outside finger represented "the others".

Her condition has become gradually worse. She wanders about in a restless, aimless way, and when the physician visits the ward she clutches him by the arm, and can only be detached with difficulty. Her thought-processes are blocked and her speech is incoherent, her sentences being composed of detached words and phrases which have no relationship to each other, except for an occasional superficial association. An example is as follows:

"Losh, I don't know what it is. You see—she says—I don't know, I'm sure. There's Cinderella. There is a much better play than that. 'I don't know,' I said. He is an awful idiot. Oh dear God, I'm so stupid. That's putting two and two together—saying I really don't know—saying Cathie, and so I observe and—flowers. An orange, and shoe laces. The gaberdine skirt. Pettigrew's and the jazz-band, with cream cakes. She says no. They like my hair bobbed, but I'm so stupid. Contrary Mary. Statues at Copland and Lye's. 'Oh', I said, 'yes, yes, yes.' I'd go off to sleep immediately afterwards. I said, 'I know quite well'. 'Nothing', I said. I forget all that I saw next. The next thing was—eh? The poor man's mad. They'll be chopping off our heads next, and—calendars tied with blue ribbons. Oh, dear God. Contrary Mary again. What period—that's right. I don't like acting the goat at all. A cream-sponge sandwich. My memory is so slow, that all I'm sure. It was caramels then and fruit cakes. Well, well, I said, I can't help it—I don't want to help it, and well, I don't care. Contrary Mary again, and says—Nurse Grant—dogs barking. What's the matter with me anyway? I'm so terribly stupid. I'm fed-up with this place—that's all. Sago pudding. She looks pale and tired often, but not—I know that. Sings 'Take me over there, drop me anywhere, Manchester, Birmingham, Leeds, Well I don't care'. I should like to see my best girl—Mrs. Patrick, she says—'Though 'tis time for parting, that's it, Jean, and my tears are starting'. I've got the Kruschen feeling.—Blue belts and medals—three eggs for tea. No, that won't do. OH, dear God, I'm so stupid. I won't see my way—white rabbits. 'Back home in Tennessee'—that's the way it's spelt. Oh, I don't know what I am going to do now. It's all wrong. Dear God, I'm so silly. It's killing, isn't it? Cream cakes, French cakes and meringues. Flies, fleas, butterflies", and so on.

She has the idea that she is changed, and sometimes remarks, "My face is changed".

The course of her illness has already been of five years' duration, and she is steadily going downhill.

A sample of her letter-writing shows very well the incoherence and the tendency to repetition.

DEAR SIR,

I have just had dinner. I ate my dinner the monkey and I feel better. change I. Nurse is always making the tea. Betsy's nurse.

Wearing for a cup of
tea.
Bathing patient.
(Ogalvie).
Your—
I j g u.
gins Druce,
Yours
sincerely,
P. R.

DEAR DR. HIND,

I am just that watea ahe bring me som gin snap & I u—a lobster — — — I a. the water's hot what a moneky goes with.

Y I am
s incere.
Nurse Bruce
gave
me two
snaps.

Thursday.

Caristic.
Soc.
Sit up latest
Ruby was away with it—Shorthand. So that I don't get a bath.

The next case shows the gradual development of a schizophrenic psychosis, with a hebephrenic colouring, in a young woman with an ominous family history, and with certain temperamental deficiencies. The symptoms appeared in face of severe stresses in the form of death and illnesses in her nearest relatives.

Case 44.—Summary: Hebephrenic schizophrenia. Gradual change in personality—more quiet and thoughtful, greater religious absorption, morbid fatalistic speculations: progressive diminution in external interests and consequent inactivity: more marked change in conduct (irritability and meaningless laughter) associated with development of hallucinations: loss of affective response (easy adjustment to hospital, etc.): feelings of influence, autochthonous ideas: preoccupation and consequent defect of attention and comprehension, stereotyped questions: and episodes of impulsive excitement.

M. S., a single lady, 32 years old, was admitted to hospital in December 1922.

Her father had died from a cerebral tumour; her mother was a high-strung, nervous woman; a sister had committed suicide, a brother was also a patient in a mental hospital, and another sister had been mentally upset in very much the same way as the patient.

The patient herself did not have very good health in childhood; suffering from measles, whooping-cough and a good deal of chest trouble (bronchitis). Up until the age of ten or twelve years old she had bed-wetting. She was bright enough intellectually, and was educated chiefly by governesses. She acquired a good knowledge of both French and German, and was particularly interested in literature, but lacked perseverance at her work. She had something of a literary gift herself, and many of her articles (principally children's stories) were accepted by the press. She was inclined to be wayward, masterful and intolerant of interference.

Her father died in 1910, when the patient was 20 years old, and following this a change was noticed in her. She became more religious, seemed more staid, thoughtful and questioning. She " wondered whether the family had been specially selected ", and thought the family " might be morbidly ill ". In 1912 or 1913 her brother broke down mentally. In 1915 she attended classes at a business college, and, although she did well enough in her examinations, she seemed to be upset by them. In 1916 she refused for a time to get out of bed, saying that she had no interest. On occasions she would go and have long talks with the parish minister. It was only a few weeks previous to admission that the patient actually spoke of hearing voices. She gradually became more irritable and changeable, would have fits of laughter and would disappear from the house without saying where she was going. It was usually found afterwards that she had been at the doctor's. She became restless and excited, and had temper-tantrums when her wishes were opposed. Her topics of conversation were principally of the past, and she recalled the days of her childhood, saying how happy they had all been then.

Physically she was a well-nourished young woman, without any evidence of any organic disease. Her blood-pressure was 130-70.

On admission to this hospital, she settled down in a curiously complaisant way. The night after her admission she related a vision, in which it had seemed to her that various people were standing round her bed, among whom was her physician. She talked about her sister's death in the most matter-of-fact way. Simple questions she was able to answer correctly and to the point. When asked to give a description of things, she tended to become somewhat involved.

Q. " Tell me what has been troubling you ? "

A. "There have been several sorts of imaginations—the seeing of figures round the bed when I go to bed at night—sort of illusive figures, as if they were not really people." She said that altogether she had been nervous for about three years, but that even before that she had not been quite as she was formerly, that at times she would get up and walk round the room, and would say to herself such a thing as "I won't lift the table with my leg". She would then sit down, and even against her wishes she would lift the table with her leg. She related how she had experienced commands, which had seemed to originate within herself, and which dominated her. For instance, it had been arranged on one occasion that the family would go to C——, but the night before going she received a command telling her to say to her mother that she would not go to C——. She did tell her mother, but the family nevertheless went there. Since then things had seemed to go steadily wrong. She also said that on the day of the journey to C——, as she was entering a cab, she heard three voices, "spiritual voices", calling her name three separate times. Her concentration has never been good since that day.

She related the story of her sister's suicide, giving details of how her sister had jumped out of a window. All this she related in a perfectly placid way, without the expression of any emotion whatsoever. She declared also that five years previous to admission she had been converted. In her mind she felt that she "had been plunged into water, and had come out just like a dead person", feeling "renewed, and better and happy", the happiness having remained ever since. The voices which she hears are perfectly clear to her. She is able to converse with them as she would talk on the telephone, and the topics of conversation are always pleasant. Visions had come particularly since her sister's death. On one occasion there seemed to be a crowd of people around her bed, among them her dead sister, who bent down and touched her on the forehead. "At the same time I saw my father, pacing up and down a marble floor. He was clad in a white garment, and seemed to be in trouble." At times she has thought that people are against her, even members of her own family. "There seems to be a stiffness underneath." She can give no reason for this, but she is convinced that it is true, although there are times when she thinks that it may be a figment of her own imagination. More recently she had the feeling that people were talking about her. Thoughts come into her head which she cannot keep back, breaking in and interrupting the train of her thought. She does not look on her experiences in any way as illness. Her memory was good for both recent and remote events. She was correctly oriented for time and place, and her grasp on general information was fairly well retained. She did simple calculations poorly, but her attention was very difficult to get. She reproduced her stories very badly, being apparently unable to get the point of

the story, even after two readings. Her first reproduction of the cowboy story was as follows: "A master—a gentleman, went out with his dog one day. I don't think I know any more." After reading the story again, she said, "I could not remember it. A man went out—something—No, I don't know it. The middle place I cannot remember.—Something about the boy ran up to the dog. I cannot remember it any more."

During her stay in the hospital she has seemed absent-minded and dreamy, smiling a good deal, occupied only in a desultory way, and always apathetic and docile. She never asks spontaneously to be allowed home or to leave the hospital, but asks the same stereotyped questions over and over again. "Is there going to be a party in the West House to-night?" There have been periods of excitement, and, apparently under the domination of voices, she has picked up chairs and thrown them down, has broken windows, and has struck patients and nurses.

Considerable deterioration has occurred both in general conduct and in her personal habits. She has become so incoherent as to be inaccessible.

Katatonia

The katatonic type is much more easily differentiated than any of the other types of schizophrenia. This katatonic condition was first described by Hecker and by Kahlbaum as a variety of mental disturbance *sui generis*, with symptoms and a course peculiar to itself. Kraepelin, however, recognised that the great majority of cases of this sort ultimately ended in a state of considerable dementia, and therefore he included these katatonic cases in his dementia præcox group.

Katatonia is usually described as an alternating state characterised by a stage of depression, a stage of excitement and a stage of stupor. We would reserve the name katatonia, as Kraepelin does, for these cases in which one sees the conjunction of peculiar excitement with katatonic stupor.

There is no doubt that this type of schizophrenic reaction develops much more acutely than the other types. Kraepelin himself says that 41 per cent of such cases tend to develop acutely, 31 per cent insidiously and the others subacutely.

There is no group of symptoms which can be looked upon as in any way premonitory. The usual history is a more or less general statement that there has been a general falling off in interest, an apathy, a lack of concentration, a dreaminess and often episodes of an odd nature. Then a state of dull stupor develops, with mutism, refusal of food, and with such a diminu-

tion of all activities that the patient may sit idly in one position, with the hands stretched out on the knees, and the head bowed between the shoulders, the whole aspect being that of a mummy. The facial expression is vacant, and no apparent interest is taken in the environment or in the people around. The muscles of the mouth become pursed up into the so-called "schnauzkrampf". Patients in this condition have to be dressed and undressed, and have to be moved in bed. For months on end they may have to be tube-fed. Urine and fæces are often retained, or there is incontinence. Mannerisms are common. Perseveration may reach an extreme degree; for example, a patient who took his meals in a singularly mechanical way, shovelling his food into his mouth with his fork and then with his knife, used to go through the same motions long after he had finished the food before him. The saliva is retained, so that the cheeks become bulged out with it, or drooling occurs from the mouth. These patients are so insensitive that they do not react to painful stimuli, such as pin-pricks, nor do they even close their eyelids when told that a pin is going to be put into one of their eyes. They understand perfectly clearly everything that is going on around them, but their apathy is so great that they take no part in it. Not infrequently they are intensely negativistic, and an attempt to do anything for the patient is resisted with every ounce of his strength. On the other hand, he may obey everything automatically. There are also stereotypies of thought and action; the patients ask the same questions over and over again, write words or letters in a stereotyped way, or walk in a peculiar fashion, perhaps always stopping for an instant after so many steps; or they assume strange attitudes, which are maintained unchanged for long periods of time. Flexibilitas cerea is common; they will allow their bodies and their limbs to be placed in awkward positions, which are maintained indefinitely. Other symptoms commonly present are echolalia and echopraxia.

Suddenly, without any warning, the picture may change at any time, so that the patient begins to speak, answers questions, and often gives a detailed account of everything that has occurred. A state of extreme frenzy may alternate with the period of stupor, during which the patient behaves with extraordinary impulsiveness, and assaults whoever comes into contact with him. During this stage he may not only be homicidal, but impulsively suicidal. Such episodes of excitement usually come from a clear sky, and there are no premonitory symptoms. Recently, for instance, one of our patients who had been going

about as usual, and had actually been in town with his mother, and had seemed rather better, suddenly got up early one morning, and made a dive through a window two stories high. The frames were of iron, so that he was not successful in precipitating himself, but the violence of the attack was so great that he broke his collar-bone, and had numerous cuts about his face and arms. Following this attempt, he tried to mutilate himself. Another patient used to prop herself against the wall, then stand on her head and attempt to screw her neck. She also repeatedly tried to smother herself in the bedclothes, and several times dived from her bed on to the floor. These episodes of violence are usually associated with hallucinations, but they are not necessarily so. Often at these times the patients express delusions; they feel that they are not only commanded to do such things, but that they are all-powerful, or that they are being persecuted. Sometimes they believe that it is the voice of God that they hear, and that it is God who has commanded them to destroy themselves. The duration of these paroxysms is usually short-lived, not lasting more than a few hours or days or weeks. It is in this type of schizophrenia that the vasomotor symptoms already mentioned are so prominent.

The following is a typical katatonic state:

Case 45.—Summary: Katatonic schizophrenia. Onset characterised by causeless laughter and stereotyped behaviour. Later, auditory hallucinations, impulsive attacks and grandiose delusions: alternating periods of dull, quiet, mute spells, and attacks of wild excitement. Great emotional blunting, total lack of insight, and steady deterioration.

D. H., 24 years old, single, was admitted to the Glasgow Royal Mental Hospital on December 18, 1918. In July 1918, while in France, his C.O. had reported him as being subject to uncontrollable fits of laughter, and as talking to himself. He had been a strong, healthy boy, trained to farm-work. He had enlisted in the Territorials in 1911, and in June 1915 went with his regiment to the Dardanelles, where he suffered from dysentery. In France, in 1917, he was wounded in the left foot, and later in 1917, in his arm. In July 1918 he was admitted to the Dunblane War Hospital. While there he was foolish, smiled in a stereotyped way and admitted that he felt strange and giddy at times. He had peculiar mannerisms, took no interest in anything, maintained fixed positions and had no realisation of the serious nature of his mental condition.

In December 1918 he looked dull and stupid, said that he was mixed up, and had bursts of causeless laughter. He had very little realisation of time and place, saying that he was in Edinburgh, and that the month was November. He admitted

having auditory hallucinations. Two months after his admission he suddenly made an attack on one of the attendants, but again lapsed into his dull, uninterested state, refusing to do any work, and lolling about in the ward. He did not converse with the other patients, and did not employ himself, but at intervals he had periods when he became excited and hallucinated. On one such occasion he strutted about the ward, said that he was the Kaiser, and all-powerful. This state of excitement seemed always more marked at night. On one occasion he shouted at the pitch of his voice, and when the physician entered the room he leapt out of the room, rushed up to him and in a threatening voice demanded that "the haunting voice be stilled". During this period of excitement he spoke in an obscene, incoherent way. An example of his talk is as follows: "I want a —— nurse here at once, and those —— ear-rings, you have two sets, and your sister is wearing one. I have been on the film-screen for the last three weeks." In September 1919 he had two recurrences of this hallucinatory, delusional state, in which he was completely inaccessible, violent and dangerous, and showed extreme psychomotor restlessness. These attacks last usually a day or two, and are ushered in by a period of gloomy silence, with tense attitude and set facies. There are short periods when he is able to do a certain amount of work. Usually he is quiet, unapproachable and mute, but he has periods of excitement as described above. On one or two occasions he has had slight attacks of an indeterminate nature, resembling fainting.

At the present time he is quiet, careless about his appearance, smiling in an inane way, solitary and difficult to occupy. He shows flexibilitas cerea, and perseveration in his written productions, which exhibit also superficial associations (see example appended). He does not react to painful stimuli, and has a degree of command automatism, in which he protrudes his tongue when ordered, and would allow one to put a pin through it. Often he will stand for long periods of time in a statuesque attitude. He answers simple questions promptly and relevantly, but he frequently takes refuge in "I don't know". His mood is one of contentment, and shows great emotional blunting.

"How do you feel?" "I am feeling all right."

"Happy?" "Yes, sir."

In reply to questions, he said that he had taken ill eleven years ago, when it was actually eight, and that he was at Ayr at the time, whereas he had been invalided from France.

"What came over you?" "I don't know."

"How did your illness affect you?" "I could not say."

"Why were you sent here?" "I don't know. I could not say."

"What do you want to do now?" "Nothing much."

He also stated that he had never been abroad, but the following day, when questioned again, he admitted that he had taken ill when he was in France, and that he had been wounded on two

separate occasions. He does not admit any subjective feelings of difficulty in thinking, but he does admit hearing voices, although he will not give any description.

"What do they say?" "Oh, nothing much at all."

He also admitted visual hallucinations.

"What are they?" "Oh, nothing much."

He is correctly oriented for time and place, and for those around him. His memory for his boyhood days is well retained. His dates are correctly correlated, but for more recent events his retention is not so well sustained, and in consequence his answers are more haphazard. There is a great lack of insight and of appreciation of the seriousness of his illness.

The following are examples of his written productions:

To be Hanged

Miss Reith.	Mister Beith.
Miss Corrie.	Mister Currie.
Miss Bastille.	Mister Braille.
Miss Dewar.	Mister Ewer.
Miss Castor.	Mister Semolina.
Miss Provost.	Mister Victor.
Miss Day.	Mister Diem.
Miss Droit.	Mister Asylum.
Miss Jail.	Mister Police.

And so on through over forty pairs of names.

In May 1935 he was described as more docile, as less subject to excited outbursts, as having slumped into a "demented," affectless state.

Morbid Anatomy.—The pathological investigation of cases of schizophrenia is beset with various difficulties, and, in consequence, there has been a lack of uniformity in the findings and a diversity of opinion in regard to their interpretation. The chief necessity is to have good clinical reports of uncomplicated cases. The trouble, however, has been that the majority of schizophrenics die from some intercurrent disease, or live to a time of life when regressive changes have set in, so that it becomes wellnigh impossible to correlate the clinical picture with the histopathological findings, although Kraepelin does not hesitate to do so. Kraepelin's opinions have been based largely on the work of Alzheimer, Sioli and Nissl. Alzheimer made a histopathological investigation of 55 cases, of which only 18 were uncomplicated and 6 were acute. In the acute cases he demonstrated amœboid neuroglia cells, on the occurrence of which he laid great importance; in a series of manic-depressive patients dying during excitement such changes were absent.

He concluded that if abundant amœboid cells were found in the brains of patients dying in severe excitement, without evidence of physical disease, schizophrenia was the most probable diagnosis. In chronic cases of schizophrenia, he demonstrated a loss of nervous tissue, affecting the nerve cells in the second and third cortical layers, particularly in the frontal area. These cell changes consisted of a swelling of the nucleus, wrinkling of the nuclear membrane and shrinking of the body of the cell, with disintegration (a state of cell sclerosis). Deposits of lipoid material were found in the cells to an extent which seemed much greater than normal. There was also a general hyperplasia of the neuroglia. Although Alzheimer believed that the changes described were of the utmost importance, he admitted that a correlation with clinical findings could only be expected when we knew more about the distribution of the changes, and about the physiological significance of the different layers of the cortex. Sioli, a pupil of Alzheimer's, examined 20 cases, and reported similar findings. Unfortunately, however, the clinical records on which the examinations of Alzheimer and Sioli are based have never been published, so that we do not even know the ages of the patients or the causes of death (Cheney).

Goldstein has reported the case of a young man, 21 years old, who was in a mute, resistive state for approximately ten years, then lapsed into a state of stupor, and died without evidence of acute physical disease. The autopsy showed that the large and small pyramidal cells in the anterior central convolution were irregularly arranged, reduced in number, showed some shrinkage, stained diffusely, had nuclei displaced to one side, contained many lipoid granules and were surrounded by many neuroglia cells. Some of the motor (Betz) cells showed similar changes, and changes of the same kind, but less well-marked, were found in other parts of the brain and in the cerebellum.

Orton (*Amer. Journ. Insan.*, April 1913) reported the case of a young, unmarried girl, aged 22, who died in a state of exhaustion following katatonia, after a period of five days' residence in a mental hospital. He found a considerable increase of lipoid material in the ganglion cells, and demonstrated amœboid glia cells, particularly in the deeper cortical layers and the white matter.

In 1914 Nissl described the clinical and anatomical investigation of "two cases of katatonia with brain swelling", and although he found evidence of grave nerve-cell alteration, he hesitated to correlate the clinical and pathological pictures, and left the matter high-and-dry for further investigation.

Mott attempted to correlate the changes in the cells of the cerebral cortex with the alterations occurring in the endocrine glands. He laid weight also on what he termed acidophile degeneration affecting the nuclei of the nerve cells.

Southard made a careful macroscopic and microscopic examination of the brains of 29 cases of undoubted schizophrenia. He described a gliosis which in 9 cases involved the pre-Rolandic area. Paranoid cases, on the other hand, showed particularly an involvement of the frontal tips and the superior frontal gyri. Cases in which katatonia supervened later, and which had a progressive course, showed involvement of other regions, or even of the whole brain. The more purely katatonic cases seemed to be associated with changes in the post-Rolandic area, but he found cases in which there were also lesions of the superior temporal lobe, and even of the cerebellum. He believed that areas of cortical gliosis could often be palpated at the time of the post-mortem examination, and stated that such a gliosis of a focal character, combined with visible atrophy and microgyria, was present in half his series of cases.

We have described the above reports in some detail, because we have wished to emphasise the complexity of the field and the need for more systematic examinations. Dunlap (*Amer. Journ. Insan.*, January 1924) has formulated certain conditions which he feels should be fulfilled in studying such material. He stipulates that the clinical diagnosis should be so clear as to be acceptable to the most critical; the age of the patients should not be over forty years; and death should be caused by some acute disease, and not from a wasting condition such as tuberculosis. The post-mortem examination should be performed immediately after death. Dunlap examined eight cases, and contrasted his results with control material. He found very much the same nerve-cell changes present in the control brains as in the schizophrenic ones, and he criticised adversely the assumed importance of dark-staining sclerotic nerve cells as evidence of organic change. Such nerve-cell changes may occur quite independently of any nervous disturbance, and may be due to defective fixation, plus other unknown factors.

Dunlap was unable to demonstrate the occurrence of acidophile staining in the nuclei of nerve cells in any of his cases, but he admitted that his staining methods were different from those of Mott; the separation and scattering of the cell-protoplasm from the nucleus, which Mott thought was important, is probably an artefact. Dunlap was not impressed by the occurrence of

lipoid material in the nerve cell, because he found this inconstant. He failed also to demonstrate an increase of neuroglia.

Regarding Alzheimer's description of a loss of nerve cells in the different layers of the cortex, especially in the frontal lobes, Dunlap believes that Alzheimer must have worked impressionistically, because Dunlap himself by making counts of the nerve cells, found that the control cases and the schizophrenic cases gave an almost identical average. His general summing up (with which we agree) is that schizophrenia is a condition lacking in any fundamental or constant alteration of nerve cells, and any nerve cell alterations that are found in schizophrenia are probably a reaction to various, mostly unknown, bodily conditions, plus post-mortem and technical factors.

There is thus great diversity of opinion regarding the occurrence of pathological changes. Dunlap's work seems to us to be of special importance, and his great care, his technical ability and the well-controlled clinical material with which he was working would seem to us to carry more weight than the findings described by most others. The matter, however, is one for further investigation, and we would emphasise the importance of correlating good clinical records with the pathological reports.

Physiological Reactions.—Lorenz and Levenhart found that in certain patients with stupor, including patients diagnosed as katatonic stupor, the inhalation of a mixture of 40 per cent carbon dioxide and 60 per cent oxygen had the effect of rousing them for fifteen minutes or so to an apparently normal contact with the environment. In chronic encephalitic Parkinsonism inhalation of the same mixture considerably facilitated the motility (by reduction of tremor and tone) for a short time after recovery of consciousness (Solomon, Kaufmann and D'Elseux, *American Journal of Psychiatry*, 1931, 761). This observation can be correlated with the fact that in many psychotics and in many debilitated normals the plasma bicarbonate is diminished, *i.e.* there is a mild acidosis, indicating a diminished sensitiveness of the respiratory centre. Inhalation of CO_2 stimulates the respiratory centre, causing general dilatation of the cerebral blood-vessels and so presumably a general cerebral stimulation. But whether the effect in psychotics is simply the non-specific one of total stimulation of the patient, or whether it is the result of a temporary return to normal in a chronically deranged physical chemistry of cortical function, remains to be seen. This latter view is to some extent supported by the results with insulin, cardiazol, and electrical shock treatment.

Prognosis.—We have already remarked that there has been a reversal of opinion in regard to prognosis. It is now generally recognised that although a schizophrenic type of disturbance is always most serious, there are certain cases which can, and do, readjust themselves. There are a larger number who make a social rather than a complete recovery, and there are still others who reach a quiescent stage so that they can be cared for at home. The vast majority gradually show a state of mental deterioration, which particularly involves the emotional field, and such patients are best cared for under mental hospital conditions. In every case, however, we should attempt to come to a clear understanding, and should try to discover what factors can be modified. Some of the questions which we must ask ourselves are as follows :

Are certain features or symptoms more malign than others ?

Are cases due to (adequate) exogenous factors more hopeful than those due to inherent constitutional defects ?

Are cases with a relatively acute onset better able to adapt themselves than those which develop insidiously over a long period of years ?

Are there certain pre-psychotic traits which indicate a severer grade of disturbance in the event of a psychosis developing ?

None of the above questions can be answered in an absolutely clean-cut way. The psychoanalytic school seems to believe that the malignancy of the reaction depends largely on the extent of the regression, and whether or not " archaic " material is included therein. How the extent of the regression can be measured is an almost impossible query to answer, and, furthermore, many patients—apart altogether from those who show what we term schizophrenic reactions—regress to a very primitive level, and often exhibit mental material of an " archaic " nature, yet recovery takes place. We have seen many cases of a schizophrenic kind who have seemed to regress to a very early infantile level, and who exhibited many symptoms which could be interpreted as " archaic ", and yet have frequently improved to a very large extent.

We feel therefore that symptomatic guides are of very little help in estimating whether a case is favourable or unfavourable. It has seemed to us that cases associated with obvious exogenous factors tend in general to be more favourable. There is no hard and fast rule. In certain cases the exogenous factors

seem to release latent pernicious trends which can never again be thoroughly held in check.

Cases which show an acute onset—for instance, the katatonic group—have generally been supposed to have a better prognosis than those developing insidiously, but although this may hold true for the majority it is no absolute criterion. We have seen cases of very acute onset who, far from showing signs of improvement, exhibit a gradual deterioration.

The emphasis must be placed more on an attempt to estimate how the individual met his difficulties in his pre-psychotic period. If he handled them for the most part in a satisfactory way, and if his general interests have been well maintained, then he has a very much better chance of readjusting himself than the shut-in, introverted individual.

Schizophrenics who have been better equipped mentally and emotionally, and those who have encountered fairly adequate precipitating factors, have a much better chance of recovery than the others. (See also under "Insulin" in Chapter XIII.)

It is readily seen that there is still much work to be accomplished before we can talk definitely about prognosis. We must have better clinical records, we must have a clearer conception of the reactive processes, and we must attempt to treat our patients at an earlier stage. The prognosis depends often on the individual attention given to the patient, and even although the methods used are not in any way specific, the mere fact that the doctors and the nurses are constantly stimulating the patient along one or other line is helpful. We believe that any success which has seemed to attend the efforts of Cotton and the "Focal-Infection School" has been due as much to the attention that has been showered on the patients as on the actual surgical mutilation which has taken place. The same view has been held in some quarters regarding recent "shock" methods.

Diagnosis.—The principal condition from which schizophrenia has to be differentiated is the manic-depressive psychosis. Superficially the apathy, listlessness and even stupor which occurs in schizophrenic cases are apt to be confounded with a state of depression. One or two questions are sufficient to elicit the fact that the schizophrenic does not have any subjective feeling of sadness, but, on the other hand, often feels happy and contented, and prefers to be left alone. In the depressed phase of the manic-depressive psychosis, the individual not only looks sad, but feels miserable, and his thoughts are utterly despondent.

In general, the schizophrenic, as contrasted with the manic, is full of discrepancies between his mood and his thought, so that ideas of persecution or disaster leave him comparatively unmoved; and between his thoughts and his actions, so that he does little to fulfil his grandiose day-dreams, and to stop his persecution, and so that, on the other hand, he acts with impulsive ferocity without apparent reflection. There are also discrepancies in his thought-content itself, clear contradictions going uncorrected.

The type of excitement which one sees particularly in katatonic cases is sometimes very difficult to distinguish from an episode of manic excitement, but here again there are certain points which help to differentiate the two states. The excitement of the schizophrenic is much more episodic ; it may occur quite suddenly following a period of stupor, and it is usually characterised by a blind impulsiveness, during which the patient may be dangerous to others and himself. Furthermore, the talkativeness which accompanies this excitement is merely a series of words or phrases which are repeated over and over again (verbigeration). In effect, there is a poverty of ideas as compared with the free production of the manic. There may be something in the nature of a flight of ideas, but it is stilted, and poorly sustained. On the other hand, the manic excitement runs a much more prolonged course, the mood is one of great happiness, flight of ideas and distractibility are prominent features, and there is a joy and an infectious hilarity about the patient which are very easily observed.

The persistent presence of auditory and visual hallucinations occurring when there is no excitement, and when there is no toxic basis, are very much more in favour of a schizophrenic type of mental disorder than anything else ; but in addition there is usually a history of strange, odd, bizarre behaviour, occurring over a long period of years.

The difficulties of diagnosis are best illustrated by the report of two cases ; the first, one in which the schizophrenic symptoms predominated, but which ended in complete recovery ; the second, one in which for a time the manic-depressive features were preponderant, but which has gone on to considerable deterioration.

Case 46. — A young unmarried woman, 28 years old, had shown mental symptoms for one month previous to her admission to the Glasgow Royal Mental Hospital. There had been an initial period of depression lasting for a few days, which was followed by the expression of strange ideas. She announced

that she had cast a spell over the family, that neither she herself nor any member of the family had any sense of taste, that she had no blood in her body, that she could feel nothing. She tried to leave the house dressed only in her night clothes. Her language became obscene, a thing quite foreign to her. On admission to hospital she was in a state of stupor, which was punctuated by impulsive episodes. She would suddenly leap out of bed and destroy the ward furniture. On one occasion she struck her brother violently, tore her bedclothes with her teeth and in doing so broke one of her teeth. She constantly rubbed the top of her head, or picked her skin. She hung over the edge of her bed, spitting out large quantities of saliva, and she became very filthy in her personal habits, smearing herself with excreta. Thirteen months after admission she was still most difficult to manage, and her mood was one of angry resentment. The only explanation vouchsafed for her conduct was that she was " in love with some other fellow ", and that " he was an actor ". When asked about her picking habits she explained, " I have been shedding my life-blood for you ". Twenty months after admission she began to show signs of betterment, which went on rapidly to recovery. She co-operated in a review of her illness, and showed good insight. She stated that at the onset of her illness she had the idea that she might have become pregnant, and worried over the disgrace which this would mean both to herself and her family. A study of her personality showed that she had been a bright, happy, jolly girl, and a great favourite at school, where she had done well.

CASE 47.—A young unmarried woman, 24 years old, had shown mental symptoms for one year previous to admission. She exhibited a variable emotional state, having periods of excitement, talkativeness and restlessness, followed by periods when she was depressed, dull, " lifeless " and lacking in interest. During her excited periods she talked of seeing lights and hearing bells, was erotic in her conduct, exposed herself and used filthy language. She gave the impression, however, of great happiness, showed a flight of ideas, was distractible and misidentified those around her. For a time her conversation was incoherent and obscene, but her mood was always one of elation. In the course of six months she had made a satisfactory adjustment, and was discharged. Fifteen months later she was readmitted. Her condition was now one of apathy and lack of interest. She grimaced, showed flexibilitas cerea, had periods of mirthless laughter, had to be spoon-fed and was careless in her personal habits. During the past four years her mental health has shown a steady decline. There are times when she has periods of excitement, which superficially simulate a manic state, but these periods are poorly sustained, her conversation is incoherent and irrelevant, she hallucinates, is foolish in her conduct and utterly lacking in appreciation of her disordered mental state.

An investigation of her personality showed that she had been vain, reserved, hypersensitive and had peculiar tastes.

In the first of these two cases the behaviour sank to a very low level. Yet the patient made an excellent readjustment, with considerable insight, and there seems no reason to suppose that she will have a further attack.

In the second case at the time of the first admission the picture resembled a manic excitement. In estimating the prognosis at that time, more weight should have been placed on the long prodromal period of one year previous to her admission, and on the vain, reserved type of personality.

Although it is important therefore to have a good clinical symptomatological description, we must not be guided by symptoms to the exclusion of other factors, such as the personality and the duration of the prodromal period.

Treatment.—(*a*) *General:* All medical men agree that the chief hope of success in treatment is earlier recognition of the disease. The stumbling-block of psychiatric therapy has been that cases of mental disorder are not brought to the psychiatrist until the disorder is thoroughly established. This is especially true of schizophrenia. In many cases neither the patient nor the family doctor recognise that there is very much wrong. The misdemeanours and oddities which are often early manifestations are looked upon as childishness or as moral perversity, and it is only later, when experience does not modify conduct, when reproof and punishment are found to be of no avail, that the disorder is considered in terms of illness. Even then, however, the psychiatrist is not called in. Recourse rather is had to the gastro-intestinal expert, or to the dentist, the Christian Scientist, or the osteopath; and only after everything has failed is the psychiatrist consulted. We believe that if we are ever going to accomplish anything in dealing with mental disorders of this particular type, attention must be diverted more towards habit formation and character training, and we believe that doctors especially—but also parents and teachers—should be much more familiar than they have been in the past with the types of individual so well described by Meyer, Hoch, Amsden, Kirby, Campbell, Bleuler, Kretschmer and others, as likely to develop this type of mental disorder. All the strangeness and bizarre conduct, the tantrums, the difficulties of child-life, must be scrutinised much more closely, and there must be much more reciprocity between children's clinics and psychiatric depart-

ments. When such a viewpoint is accepted, we have a method of approach which is practicable, and which seems to offer much greater possibilities at present than work on endocrine disorders, autointoxications, or what not.

Our aim in treatment must therefore be to obtain cases in the earliest possible period of their development. We must try to prevent round pegs from being fitted into square holes (vocational guidance), we must attempt to devise ways and means of helping those who are not well fitted to carry their own burdens, and we must encourage, stimulate, explain and try to " exteriorise " those who tend to day-dream and to lead asocial seclusive lives. If there are difficulties in any part of the instinctual life, these difficulties must be as far as possible resolved ; the shy and the nervous and the sensitive individuals who suffer from such difficulties must be encouraged to talk them over more freely than they have ever done before, and must be urged to meet their problems face to face instead of dodging them. The importance of such work cannot be overestimated. It is the big psychiatric problem now and for the future, because we must never forget that although 15 or 16 per cent of our admissions to mental hospitals are cases of schizophrenia, 50 to 60 per cent of our permanent mental hospital population suffer in the same way. In other words, schizophrenia is at present *the* chronic mental disorder. Our aim should be to get patients at the stage when they will co-operate in treatment, when they will take advice and when they can be helped to grasp a new view of themselves. This is not a policy specially of psychotherapy; it is a policy of common sense. We admit frankly that when cases have reached the stage of entering a mental hospital, the period of co-operation has usually passed, and the question then is much more one of treating symptoms. We appreciate that an analysis of the individual symptoms does help in allowing us as medical men to understand more clearly the processes by which the psychosis has developed, but such analysis has, so far, rarely had any therapeutic effect. We have observed also that cases of this type in the hands of the psychoanalyst can be considerably aggravated rather than helped.

We have come to recognise that there are many cases which under the régime of an institution readapt themselves, but the recoveries do not usually occur with complete insight. There is nearly always a certain falling away from the previous level. We can help readjustments to take place by taking an individual interest in cases of this kind ; and there is no doubt

that occupational therapy, either from the point of view of handicrafts or of outdoor work, or an association of these, is a great help. We feel confident that if mental hospitals more generally adopted this method of treatment we could prevent a great many of our schizophrenic patients from deteriorating to the extremely low level which many of them at present reach.

The patient, on admission, should be put to bed, so that his behaviour, his general bodily health and his sleep can be carefully supervised. The peace and quiet of a mental hospital, the orderliness and discipline, the tolerant and understanding attitude of those in charge, and the simplification of life, may at once produce a most gratifying change. Habits of a slovenly, untidy and unhygienic nature should be corrected at once, and episodes of violence should be treated with explanation, suggestion, analysis, or, where necessary, by hydrotherapy and drugs.

The bodily health should be improved by good, nourishing food, and, when necessary, tube-feeding should be resorted to without undue delay.

The bowels and bladder should be carefully regulated, and the skin made to act freely. Sleep must be promoted by open-air treatment, baths, warm drinks at night time; or, when necessary, by hypnotics, such as hyoscine, paraldehyde, sulphonal, veronal, etc., until the most suitable drug has been found.

These general methods of treatment often produce an improvement, sometimes to an extent that makes it advisable to suggest a return to home conditions. It is surprising how well the patient can become, and there is less tendency for him to drift into set ways and habits at home than under an institutional régime.

(*b*) *Special forms of treatment:* We choose the word " special " expressly instead of " specific " for the recently introduced processes of treatment by insulin and electrically induced convulsions. These are described in Chapter XIII.

CHAPTER XI

PARANOIA, PARAPHRENIA AND PARANOID REACTION-TYPES

KRAEPELIN has described paranoia as a chronic systematised delusional state, of gradual development, arising from internal causes and without the occurrence of hallucinations.

From paranoia he has sought to differentiate a less well-defined group of so-called "paraphrenias", which seem to stand in close relation to schizophrenia, but yet are differentiated by the greater intactness of their intellectual faculties. It is probable, however, that they are part and parcel of the same process. We are convinced, in any case, that the lines of differentiation are extremely narrow, and that it is much less confusing to students and others to regard the paranoid states as varying degrees of a biased make-up which is much more rigid and, on the whole, better integrated than the shut-in, introvert make-up of the schizophrenic. We suggest, therefore, that all paranoid conditions should be completely severed from the schizophrenic group. It is true to say that delusional states occur in schizophrenics, but they also occur in manic depressives, in involutional states and in organic brain lesions, and the real difference is determined by the underlying type of personality. It must be remembered that types of personality are not clean-cut but certain traits stand out more prominently in some than in others.

The history of the conception of paranoiac, paraphrenic and paranoid states as they are understood to-day may be said to date from the description of Heinroth, who in 1818 classed the paranoias as disorders of the intellect, under the term Verrücktheit. In 1845 Griesinger applied this term Verrücktheit to states exhibiting persecutory or grandiose delusions, but he considered that these delusional states followed attacks either of mania or of melancholia; in other words, that the delusional formation was largely dependent on the affective disturbance.

There were thus early in the field two opposing opinions; that the paranoiac states were primarily due to a disorder of ideation, and, on the other hand, that these states had their origin in the affective field. Many discussions have taken place between the exponents of these opposing views, and, although the matter is more academic than practical, these discussions have served to clarify our conceptions.

Kahlbaum, in 1863, was the first to use the term paranoia, and later it was adopted by Westphal, Krafft-Ebing, Mendel, Snell, Sander and Cramer, all of whom considered paranoia essentially a disorder of the intellect. Krafft-Ebing defined it as a "chronic mental disease, occurring exclusively in tainted individuals, frequently developing out of the constitutional neuroses and having as its principal symptoms delusions". These delusions were considered to arise independently of any disorder of affect. They were bound together systematically and methodically, and by reasoned inference and judgment were welded into a formal delusional system. He described the disease as slow in its course, and subject to remissions, but showing neither a complete recovery nor complete mental deterioration. Krafft-Ebing, like many others, attempted to define the type of personality prone to this disorder. He believed that the retiring, solitary and suspicious person tended to develop persecutory ideas; the excitable and egotistic tended to become grandiose, and the over-conscientious eccentric showed a predilection for religious ideas. Two main types were recognised by him: (1) original paranoia, developing at or before puberty, and always attributable to heredity; (2) acquired paranoia, a form which developed late in life, particularly at the involutional period.

While Krafft-Ebing and others were holding these views in Germany, Magnan in France made a determined effort to give a standard description of this disease, describing it under the general term of **délire chronique à évolution systématique**. Magnan described four main stages:

1. A hypochondriacal stage, or stage of subjective analysis.
2. A stage of persecution.
3. A transformation of the personality, characterised by the expression of ideas of grandeur.
4. Occasionally a stage of deterioration.

During the first stage, which has been termed the hypochondriacal stage, or the stage of subjective analysis, the patient

is very self-centred, and begins to feel that remarks he overhears, things that he sees and newspapers that he reads have all some special significance, and apply directly to himself. The patient may complain of feeling worried, of lack of concentration and interest, and of headache or drowsiness. This state of morbid introspection gradually passes into the second stage, during which ideas of persecution are expressed. The patient now begins to believe that all the occurrences he observed in the first stage were part of a plot to ruin him. These delusional ideas are often accompanied by hallucinations of the various senses. In response to this persecution, the patient may attempt to change his environment, so fleeing from his persecutors. Later he accuses those who he thinks are against him, and may invite the co-operation of the police. Gradually the delusions of persecution are countered by a system of grandiose ideas ; he begins to believe that since so many people are taking an interest in him he must be an important personage. A " transformation of the personality " has occurred. During the course of years there may be a certain amount of mental deterioration, but, as a rule, the behaviour, the emotions and the intellect of patients so suffering are well preserved, so that if their premises were true their general attitude and conversation would pass for nearly normal.

This type of disturbance, as described by Magnan, is not common. Kraepelin has included all such cases in his paraphrenic group.

In 1893 Kraepelin made his differentiation into the paranoid types of schizophrenia, paraphrenia and paranoia. Kraepelin stated that his attempt to obtain a clearer differentiation between cases of this type was a purely tentative one. He was inclined to believe that as many as 40 per cent of cases which began with ideas of persecution later came to exhibit the characteristics of schizophrenia, that another large group was formed by the paraphrenic forms and that a very small residue were the real paranoias.

Our experience does not confirm this view. It may be that symptomatically many paranoid cases exhibit schizoid features, but when such cases begin with paranoid symptoms in the forefront they do not as a rule show either the personality type or the deterioration which is so familiar in schizophrenic cases. The complete final disintegration of the personality which is so common in all other varieties of schizophrenia is almost consistently absent in paranoid states.

In more recent years Sérieux and Capgras have attempted to narrow the conception of the paranoia group. They describe two types of psychoses, termed by them **delirium**[1] **of interpretation** and **delirium of revindication**, which they believe are the only conditions that should be included under the term paranoia.

Paranoia

The term paranoia was reserved by Kraepelin for cases showing an insidious course, unfavourable prospects of recovery and the permanence of delusions. He says also, "We then have remaining for true paranoia only these cases which are developed from purely internal causes". But he says exactly the same thing of paraphrenia systematica. Similarly his clinical definitions of true paranoia and of paraphrenia systematica correspond almost exactly, for in both he lays particular stress on the insidious development of a permanent and unshakable delusional system, resulting from internal causes, which is accompanied by preservation of clear and orderly thinking, willing and acting. The only difference he recognises is that in paranoia there are no "genuine" hallucinations; but what he means by that is not clear.

It is the fundamental unchangeableness of the delusions which is considered to be the chief characteristic of paranoia. The clinical descriptions which he gives correspond very closely to those in his group of paraphrenia systematica.

Kraepelin states that 70 per cent of his patients were men, and Bleuler agrees in regard to this preponderance. Bleuler believes that paranoia and schizophrenia have a common heredity.

In more than half of Kraepelin's cases personal peculiarities were reported, which allowed him to come to the conclusion that a psychopathic predisposition was present. Irritable excitement, and occasionally rough and violent behaviour, appeared to be the most frequent characteristics. Some patients were distrustful and self-willed, others showed homosexual tendencies, and some had suffered from nocturnal enuresis. He emphasises the importance of internal causes, and believes that in paranoia we have an expression of degeneration.

In delimiting his conception of paranoia, Kraepelin refers to these cases of paranoia which have been described by Friedmann

[1] "Délire" in French psychiatric writings signifies a delusional state and *not* delirium in the English sense.

and Gaupp as " abortive paranoia ", running a comparatively short course, and ending in recovery. Kraepelin implies that he is much more inclined to consider these as manic-depressive psychoses than paranoiacs. In a few cases he postulates the emergence of a latent paranoia. He also describes " paranoid personalities who are full of suspicion and consider themselves ill-used in all sorts of ways, but differ from paranoiacs in the vagueness and lack of systematic elaboration of their delusional ideas ". Bleuler believes that there are many paranoiacs whom the psychiatrist never sees, because they recover before they have reached full development. We believe that the existence of paranoid states, brief or long-lasting, with or without hallucinations, but without deterioration, and with a circumscribed delusional formation, is not infrequent.

From what has been said, it is readily seen how difficult this whole field is, and how unwise it is to attempt to differentiate too closely between the paranoid schizophrenias, the paraphrenias and the paranoias. Bleuler, for instance, in considering Kraepelin's paraphrenias, states that he does not believe that the diagnostic differentiation of the paraphrenias from the other acute or chronic mild paranoid forms was ever possible. Most of these cases, he believes, are related to the schizophrenias. The case records of paranoia which Bleuler gives are much less hide-bound than those of Kraepelin, and he admits frankly enough the impossibility of drawing any hard and fast lines of symptomatologic differentiation. He believes that hallucinations are often lacking, but they can occur, and may involve any of the special senses. In his monograph on " Affectivity, Suggestibility and Paranoia ", Bleuler criticised the view of Specht, who claimed that paranoia (and presumably also paranoid states) was related to the manic-depressive psychoses, and that it arose from the " pathological affect of suspiciousness ", which Specht claimed was a mixed affect of pleasure and displeasure. Bleuler categorically denies this conception, and states that

(1) suspiciousness is not an affect ;

(2) it is not a mixture of pleasure and displeasure ; and that

(3) paranoia cannot be classed with the " affect psychoses ".

Bleuler holds that suspicion and mistrust are the result of perception and interpretation, and are therefore dependent in the first place on intellectual processes. " Suspicion simply means that one cannot definitely foretell, and in consequence the affect may be either positive or negative, the former being what we term hope." He likewise points out that the manic-depressive

psychosis is the typical affect psychosis, because in it the mood is variable, whereas in paranoia the disease develops over a long period of time and lasts throughout life, the affect being essentially stable. Furthermore, in the affect psychosis the development of the delusion takes place after the change of mood, whereas in paranoia the delusions are the predominant feature, and any change of affect is based thereon. If, for instance, the patient's attention is shifted from his delusions, his affect is similar to what it is in sane people. Furthermore, paranoia can actually exist without suspicion, as it does, for instance, where the delusions of persecution are replaced by delusions of grandeur. In criticising Specht further, Bleuler states that he does not believe that at the height of his disease a paranoiac is particularly dangerous to others. Bleuler's experience is that many paranoiacs never do become dangerous. Bleuler cannot admit the primary significance of the hypertrophy of the ego for the origin of paranoia, because it is frequently found that a special emphasis on the self occurs only when it might naturally be expected, and when it would be seen under the same conditions in normal individuals. There are therefore many non-paranoiacs who suffer from such a hypertrophy.

Berze states that the psychopathological foundation of paranoia lies in a derangement of apperception (intellectual elaboration of percepts), while Linke has affirmed that the underlying cause of the delusions is an increase in the intensity of perceptions caused by expectant attention, which is the pathological affective condition.

Bleuler attempts to show how the process of suspicion gradually develops from a normal to a pathological state, how the errors of thought become so fixed as to become delusions and how the delusions are systematised so as to become a paranoia. " In the cases of paranoia which I have been able to analyse in recent years, the same cause for the direction and content of the delusions could be easily proven. It was always from the affectively determined errors which spring up in a way similar to the daily experiences of normal persons, but which are fixed and extended." Bleuler believes that a complex of ideas associated with emotions forms the point of departure for the delusions and perhaps for paranoia. This is his so-called " katathymic " determination of a delusional trend.

For example, a person with very exalted ambitions which he cannot reach, but who cannot acknowledge his failure to himself, at first blames the environment (delusions of persecu-

tion), and later may come to believe that his ambitions have been attained (delusions of grandeur). A man suffering from impotence, or having had some sexual experience of which he is intensely ashamed, being unable to admit either of these failings frankly to himself, blames his wife for infidelity (delusions of jealousy). Bleuler found evidence of lack of sexual power almost invariably in his paranoiacs. Whether the delusions are predominantly persecutory or grandiose depends in part on whether the patient was previously depressive or optimistic in temperament. The depressive person magnifies his difficulties, so that everything seems against him, while the optimist easily believes that his wishes are fulfilled.

Bleuler concludes that for an explanation of paranoia we need not assume any affect of suspicion, nor a disorder of apperception, and says, "The constitutional predisposition will explain why these people and not others suffer from paranoia, and Freud's complexes will tell us why the critical events have brought out the paranoia, and eventually, why the developed paranoia immediately connects itself with the events". He believes that **paranoia querulans** is a special form apart from the main group, and that in such cases a real injustice is often the basis for the onset of the disease. In this form the patient who believes himself persecuted continually seeks redress at the hands of the law.

Abortive Forms, and "Formes frustes".—The contribution made to this subject by Gierlich and Friedmann is of considerable interest. Gierlich has reported three cases which showed repeated attacks of a paranoiac nature. "These are patients who present the picture of paranoia, who develop systematised, persecutory delusions, with great irascibility, with happy or sad affective states which last for several weeks, without sensory impairment, and who rather rapidly recover, with perfect insight into their condition, with a tendency to a periodic recurrence." He points out that a similar state of affairs occurs in schizophrenia, and just as there are abortive or periodic cases in the one group, so also there may be abortive or periodic cases among the paranoiac group. On the basis of his case material, Gierlich came to the conclusion that a compelling emotion, be it anxiety, expectancy or envy, would lead to delusions of reference, provided it had sufficient strength and duration.

Friedmann deals particularly with mild cases which do not need institutional treatment. He believes that paranoid delusions of a persecutory nature occur in sensitive, obstinate and egotistic people who have never been mentally normal. Most of his

patients were women between thirty and forty years of age, who had had complex factors in their lives. Hallucinations were lacking in all his cases. In discussing his material, he emphasises the fact that a definite experience of a type which naturally would cause uneasiness or mistrust has not only been the cause of the delusional formation, but has also remained the sole topic of the abnormal trend of ideas. Such happenings give rise to a feeling of shame, or to uncertainty in relation to others, and ultimately to paranoid delusions. Friedmann believed that the experiences preceding the development of the disorder in his cases corresponded very closely to Wernicke's conception of " over-valued " ideas, and that the entire condition rests upon congenital traits, particularly of character, *e.g.* sensitiveness, obstinacy, selfishness, excitability. In our experience paranoid states of a transitory kind, with or without hallucinations, are among the commonest of psychotic reactions encountered in the wards of a general hospital. The type we have in mind arises acutely after operations, child-birth, and debilitating illness of all kinds, especially if associated with a transfer to a novel environment, *e.g.* to hospital, and soon subsides. The content of the delusions and hallucinations is self-accusatory as a rule. The mood is depressed, and for that reason these cases might be classed with the depressions, rather than with the paranoid reactions (on an infection-exhaustion basis), but clinically the prominent features are the ideas of reference and the delusions.

The Paranoiac and Paranoid Constitution

Meyer defines *paranoiac states* as transformations of the personality, in which reason appears preserved, but side-tracked, and no longer fitting into the natural and real work of the world or of the individual, but still active along set lines. The personality is dominated by the existence and evolution of central convictions. *Paranoid states* resemble the paranoiac transformations, but differ in one or more points from the full-fledged types. There seems to be little gain in trying to differentiate between a paranoiac and a paranoid type of mental constitution. The paranoid group may be due to a series of factors, such as alcohol, syphilis, senility, arteriosclerosis. Meyer points out that Kraepelin was not so much concerned whether the origin of paranoia was intellectual or emotional, but what he wanted to know more was whether the thing was chronic and likely to lead to deterioration. Meyer's own idea of the paranoid

constitution is that it is one which is continually ready to see a biased meaning in things, and that it is suspicious and asocial. Such people are always wondering what others think, and attributing deliberate intentions to the indifferent actions of others. Such paranoiac tendencies often for a time go hand in hand with formally correct conduct and grasp of the environment, but there is a certain inability to adapt the personal trend of thought and elaboration and attitude to the actual facts.

Tiling, Friedmann and Heilbronner have described irritability, a passionate nature, sensitiveness, an exaggerated ego, pride, and rash and twisted reasoning, as being predisposing characteristics, while Kraepelin emphasises the longing for big and lofty achievements, a firm conviction of being born for something special.

The Freudian school, on the other hand, have laid particular stress on repressed homosexual longings, and cases of this nature have been described by Ferenczi.

Meyer inclines to the view that paranoiacs and paranoid persons are peculiar individuals rather than people actually ill. Meyer recognises several grades in the development of a paranoiac reaction :

(*a*) Uneasy, brooding, sensitive type, with an inability to correct notions and to make concessions ;
(*b*) Appearance of dominant notions, suspicions, or ill-balanced aims ;
(*c*) False interpretations, with self-reference, and a tendency to systematisation without or within ;
(*d*) Retrospective or hallucinatory falsifications ;
(*e*) Megalomanic developments or deterioration, or intercurrent acute episodes ;
(*f*) At any period antisocial and dangerous reactions may result from the lack of adaptability and excessive assertion of the aberrant personality.

Kretschmer, in 1918, made an attempt to separate out a special reaction type. He believes that there is a particularly sensitive type which arises on the basis of a hereditary taint. This type is easily fatigued both by work and by emotion, and fatigue paves the way for the appearance of ideas of reference and delusions. He describes other groups, consisting of systematised paranoid pictures, acute sensitive delusional psychoses and what is termed a " habitual neurosis of reference " (White and Jelliffe).

Freud and his co-workers and pupils have strongly advocated that paranoia is dependent upon homosexual fixation and upon repression of the homosexuality, partial failure of the repression, and consequent projection as symptoms of the repressed homosexual tendencies. Freud analysed the case of Dr. Schreber, who was 51 years old. On the basis of this case, Freud pointed out that in the genesis of delusions of persecution the persecutor is the one who before the illness had a great influence on the emotional life of the patient, or is an easily recognisable substitute for that person; in fact that the person who on account of his supposed persecutory activities is hated and feared is the one who was formerly loved and revered. It is shown how Schreber had formerly had great trust in, and affection for, his physician Flechsig, but during the development of Schreber's illness he came to call Flechsig a "soul murderer", and he also exhibited a feminine wish-phantasy (passive homosexuality) which had taken Flechsig for its object. The person longed for became the persecutor. Then Flechsig became replaced by God, and this seemed to afford a way of escape from the unbearable homosexual wish-phantasy. Flechsig and God were thought to be probably substitutes for the father. Freud set forth the process by saying that all the recognised forms of paranoia could be represented as contradictions of the sentence "I (a man) love him (a man)".

(*a*) *Delusions of persecution.*—The contradiction in this case is "I do not love him, I hate him", but such a contradiction is not tenable, so the paranoiac projects the feeling of hate, and instead of saying "I hate him", he says "He hates me, which justifies me in hating him". Thus the contradiction really becomes "I do not love him, I hate him because he persecutes me". The persecutor is always the former beloved one.

(*b*) *Erotomania.*—The contradiction is "I do not love him. I love her." Then the mechanism of projection causes the following change, "I notice that she loves me. I do not love him. I love her because she loves me."

(*c*) *Delusions of jealousy, e.g. alcoholism.*—A man disappointed in a woman may take to alcohol, which means that he goes to a public-house where he may meet other men. The contradiction then becomes, not "I love a man", but "she loves him", and in consequence he suspects the woman in relation towards all the men whom he himself has sought to love.

Analogous to this is the jealous paranoia of women; not "I love the women". "He loves them." The jealous woman

therefore suspects the man towards all the women who please her.

(*d*) A fourth kind of contradiction is possible. "I love nothing and no one," which is equivalent to saying, "I love only myself". This is at the basis of delusions of grandeur, and may be conceived of as a sexual over-valuation of the ego.

Ferenczi deals with the same topic in his paper on "The Rôle of Homosexuality in the Pathogenesis of Paranoia". In this paper he contrasts the neurotic who frees himself from what is disagreeable by conversion, transference, substitution, with the dement who withdraws his interest from the object to the ego, and with the paranoiac who succeeds only in part in his withdrawal—a greater or less part of the interest cannot be set free from its original object, nor turned back to the ego, and so out of a feeling of love arises the feeling of its opposite. Ferenczi is convinced that repressed homosexuality is the explanation of paranoia, and does not merely content himself with saying that this is so, but even states that paranoia is nothing else than distorted homosexuality.

These are the various theories that have been brought forward in the attempt to elucidate these persistent states of mental disorder. With these points in mind, we would now direct attention to a series of cases, showing how far they are in agreement with the conceptions expressed, and in what way they differ.

Case 48.—S. C. Summary: In the timidity, shyness, sensitiveness and lack of application of his boyhood, he early exhibited a tendency to be out of touch with reality and with his fellows—a very common foundation for feelings of dissatisfaction and actual antagonism, and one which would readily be strengthened by the occurrence of such incidents as the homosexual adventures he met with. Homosexual incidents, being covertly focused upon, readily act as a basis for sensitiveness towards the "herd", as the patient rather significantly called his fellows.

Lack of application to his work led to inefficient performance and failure, and a definite feeling of social inferiority from another direction. Masturbation seems also to have contributed to his many-sided sense of unworthiness. His attempt at compensating his inferiority, not unhealthy in itself, soon reached unhealthy dimensions. His compensating feeling of superiority went far beyond the bounds of reasonable possibility, and produced the grandiose ideas of his psychosis, of which the muddled, high-flown mystical trends were an example. His exhibitionist tendencies (Muller's exercises in full view of the public) were, of course, related to his other sexual trends. His overweening sense of general superiority and his exhibitionism are different aspects of what McDougall would call his self-regarding sentiment, what the Freudians would call "narcissism" and what others have called the paranoiac "hypertrophy of the ego".

The course of the symptoms is clear enough as far as the sexual

trends are concerned—rumination over homosexual episodes, with the stirring up of homosexual desires; repudiation of them at first, and projection of them on the environment; but finally, increasing acknowledgment of their subjective origin.

The fact of transition from an attitude of inferiority to one of superiority is also sufficiently clear; but in this patient the ideas of superiority are certainly not a matter of logical deduction from delusional premises, but of something deeper—a craving for the satisfaction which life has denied him.

Symptomatologically the clear thinking on other topics, the absence of hallucinations, and the attacks of impulsive violence are all noteworthy.

A single man, 42 years old, was admitted to the Glasgow Royal Mental Hospital in 1924.

There was no hereditary history.

The patient was described as a shy, sensitive, timid person, who did not interest himself in his school work, and was inclined to resent any criticism. His apparent backwardness at school was due much more to lack of application than to any intellectual defect. If teased or cuffed by any of his comrades he did not retaliate but went home and wept to his mother. He was unable to pass the university entrance examination, and went into an office in the city. He soon changed his occupation, and, after being in several positions, he set out on a voyage to South America, but behaving in a strange excitable way he was put ashore at the Canary Islands, and eventually brought back to the British Isles. We have no description of what happened on board the ship. Prior to his voyage, however, it had been noted that his behaviour was strange, in that he had left his positions without adequate reason, but always on account of some imagined slight. Following this, he went to Canada, and stayed there for a period of seven months. On his return home he obtained a position in a laboratory, but after changing from one to another he decided that he was being persecuted. In consequence he entirely gave up his employment, and for twelve years previous to his admission he had not done any work. Gradually he began to express his ideas of persecution more constantly. Everything that went on around him seemed to have some special reference to himself, and everyone with whom he came into association seemed to be conspiring against him. The War preyed on his mind. He was much against it, gave the usual high-flown pseudo-philosophic reasons of war's insanity and uselessness and refused to do anything for his country. He began to state that the police were shouting in at his bedroom window at night-time, making insulting and obscene remarks, that people were pointing at him in the streets and that he was surrounded by a host of watchers. His suspicions became more and more diffuse, and every sound made, every action that was done, was interpreted by him as a sexual symbol. A night or two previous to his admission he rushed into the room where his sisters were, and threatened either to rape them or kill them.

At this time he was talking in a very grandiose way, stated that he had revolted from organised society, that he objected to vote as " the herd " did, and that law and government and social organisations were " all nonsense ".

At the time of his admission the patient adapted himself pleasantly enough, but he resented having been brought to hospital, said that the whole procedure was quite illegal and that there was no necessity whatsoever to bring him in on an emergency certificate. Without being urged, however, he began to tell the medical officer how the police had been shouting in at his bedroom window. He spoke in an affectedly humble way of his knowledge of philosophy, and how few people understood it. He answered questions readily and correctly, but in his answers he was apt to become diffuse, and frequently dragged in some ideas connected with his delusions. He stated that he had known that sooner or later " the herd " would " get him down " and have him put in hospital, and he expressed the idea that the herd was always against those who had enough brains to think for themselves. He related an incident when he was 10 years old when a ticket-of-leave man from Perth prison had attempted improper practices with himself and a friend. No actual relation occurred, but the episode frightened him, and, looking back on it, he is certain that this man was a police spy. He could give no reason for this assumption save the light of his subsequent experiences. When he was about 14 years old, the same thing happened, he said, with a man who purported to be a night-watchman, but the patient then added, " As he went home to bed at night, and did not appear to watch anything, I think I am justified in saying he was also a police spy ". At that time, and for some years following, he was greatly troubled with nocturnal emissions, and he now regards these as having been manifestations of some malign influence.

In reference to his beginning work in an office at sixteen, he says, " I will not say I was persecuted, but I was just made to feel—as always—that I did not belong, that I was different and regarded with suspicion ". On this account he left the office and entered another one, but left for a similar reason and tried to enter the university. He is certain, however, that the Registrar was not sympathetic towards him, and told him that without his Leaving Certificates he could not enter. The Registrar seemed to be making much of two young men, and was saying to them, " I see that you were at a public school. We are always very glad to get public school boys here ", and while saying this he gave the patient a scornful glance, as much as to say, " That is you washed out ".

The patient described how a system of spying and persecution had been going on for the past twenty years. Always his remarks were coloured by an artificially humble attitude about his own abilities. " You can see, I expect, that perhaps I'm not just

exactly below the average. I am not altogether shallow-minded." He spoke a great deal about the interrelation of philosophy and science, how one could not have, or even think of the one, without, or in terms of, the other, explaining that that was where Haeckel failed. " A good sound man, unimaginative perhaps, but sound, and yet nowhere, because he had no science. Now that is where I want to begin." He related how when he had been working in a certain laboratory his urine had been examined, and that afterwards his teachers seemed to twit him rather unkindly about the presence of mucus and vaginal epithelial cells being present. He believes that this was part of the plot on the part of society to make him " cave in ". Eventually he left there on account of " petty attentions which I did not mind very much really ". He then told how he had fitted up a small laboratory at home, but when he mentioned this to a friend it seemed to be construed into an allusion to tender passages with some girl. It was about this time, he said, ten or twelve years previous to admission, that the police began to pay special attention to him. Insulting remarks were frequently shouted in to him through his open bedroom window while he was asleep. This was done by a policeman whom he knew quite well, who had no personal enmity to him, but was obeying orders. The police, he feels sure, were told to do this by the Chief Constable, because " the herd " were outraged by the patient doing Muller's exercises before an open window, and had complained to the City Fathers. Having described this episode, he gave a diatribe on the theme, " To the pure all things are pure ". He then related what he called his " Blank Experiment ". It seemed to him that people might try to annoy him by jingling money in their pockets. He waited for a year, and never heard any one doing it. This struck him as significant, and he wrote down, in a notebook he used for jottings, that people might, to annoy him, jingle money in their pockets. From that day onwards, more and more, he heard people jingle coins as they passed him. This proved that " there must be a plot " against him, and also that his notes were being systematically perused by others. He related an endless number of such incidents—how beggars on the street made strange gestures as he passed, how people looked out of the window at him, how blinds were pulled half-way down on his approach, as a signal to those farther up the street, how bags were opened in the theatre as a special signal.

His memory, both for recent and remote events, was unimpaired ; his grasp on general school knowledge was excellent, and he had a clear realisation of his position, but had no real insight into his condition.

Physically he was in excellent general health. He was a tall, well-built man.

His blood-pressure was 135-80 : there was no evidence of any disease of the internal organs, and there were no neurological symptoms.

Following his admission, he took up the position that he was misunderstood, that his detention was part of the plot of society against him, that it was quite unjustified, that it was a criminal proceeding, that the superintendent and all associated with him would be made to pay dearly for it. His attitude at all times was one of superiority and condescension; he always felt that he was on a higher intellectual plane than any one else. For example, he stated that his coming here had interrupted a small job that he was on. He explained that he had been writing a piece of music on the subject of a chapter in *Travels with a Donkey*. When asked if this was for the piano, he said, "No, for a small orchestra of about forty performers", adding, "It was as easy as falling off a fence—to me at any rate". The most insignificant, trivial happenings in the ward were interpreted as being done with the sole purpose of annoying him. He stated that he experienced pains in his abdomen, due to the movements of the mouth of the sister in charge, which he looked upon as a sex symbol. At night time he did not sleep well, and he alleged that he was purposely prevented from sleeping. He constantly spoke about "the herd", whom he described as "haters of bravery and individuality", and then arrived (as he invariably did) at the sex aspect of the situation, and said, "What they always do is to grab the unfortunate man by the genitals who dares to think for himself, and keep ragging at him until he gives in and lies down to it. It is just all part of the plot."

A few days after his admission he rushed out of his bedroom at seven o'clock in the morning, and attacked the attendant in charge. The assault was a violent one, and two other attendants had to come to the rescue before the patient could be controlled. He did not give any explanation for this assault, except to say that the attendant had annoyed him by walking up and down the ward, that there was no necessity for him to do such a thing, and that it was done with the purpose of raising sex ideas. He said, "It is the same old system of punishment for self-abuse. There can be no such thing as self-abuse; it is a contradiction in terms. I refuse to take orders from a man like you." The explanation for this idea was obtained later, when he said that he supposed that one of the methods of treatment in an institution such as this was to nauseate him with the thing that was supposed to trouble him. A similar outburst occurred the following day. He rushed out of his room in the middle of the night, and assaulted one of the attendants, who, he claimed, had been making a peculiar noise with his mouth with intent to annoy him. He declared that the attendant's conduct was "equivalent to striking him in his privates". He demanded to be set free at once, and used the most abusive language to all the members of the staff, accusing the superintendent particularly of instructing his nurses in such methods of persecution. On one occasion he admitted that when he was in the presence of other men he felt what he called "a wild

sexual urge", which seemed to dominate him. He also said that he had dreams, usually accompanied by nocturnal emissions. In the usual type of dream, which the patient said is "quite free from any element of sex", and which is accompanied by a feeling of pleasure, he is plodding along a road, through a beautiful countryside. In this dream he is always alone. Once, however, he had a dream in which he saw himself walking outside his room along with one of the other patients. The other patient was striking him on the side of the neck with a newspaper at every step.

Six months after admission he was given parole of the grounds, and was allowed occasionally to go into the city, accompanied by a male nurse. For a time he enjoyed these outings very much, and appreciated the privileges, but he continued to suffer from impulsive outbursts. On one occasion he got into conflict with one of the other patients, and before they could be separated our patient had been put forcibly on the ground, and sustained a severe bruise on his left eye, a cut on the lip and a cut on the right ear. His attitude towards this was remarkable. He pretended to treat the matter very lightly, said that he had no recollection of what had happened, that he must have been in a phantasy and that it was the first time that he had ever been so affected.

Seven months after admission he again made a violent assault on one of the night attendants. He caught him by the throat, threatened to strike him and only after a severe struggle was he overpowered. When asked for an explanation he refused to furnish one, but demanded that he should be allowed in to town to see his lawyer. Later in the morning he attempted to leave the ward without permission. He stated that he wished to be allowed out into the grounds to pass urine, because he was quite unable to perform the act in the lavatory. On this occasion, while the physician was talking to him, the latter happened to rattle some money in his pocket. This was immediately seized on by the patient as a form of annoyance, done with the object of inciting him to attack the physician. He made many wild accusations against the officials in the institution, saying that it was their object to "down" him, and to persecute him in every way.

In contrast to his delusional formation, and to his persecutory ideas, it was found that on ordinary topics he talked clearly and intelligently, showing no affective disturbance and behaving like an ordinary individual. If conversation with him was continued over any period of time, however, his persecutory ideas always came to the surface. He believed, for instance, that certain lady patients had been deliberately set to follow him by the medical superintendent, and that the object of this was to stimulate him sexually so that he would misbehave himself and therefore be subjected to some form of punishment.

In 1935 he was reported as perfectly preserved intellectually,

and as being in a milder, more amenable frame of mind, so that much greater personal liberty was possible. His delusional system is unchanged fundamentally. He refers frequently to his persecution by the police, who are under orders to annoy him by making "disgusting sexual signs". He continues to have a very high opinion of his scientific knowledge, and says, for example, that he has no difficulty in understanding Einstein's theory. On one occasion he resented being given lettuce to eat: "Fancy giving a bachelor lettuce: that is an insult; lettuce contains vitamin E, the reproductive vitamin".

Case 49.—T. S. Summary: This case is of interest as the symptoms seemed to be the direct outcome of a "complex" (a feeling of guilt for a venereal sore) which had existed for twenty years without producing psychotic effects, but which finally led to a psychosis. The reason why symptoms at last appeared depended probably in part on his age, but the immediate precipitating cause was a visit from a policeman on entirely indifferent business (Voters' Roll). The persecutory ideas which ensued centred very obviously round his feeling of sexual guilt, and were associated with some compensatory phantasies, which were also projected as delusions (*e g.* a woman was to take care of him, and marry him when he had recovered from his venereal disease). A passive homosexual trend latterly received very frank expression, and it seems reasonable to suppose that part of the strength of his guilt-feeling about venereal disease was derived from his original resistance to acknowledging his homosexuality. His alcoholism is also of interest, since it is supposed to be sometimes a symptom of underlying homosexual trends, and a means of substitute satisfaction of them, since alcoholism usually involves the close companionship of other men.

It is very unfortunate that the nature of his previous breakdown at twenty-six is unknown. It was evidently serious, since he did odd jobs only for five or six years. It may have been one of those transitory paranoid episodes, the existence of which Kraepelin is unwilling to admit, except as manifestions of "latent" paranoia.

The lack of any noteworthy predisposing trait in the personality is also of interest.

A man aged 50, single, a Protestant, was admitted in 1920 to the Glasgow Royal Mental Hospital. An elder brother had died in an asylum.

For about five months previous to his admission the patient had been in L——, where he had gone for a rest, but eventually he decided to return to P——, as he said that every one was spreading the report that he was "mad and poxed". He stated that his brother was at the root of it, that it was a conspiracy, that records were taken of everything that he was doing and thinking and that reports were spread abroad to do him harm. He explained that this persecution had been started at Glasgow, and ascribed it to overwork and want of sleep.

On admission to the hospital he adapted himself well, was pleasant and frank, and said that he looked forward hopefully to getting better. There was no disorder in his train of thought, and he was able to give a fairly complete account of the onset and development of his illness. He complained of persecution by an unlimited number of people, who had formed a great

conspiracy against him. He stated that he had contracted a venereal sore about twenty years ago, and that ever since he had been bothered with its constantly breaking down. This had worried him, and gradually he had become convinced that outside people knew of it. He related how a man was sent to his room to spy on him, and how this man had hidden underneath his bed. In consequence of the feeling that he was being persecuted and spied on, he decided to leave P—— in December 1919, and returned home. He asserted that the manager of his firm had sent detectives after him to spy on him and to tell everybody about him. The spies, he thought, had tampered with his lunch. He is convinced that they thought he was using the lavatory too frequently, and knew that he had a sore. If his manager "had asked him in a straightforward way to explain things" everything would have been cleared up, as he "could never understand what motive was behind it all". On his road to L—— he overheard a woman saying that she was going to marry him, but at Z—— he was able to evade her. When he got to L—— he found that all his friends were in league against him, that they were notifying the manager about his movements, and spreading the same reports as formerly. He was thoroughly convinced that he was not suffering from delusions of persecution, declaring that everything he had related was true.

Physically he was in excellent health.

On 1st July 1920 he stated that his mind felt more settled, and that he had no complaints. He added that "the outside organisation" had not interfered with him while he had been in hospital, and he was convinced that he was just as capable a man as he had ever been. He felt that he could devote his mind to anything that he cared to take up, and said spontaneously, "When a fellow loses interest he loses life, and I don't want to part with that without a struggle". His nights at this time were undisturbed. He slept well, and he worked regularly in the garden every day. He described himself as always having been a strong, healthy man. He was educated in L—— and was an average scholar. Always full of life, fond of company, of play and nonsense, he played games, liked rambling and walking and being with others. He was not shy nor bashful, and preferred mixed company. If he felt convinced in his own mind that his opinion was the right one he did not bother about what people thought, but asserted that he was not egotistical or argumentative, or pig-headed, but tolerant. "If a man proves to me that I am wrong then I will give in to him at once." He was not superstitious, but liked to get at the truth and at facts. He always was inclined to be optimistic. He never became a church member, and was undemonstrative in religious observances. He was broad-minded and catholic in his views, but liked a man to have some kind of religion. He felt that his not being a church member was a neglect of duty.

When about twenty-six years old he had had a breakdown in health, which he attributed to overwork. It was ushered in by a faint. The doctor told him that he would need a long rest, and on this advice he returned home, remaining there for a period of about five or six years, during which he did odd jobs. According to his friends he had been drinking very heavily previous to this breakdown. Questioned about his drinking habits, he admitted often having drunk to excess, and he also spoke about the venereal sore which he had contracted twenty years ago. It was about July 1919 that he first began to suspect that he was being watched. One day his landlady told him that a policeman had called to ask his name, his age and his occupation. His landlady explained to him that the Voters' Roll was being made out, but this did not satisfy him. He noticed that the policeman seemed to come back and forward to the house, and that people watched him while he was at his work. On the night of September 27-28 the forenoon timekeeper at his place of employment, he said, spent the night underneath his bed, and he came to the conclusion that he must have been sent by the manager. The patient did not speak to him, but he maintains that he saw him. His landlady told him that he was suffering from a delusion, whereupon he concluded that his landlady must have been in collusion with the man, and that the whole thing was done so that the landlord might get a better position. The timekeeper, he states, noticed a red stain (ink) on one of his shirts and spread a story that it was blood.

In August 1920 the patient again started to express his suspicions and delusions freely. He complained of his eyes feeling peculiar, of strange pains in his chest, and he accused the night-attendant of having drugged his cocoa. In addition, he asserted that one of the other patients constantly came into his room both during the day and at night, and he was certain that the night-attendant and this patient were in the employment of his firm, and had been sent here specially to watch him. When explaining this he became tense, excited, emotional, showed a great deal of tremor and twitching of his facial muscles, said that he wished he had a bolt on the inside of his bedroom door and that he would like to go away where no one knew him.

Following the above conversation, the patient withdrew himself from the society of others, and refused to discuss his illness or his ideas. If the matter was approached he usually became emotional, asserted that the physician knew all about it, and that it was not worth while discussing it.

On the morning of 7th September 1920 he complained of a pain over the region of his bladder and requested that " the pump " which was being used on him should be stopped. He asserted also that the previous night his supper had been drugged, that he had been put into a " corpse-like " state so that the pump might be worked on him. He was so tense and worried that he described himself as " shaking from head to foot ". Because of

the persecution which he felt he was being subjected to, he gave notice that he wished to leave the institution, since he was a voluntary patient, and could go when he desired. On account of his attitude, two outside physicians had to be asked to examine him, and they certified him as being of unsound mind. One of the medical certificates was to the effect that " he stated that some one paid several men to spread a report all over L—— that he had venereal disease, that he had overheard a woman in the train talking about it to a man, that every one spoke about it (there are good reasons to know these are delusions). He stated that some one in hospital made a hypodermic injection into his penis while he slept." An attendant stated that the patient had extraordinary sexual delusions : that two nights ago during the night a patient from upstairs had relations with him, and injected seed into his flesh. The other medical certificate said " he believes he is being spied upon, watched and followed, and his present condition published abroad on account of the disease he contracted some time ago. He tells one that when he last travelled north he was followed by nurses, who told every one in the train about his state, and that these nurses were engaged to do so by his employers, with whom he had had a difference concerning a patent, of the benefits of which they wished to deprive him."

Since his certification in September 1920 his condition has remained more or less unchanged. He was resentful because he had been certified after coming as a voluntary patient. He blamed the physician for this, stating that he had not behaved like an honourable man, and that it was unjust to receive a patient as a voluntary, and then to detain him against his will. In addition, he had all sorts and kinds of delusions, principally of a sexual nature. He felt that the physician and some of the patients and nurses were in the employment of his firm, and that their sole purpose was to pump his body up so as to make him feel as if he was having sexual relations. He accused the physician of coming to his room in the middle of the night so as to accomplish this purpose. Apart from his delusions, his memory and his general intellectual functions were intact.

In August 1921 he described his condition as very much the same as when he was admitted. He stated that he had only one complaint, namely, the annoyance that was caused him by letting people into his bedroom at night, and then he added, " Of course you deny this ". He described it as sinful for the physician to go on like this, but when asked if he was getting sound sleep, he admitted that he was getting plenty of sleep, but that it was always a disturbed sleep. He stated that every night his bed was prepared in some peculiar way, that three or four times during the night he was gassed and that, in addition, pumps were used on him. It always seems to him that it is the physician who is doing this, " or that man you put on to me as a chum ". He said, " I don't know what you have done to other people, but you have tried me as much as

any man could. All that I say is as true as I am sitting on this chair." Reports of his treatment are spread by the physician throughout the house, and he hears attendants and other patients constantly saying that "a pump will be used", and so on. Letters which he has written are at once made known to all the other patients, and the information contained therein is spread by the physician. This is done to annoy him. He stated also that two fellow-employees were in the hospital at night to annoy him, that the physician had been responsible for letting them in and that they must be friends of the latter's. While they are present they talk about business and patents, and other things, in order to annoy him. He "would swear to it on oath before God that these things that he says are true". Mentally he feels that he is just as right now as he was when he left school. "If I were as sure of going to heaven as of swearing to the truth of these statements, I would be a happy man to-day." "You are the most awful man I have ever met in my life, the most thorough-paced scoundrel that I have ever known"—this to the physician. He states that he had pleaded to be given an easier time, and that no attention was paid to him, and he describes himself as being "the daftest man that ever was to have come into such an institution as this". In going over his previous history he corroborates the statements which he made on admission, and gives a history of sleep-walking when a child. He confirms his previous allegations about the persecution to which his employers subjected him, and he again asserts that it was all done in order to deprive him of a patent. They "wished to chase him away, and to give him such a facer that he would never come back to P—— again". He had been advised to go to L—— to recruit. He left in quite a friendly manner, but the same night in P—— he had about twelve men and two women after him. When he got into the north train the two women came into the compartment after him, and there was also in the compartment another woman with a child. In the next compartment were four or five men, who were spying and drugging him. Some of the men left the train at Z—— but the others went on to L——, and they told people on the steamer that he was "mad and poxed". One of the women in the carriage was tall, slim and fair, about thirty-five years old: the other was stout and dark, and seemed very strong. Just as soon as the journey started these two women began to talk about him—the whole thing was schemed. The stout one said that he had had a venereal sore, that she was going to his home to nurse him and that afterwards she was going to marry him. On one occasion she held out her hand, saying that she had never done any hard work, meaning that she would have to be very comfortably looked after. Before they reached Z—— she "made all sorts of obscene and filthy insinuations" to him. At every station at which the train stopped the news was spread around that he was in the train, and that he was

suffering in the way described. Instead of waiting for the train at Z—— he went on to D——, and as soon as he reached D—— he reported the matter to the Superintendent of Police, and made a complaint regarding the two women who had travelled in the compartment with him. The Superintendent of Police informed him that he could do nothing in the matter, except to prevent the women from entering his own home. Some of the men had, however, followed him to D——, and then to P——, and he is certain that the man who drove him home said that he had spoken to him and had asked him to spread the news around L——, lest he should spread the infection. Even when he was at home S—— came there and some others, both men and women, emissaries of his former employers. He stayed at home from January to May, and then came back with the determination to face the whole thing out and get it settled. He describes how, when he arrived at X——, he met a man there who was prepared to gas him, and had a woman ready to introduce into his room. He opened the window, however, so that the gas might escape. The same man, and others, and two women followed him next day to B——. They gassed him at B——, took him into an hotel, bathed him and left him in a room with another woman. He then took a car to K——, and there met a Dr. Y—— from D——, and Dr. Y——'s brother, but when in the ferry boat a girl came and said to him that she would get his money whether she got him or not. That girl, he now believes, was Nurse R. Another girl then came up and took her away in a boat. Representatives of his firm again met him at Z——, and followed him to P——. He does not intend to take any further steps in the matter until he has left hospital.

His ideas of reference and pseudo-memories continued unabated, but, eventually, in 1923 he was discharged in a slightly relieved condition.

Case 50.—G. F. Summary: This patient came from a stock described as "neurotic". His personality was in many respects a good one, but he was at the same time unusually sensitive and prudish.

In this case the important factors were endogenous ones, of which the personality traits mentioned were manifestations. Homosexual trends became evident in the course of the psychosis, suggesting that they formed a considerable part of the "endogenous" element. Symptomatically there was a gradual deterioration, with hallucinations, feelings of influence, and incoherence and crudity of ideas, facts of some interest in view of the slow onset, and in which the psychosis is distinguishable from a "paranoia" in Kraepelin's sense.

A man, 38 years, single, was admitted to hospital in September 1920.

The medical certificates stated that he believed he was subject to continuous persecution by some unknown persons, who interrupted him at his work, in sleep and in recreation. For instance, while reading Scripture from the pulpit a foul thought is slung at him: at golf he slices and loses balls through

their agency. A friend, a fellow-clergyman, stated that on one occasion he had identified one of these persons who persecuted him as his niece, and threatened to injure her, and also threatened her mother when she criticised him.

His friend described the whole family as being somewhat neurotic.

The patient was described as having been a strong, healthy, active man. A good student, he took honours in his classes, and was an excellent athlete, taking a prominent part in football. His friend described him as " one of the best men I have ever met ". In his conduct and behaviour he was always very chaste. He was not alcoholic. He is said to have had a frank, open personality, sociable and making friends easily, although somewhat shy. He was not argumentative, but was most exact in the expression of his thought. He was not at all egotistical, but rather modest and humble. Once, abroad, when a woman appeared on the stage indecently clad, the patient left the theatre. A good preacher, he always gave of his best. His inclinations were philosophical, and latterly he was a professor in a colonial college.

His friend dated the beginning of his illness to the period when he was twenty-two years old, when he had a breakdown while studying for his degree. He was advised to take a rest, and to give up study. After a few weeks he seemed better. The exact nature of the above attack is unknown. He told his friend, however, that ten years ago he was subject to little disturbances to which at first he did not pay much heed. If he were reading a book a blank would seem to come over him, which would quickly pass away. In 1916 he was sent back from his colonial post, undoubtedly on account of his mental condition. His friend met him again in 1918, and at that time he was speaking in a strange way, talked about " striking out " at some one, and on being questioned he said that he might possibly strike the wrong person. He was so sensible on other topics that little attention was paid to this. One year previous to admission it was more evident that something serious was wrong, as it became impossible to follow his reasoning. He would say such things as " they will never leave me alone ", but he would never specify who " they " were. He began to say that he was being worked on in various ways, that profit was being made out of the use to which his body was put, that the medical profession, for instance, had tapped his body, and several doctors through using him gained the D.S.O. and the M.C. So long as his body was used for healing purposes—particularly during the War—all this was quite agreeable to him, but he now wanted to know why he was not demobilised when others were. He mentioned two persons in particular as his persecutors, one a man and the other a woman. He could not give their addresses. He has seen only the man in the flesh, and that but once, and he cannot describe him. These persons were earning their livelihood through him, the

man about £5 a week and the woman £4. They were now "giving the secret away", and "even children are in the know". On one occasion, just previous to admission, the patient accused his niece (a little girl about twelve years old) of being in the affair, and spoke to her in a threatening way. When his sister found fault with him he replied, "What would you say if I gripped you". The patient believed implicitly that he was watched and followed, and at times he seemed to have difficulty in restraining himself, and said to his friend, "I might lose my temper with you".

On admission the patient adapted himself quietly, but on the following day he became domineering, demanded his clothes and said that he wanted to leave. He complained about being interfered with, and threatened to "make it hot" for the whole medical profession. The following day he had calmed down, co-operated in an examination and gave an account of the development of his illness. When asked to state his complaint in a few simple words, he described it as "an interference with my ordinary ways of life", and gave as an instance that when reading his thoughts were constantly interrupted and interfered with. He felt that whatever was occurring must be of some advantage to some one. He related how when twenty-one or twenty-two years old he had had a short spell of what he described as "strangeness", and he did not get the advantage out of a course of summer study that he should have done. At that time he was working on a thesis. He gave a description of this which was circumstantial, detailed and difficult to follow. It was in 1912 (æt. 30) that he first began to experience definite feelings of influence and a feeling of fogginess which never entirely passed away. He told an involved, confused story of his work and experiences abroad, of how eventually he was examined by two doctors, and somehow or other he was given "sealed orders" and was told that "it was a wash-out with Russell". He felt that these doctors might have had "something in their minds which I did not know". He was puzzled to know why he should have been sent home from abroad, but he accepted it pleasantly. After returning he obtained an assistantship at X——, and there things seemed to happen all the time. His thoughts were read, and strange, disgusting, obsessive ideas would suddenly come into his head. He declared that on the day of admission a muscle had suddenly twitched in his arm, and asked, "What is that going to lead to?" He argued that the same forces which operate on the voluntary muscles might also operate on his involuntary muscles, and if that is so then one can be "interrupted in all sorts of ways". He said that on the previous night he awoke at 3 A.M. and found that certain people were giving him what he called "consciousnesses", thoughts "articulate or inarticulate", and apt to be unclean. "These people must be paid for doing this." Regarding the episode with his niece, he explained that he only spoke

to her as a warning. He demanded that steps should be immediately taken to stop the interference to which he was being subjected. At times he said he heard a long harangue, "a consciousness like a human voice". He went on to say how medical men had used him to write books, and of how during the push on the Marne he nearly died from sleeplessness. (He was in this country.) His body was being used for "certain purposes". His orientation, memory and general intellectual faculties were unimpaired, but he had no realisation of his serious mental condition.

Physically he was in excellent general health.

A few days later he stated that he was contented, that he had been free for the most part from interference, that he had been able to read more, and expressed himself to the effect that "it has not been outrageously bad; a little discomfort, that is all". During a conversation he seemed suspicious and evasive, not wanting to say anything which might be used to his disadvantage. At other times, however, he would speak in rather a threatening way, saying the time might come when he would have to take things into his own hands, and that if things got much worse he might even have to sever his connection with the church. He said, "People may be paying to keep certain ones tormenting me". Occasionally he has hallucinated —one day whilst in conversation with the physician he answered a "voice", which he said was that of a woman.

On the 18th of May, 1921, he requested a special interview and handed three letters to the physician, one to the town-clerk, one to a lawyer and one to a leading divine. All these letters were to the effect that he wished steps taken to rid him of his persecutors. He refused to discuss his illness directly, but simply hinted at things. In reference to his resigning the post at X——, he said he did so on the understanding that something good would follow, but instead he had done practically no work since. During the past five years he had earned only about £350. "The persecution has now reached such a length that it must be stopped. It will be a sore knock if I gather the information that is possible, for all this must stop. If it cannot be stopped, then I go to another place. A man could not be incarcerated for eight months for nothing, nor will the people causing it get off; if eight months has not been long enough to rouse their latent virtue, then the next step may be of a different nature." Even if this means his resignation from the church he will not mind. He suspects that jealousy may be at the back of it all, but there is one thing that he would like to investigate further: it is a trifle that happened when he was a boy. Occasionally during this interview he would stop for a minute or two, look away, smile, and there was no doubt that he was hallucinating. His legs began to shake and tremble, and this he explained as being due to outside influences. If he plays golf badly, if he has a restless night, or anything happens

to him whatsoever, all such phenomena are due to interference by his persecutors. Perhaps some day, he says, he will be able to name them.

On November 1, 1921, he said that during the War he had thought of charging certain people, that he simply came here so that he might get into touch with the medical men, talk over things and have things stopped. He stated that what had happened was that he was now fixed in a certain place, and that if he had been in the physician's place he could have beaten "the thing I refer to". People, for instance, know where he sleeps, his habits regarding meals, golf, reading the newspapers, etc., so that in every way he is fixed and made a target. He is not going to allow any one to examine his body. "If I am here I am not going to have things stolen from me; that is the only basis I can put it on, the basis of theft. During the War I used to think that it was a matter of honour", but he feels now that it may come to a matter of killing. He is going to demand some return for these years which he has spent since his return from India, and then adds again, "Theft it is, accompanied by something one might term assault".—"I would not mind a man like you handling my body, rather than some rough tyke." He referred to the days when he was an assistant in X——, how he applied for a parish at W——, but was not considered owing to the fact that he was not married. Then he was asked to take charge of a parish church for a year, but they refused to allow him. "If one could only state things in a Church Court or in a Law Court one could see how preposterous it is. Suppose one does find that he has been played with, suppose some suggestion of sex is made, here is a thing which can be thieved, and then what is going to happen." He describes it all as "a matter of having been abused, having been played with and having been abducted". "Am I going to stay here and be stolen from any longer?" He then asks "whether the psychic thing is in his clothes, it can't come from the skin".—"Suppose a part of my body is to be watched—they may affect my breathing if that is so—they may get thoughts from me, original suggestions from me; these are things which can be stolen, that is what I mean by theft, by assault." He then refers to his being in hospital for over thirteen months, puts forward the supposition that a man is doing the work and says, "I don't want it on me, and if that blighter can work in your stomach what are things coming to", etc., etc.

In December 1921 an almost verbatim account was given of his conversation. He had stated that he wished to explain things, and to make things clear to the medical staff. He explained how he was being kept awake at night-time, and said, "It's another thing to have one's body abused while it may also be used. It took place at midnight, violently. The thing must come to its legitimate close. I repeat, it is one thing to

have one's body abused while it may also be used. Last night again I was awakened. I think it is time we got to grips. Here am I for a year and a half, a person with a fairly sufficient training. I get reading the papers with difficulty. I cannot read a book of any weight but have got to go back and pick up the thread."

At another point he stated that "the things that were subconscious were being taken from him", but he evaded giving an explanation of what he meant. He said, "This cannot continue without theft. I am not going to stay here like an animated wooden thing." He then gave other instances of how he was interfered with, and said, "I am reading, say, about Matthew Arnold. Immediately there comes to my mind a thought, and then—close. As if that were all I had in connection with Arnold. Suppose some one were watching this—he would have thought it was a stop, but some other things come, you see." When he was questioned about his body being abused, he hedged, and suggested that these were matters not to be talked about. Then he said, "Take a simple instance—I get a slight twitching in my left arm when lying down, and then a little after in my heart, and if I had been delicate it would have finished me".

"What other parts?"—"Various parts—the private parts."

Asked whether it was a man or a woman who interfered with him, he said, "There used to be".

"Is it always men?"—"Not always."

"If these things are so," he asked, "do you think it right that the patients should be allowed to do things of that sort? Is it a good thing for the asylum that these practices can be carried on so readily? It is certainly a bad thing for me." He then explained how every hour of the day "they" knew where he was, and on what particular chair he was sitting. He admitted that the same interference would probably occur in a home of his own, and he told how while he had been outside he had consulted a lawyer, because he thought some one should be put in jail. In February 1922 he again announced that matters must come to a finish, and that if in a month's time this interference did not cease he would make a decided effort to bring things to a termination. At this interview he reiterated his ideas about his body and brain being used to enrich others, and dwelt upon the disadvantage of being confined in an institution for one and a half years, because such confinement enabled his persecutors to "centralise" their efforts. His talks were apparently designed in order that those who were taking advantage of him might hear him and take warning.

He has maintained his general health very well indeed, but he has not been so tidy in his habits as he used to be. He has developed the habit of spitting on the floor, and then rubbing the carpet with his foot. When the sister in charge spoke to him about this, he became extremely angry, and told her that she was dismissed. When the doctor spoke to him he was also very

angry, marched into the lavatory, spat on the floor and asked the doctor what he was going to do about it. He then repeated that he would not have any of the patients using his body, and told the physician that he was fined £1000, and that he would refuse to recognise him as a doctor henceforth. He takes offence very easily, and any simple incident is apparently looked upon as an attempt to persecute him ; for instance, when playing in a cricket match, in which he had been bowling, he was given a rest after a few overs, and showed his displeasure by immediately leaving the field. It is very difficult to get him to discuss the position ; he maintains the attitude that he is being unlawfully detained, and he is inclined to threaten various penalties which will befall if he is not liberated at once.

In 1935 his intellectual level is noted as being well preserved. He is an ardent student of philosophy, with a particular interest in searching for a rational explanation of supernatural phenomena. This is, probably, motivated by his desire to find an explanation for the forces which he believes are stealing his thoughts, using his knowledge, and implanting evil into his mind. He has periodic outbursts, with very little accompanying affect, in which he protests against this interference.

Case 51.—S. F. This patient had been to all appearances a very normal woman, with wide interests, but in one direction there was a very important suggestion of abnormality—she delayed marriage as long as possible, there were no children, and her attitude to men was betrayed in the remark about " beastliness ". Furthermore, she had a very strong attachment to her sister. It is not therefore without significance that her psychosis followed soon after the death of her husband in tragic circumstances, and that the first evidences of a change in her mental condition were in the nature of over-compensations for her failings in married life, in the special form of morbidly exaggerated regard for the views of her dead husband. Her delusional trends seem to point much more to a projection of heterosexual tendencies (which she consciously abhorred) than of homosexual ones. Her early antagonism to her father is of interest, but no direct light was cast upon it.

A widow, 39 years, was admitted to hospital in 1925.

There is no history of nervous or mental disease in her family. At the time of her birth there was some difficulty, and instruments were used, but she walked and talked at the ordinary age, and developed normally. As a child she took a violent dislike to her father, and the family butler was the only person who could do much with her. The dislike of her father passed as she grew older, but from time to time she has brought up reminiscences of her antagonism to him, saying, for example, " You remember when I was three, I was able to cope with my father ". She received a good education, and was very intelligent. Learning was easy to her, and she took prizes in literature, history and painting. She was an excellent sportswoman, played cricket and hockey, rode and was in every way interested in outside things. Among her associates she was most popular, and of the " leader " type.

In 1915 she married, but her husband died in 1920 from a hæmorrhage from the lungs. He died very suddenly; his end was rather a terrible one. She was greatly upset by it and did not resume her ordinary activities for about a year. She gradually readjusted herself, and returned to live with her mother and her sister, but the memory of her husband was kept always very much in the forefront. Everything she did was "what he would want", and she brought his name into everything.

Her sister described her as having "a very angelic nature, with not a selfish drop in her body. She would do anything for anybody, and always was most generous." The patient and her sister did things together, and they were always happiest when one or other was about. The patient was extremely capable in household matters, and had varied interests, meeting people, attending sports meetings, hunting, dancing and so on. She had many male admirers, and "could have married half a dozen times if she had liked", but marriage did not appeal to her. She had known her husband for about fifteen years, and for about ten years there had been some sort of understanding, but she could not bring herself to marry. She never looked at any other man. Probably the actual facts of marriage were abhorrent to her, and she used the expression "men are horrible". It is doubtful whether marital relations were satisfactory; certainly there were no children.

About two years before her admission she began to change very definitely. One incident was as follows: Her sister had arranged to play golf on a certain day with a friend, and told the patient so, but added that she would put the match off if the patient cared. The patient would not hear of this, said that if her sister did put it off that she would not play anyway. Later, however, she said that her sister had arranged this other match deliberately so that she could not play with her. This was the first abnormal incident, but after this she began to state that people seemed to be either too interested in her, or were avoiding her. A number of incidents referred to a certain gentleman in the county, whom she sometimes referred to as "the toad", and sometimes "the comedian". She seemed to believe that this man wanted to marry her. The patient also declared that this man was instigating people, and influencing them to do all sorts of annoying things to her deliberately, so as to make her "give in". At first it seemed to be people outside the family, but her mother and her sister did not agree with her ideas, so she turned against them, and stated that they also were in league with this man. She reviled them for thinking that she would ever deign to marry such a man. Her own husband had been extraordinarily handsome: this man was not, and in addition, he sang comic songs—hence the name "the comedian". She began to declare that all sorts of things were done to annoy her, *e.g.* her car suddenly stopped with a stuck valve—this was done deliberately. She also imagined

that she was being followed. When she went to a hotel where her husband and herself had been in the habit of staying, she declared that her sister knew the room she was in and tampered with it. Whenever she went to the bank, her sister seemed to know of it. Her pullets, which she had ordered from England, were changed on the journey. She had a severe attack of illness, with vomiting and diarrhœa, and she declared that either her sister or the butler had tried to poison her.

There was no evidence of any hallucinations at any time. About six months previous to her admission she began to display another sort of trend. She stated that she had been asked to help a woman in the village who was pregnant, and ventilated the idea that there were several women in the same condition, and that the man who was responsible for annoying her was also chiefly responsible for the condition of these women. Even her own niece was implicated in this. On one occasion she found her niece reading from the Bible, " Unto thee a child will be born ", and the patient asked, in a sarcastic tone, how the niece was getting on, and why her niece did not marry this man.

It was so difficult to deal with her under home conditions that she was certified.

The medical certificates described her as talkative and domineering and suffering from delusions of persecution, stating that " a comedian " who lived in the neighbourhood influenced her mother, sister, servants and every one against her ; that in churches the clergy preached their sermons in reference to her, and the newspapers wrote articles concerning her. She also believed that her mother and her sister were plotting against her, and were thwarting her in all her actions. She believed that people turned to look at her and laugh at her in the streets, and on several occasions she actually accused her mother and her sister of giving her poisoned food.

At the time of her admission to hospital she was extremely resentful. She stated that there was no cause whatsoever for her having been brought, that the incidents which had been annoying her had actually happened, that she would have been insane if she had not spoken about them and that she believed that they had been done deliberately at the instance of some person or persons. She stated that her being brought to hospital was a good indication of the criminal intentions of her mother and sister. She stated that she did not care what happened now, that she was prepared to remain until Doomsday and that it was not the smallest use attempting to discuss matters. She spoke rapidly and diffusely, showing an extraordinarily well-preserved memory for all sorts of small happenings, which she told with great circumstantiality. There were times during the interview when she became emotional, but, under the circumstances, her affect was not unnatural, and was in keeping with the painful topics she was discussing, particularly the matter of her husband's death. She began by

stating that everything connected with the death of her husband was "sanctified", an expression which she used several times throughout the interview. She related that after his death she had received certain extraordinary letters, and mentioned two—one which she received about ten days after her husband's death, in which she was called by her Christian name. The other contained an "extraordinary" remark or word which struck her as being most indelicate and inappropriate, and that letter she burned. (Her husband had taken ill very suddenly, and he had been laughing and joking a few minutes before his death, and died practically in the arms of the patient within a few minutes.)

Regarding the golf episode mentioned by the informant, she explained that the course was specially sacred to her because of her husband's memory. After the golf episode, she said, the same sort of thing happened constantly. No one seemed to ask her to join with them in their activities, whereas formerly she had always been asked to everything. If the patient chanced to ask them to play, they would always give ridiculous reasons for not doing so. On one occasion she asked a lady to play in a certain match, but in return the lady lost her head, and wrote an extraordinary letter saying why she could not do so. The patient said that people used to laugh when she went about in her black clothes. She referred to the arrival of a new butler, who behaved "in the most strange way". On one occasion particularly, he put red paint over the pantry floor, and paint seemed also to be sticking to his clothes. This incident was related somehow to her husband's death. The butler sat down in front of the fire deliberately when she came into the dining-room, and at another time he sat down also in her presence. She considered that these acts were done specially to annoy her. Her car, too, was interfered with. Such incidents took place more frequently when her mother and sister were away from home, so that she grew to expect trouble whenever they left, and the annoyances occurred particularly on anniversaries and special days—Saturdays (the day of her husband's death), the date of her marriage and so on. These happenings were not confined to her home. On one occasion when she went to a neighbouring city, she had hardly arrived when an extraordinary old woman came up to her and seemed to follow her around, and tried to talk. When the patient returned home, she found that a new housemaid had been installed, and either the new housemaid was the old lady herself or a very near relative, because "they were the image of each other". While she had been away, she was quite certain that articles in her room were tampered with, so that she had to lock the door. On another occasion when she had gone to a servants' registry, which she had used for many years, she was treated quite differently from former occasions. She wanted a housemaid, but, instead of being given the names of housemaids, she was given the names of children's nurses, and was actually asked whether she wanted a maternity

nurse. "There was much talk of perambulators and babies, and one woman was carrying a baby." She could not believe that such incidents as these were accidental.

In contrast to these delusional ideas, her memory and her general intellectual functions were well retained.

Physically she was in very good general health.

Since her admission her condition has continued unchanged. To the staff generally she is very pleasant, but maintains the attitude that she has been declared to be insane, that she has been put in an asylum and that she will remain here for the rest of her days. Under this surface equanimity there is a very bitter resentment against the whole situation. An idea of her bitterness and sarcasm may be obtained from a letter which she wrote to her mother, in which she says—"Of course I am not writing *you* as you deserve. I shall not do that just yet. I suppose you all realise that you belong to a *criminal* organisation, which in the list of crimes is only about two removed from murder. How long is this abnormal pantomime and criminal act going on for? I shall stay here till I die, and never change my opinions; but it only makes it all so easy for me just now, and shows how right I was in my opinions, which are consolidated in every way by every one." She has related various other episodes, and particularly mentioned an incident when, in a moment of irritability, she had thrown her shoe at a door behind which her sister was. She now states that her sister accuses her of trying to shoot her with a revolver. A few days after this incident a policeman's revolver was found in the garage, and then on the following Sunday there was a sermon which had some reference to these episodes. She feels sure that, instead of her mind being abnormal, there must have been an abnormal mind that was ordering these things to be done—for instance, having the wheels of the motor-car turned the wrong way in the garage, her relatives not replying to a gift of chickens and the doctor not making any remarks when he won a prize which the patient had presented at a charity sale.

Since being in hospital also, she has expressed very definite ideas of reference. One day, while she was having a bath, the plumber came to the ward to do certain repairs. The nurse went to the bathroom door with him. The nurse opened the door to see whether it was possible for the plumber to go in, but when she saw the patient there she immediately shut the door and went away. The patient, however, got a glimpse of the plumber, although the plumber did not see her, and she immediately thought that this incident was on a par with the incidents which had happened at home, and that it was done deliberately to annoy her. She also believed that the other patients knew all about her affairs, and that they had been instructed by the Medical Superintendent to make things difficult for her. More recently, when visited by her mother and sister, she at first refused to see them. When she did see them she

accused them of having been responsible for her present position, and said that she would not do anything unless they gave her a complete and full apology, and explained to her why all these abnormal actions had taken place.

A further attempt was made to get a more detailed description from her, but she was evasive, and averse to discussing her illness.

She related how her persecution had seemed to start about six months after her husband's death, how she had received certain letters which she had resented and how the person termed "the toad" and "the comedian" was probably responsible for this. She said, "Who murdered the Rhode Island cock? Who prevented my sister from playing golf with me? Why did I have a period of sickness, with perspiration and diarrhœa? Why did the butler sit on the sofa when the daughter of the house went into the room? I am a person who cannot be upset unless I am given frightfully strong medicine." She recalled events in regard to the maids, said that the servants had been perfectly appalling, that they had all been put into the house for certain purposes, that the matter had been arranged from the very beginning and that the family were suggesting things. "Why was the big bacon slicer covered with red paint? It was only done to frighten me. Why was it that they all said that the old gardener was going off his head? It was only an indirect hit at me."

Case 52.—M. M. This patient was originally regarded as a paranoid schizophrenic, but since deterioration has progressed little or not at all, he is now classed among the paranoiacs. Kraepelin would probably regard him as a paraphrenia (especially in view of the hallucinations).

He was of the quiet, dreamy, intellectual type, but very capable nevertheless in practical matters.

The onset of the psychosis followed a combination of severe infections. The loss of his government post was probably the result of the psychotic development (although details are lacking), but it certainly contributed to his persecuted attitude, since he had no insight for his condition, and regarded his dismissal as an injustice. At first his paranoid trends were comparatively localised, and referred chiefly to his wife's identity, and to the injustice of his dismissal; but they have gradually diffused themselves, partly as a means of rationalising his position. Although his attitude to his wife was one of repudiation, he showed strong heterosexual interests during his illness, so strong that his parole had to be withdrawn. Some ruminations on sodomy were evident, but their significance is doubtful.

The dilapidation of his reasoning in some directions is in striking contrast to its preservation in others, and to his very intellectual activities (dictionary making).

An official in the Civil Service, 47 years old, he was admitted in 1920.

His family history was described as negative.

The patient had been a healthy child; he had developed normally, was always a very keen student, quiet, dreamy, clever, never much of a mixer. He had a career of great distinction at

both his universities and in his profession. He married when 32 years old, and there is one child.

In 1909, while abroad, he had nephritis, malaria and typhoid, and was delirious. He was given six months' leave of absence, and the news was broken to him that he must retire. He did not see the necessity for this, consulted lawyers, entered into litigation and spent a great deal of money in trying to reinstate himself. He developed the idea that his wife was antagonistic to him. All this resulted in his being committed to a local mental hospital in 1917.

In 1919 he was sent home, and on account of his mental symptoms was certified and sent to hospital. At the time of his admission he was quiet, agreeable and co-operative. He said that he had no particular complaint, and that he felt perfectly fit. He was correctly oriented for time and place : his memory was excellent in every way. All questions were answered clearly and relevantly, and he was able to give a fair account of the onset and development of his illness. He stated that he did not know why he had been taken to a mental hospital, and that he had been retired from a position of high responsibility without any definite reason being assigned. After he had been retired, he constantly wrote to the government asking them for their reasons. In consequence of this the government got " ratty ", and ordered the doctors to put him in the asylum. He said that the doctors declared he was suffering from hallucinations and delusions of persecution, but he denied that he had ever suffered in any such way, and said that the government had simply become tired of his persistence and had him incarcerated. He felt, too, that some one must have spread a story about the poor state of his physical health.

In 1920 he left his brother and took rooms in Glasgow. After he had been a few days in residence his landlady asked him to leave, but this he refused to do without receiving a week's notice. His landlady then asked him if he had heard a noise during the night. He admitted that he had, that he had got out of bed and had gone to his sitting-room, as he thought he had heard some one saying, " I bought a ham at Cooper's ". It was suspected that he was suffering from a mental illness, doctors were called in and he was certified as being of unsound mind.

The striking feature was that he accepted the situation in which he found himself with a certain amount of apathy, showing a lack of aggressiveness. He was in good general physical health, and there was no evidence of any organic lesion.

Following his admission, he adapted himself well, but he readily expressed delusional ideas. He stated, for instance, that his wife was not the woman to whom he had been engaged, and he was certain that his wife must have taken this other girl's name and have substituted her. This idea gradually has become more and more elaborate, so that he now maintains

that his wife has not merely been substituted, but that she is dead, and that the girl who says she is his daughter is not so. He keeps himself well employed, spends a great deal of his time translating foreign works, and in compiling an Arabic dictionary. Every now and again he complains about his incarceration, fails to see that he should be kept any longer in the institution and asks for his discharge.

In September 1921 a detailed examination was made. He asserted that his incarceration in the hospital was illegal, and to support his claim he produced the Lunacy (English) Act of 1857, and pointed to the definition of a lunatic, saying that the " or's " in it, as in all legal documents, were not disjunctive, but introduced simply limiting clauses. He supported this by reference to his will, where a list of possessions was given without any intervening conjunctions, and said that in this case the terms could be construed as equivalent. The view was also advocated by him that in the law of England a person could be detained in an asylum only if he were dangerous or wandering at large. He explained how when he had acted as a magistrate himself, and when the patient brought before him was unable to give his name, he classified him as being insane, and therewith committed him; but if he gave his name correctly, then he said, " The man is sane; I cannot grant a warrant ". This type of reasoning seemed to indicate a state of mental deterioration, but he was clear and correct in his general contention that there are certain types of mental disorder, amounting to actual insanity, which cannot legally be detained in an asylum. He believes that his own case is in this category. He stated also that a reference had been made to the specific gravity of his urine, and he wished to know the meaning of the word " specific ". He seemed to think it related to syphilis, and that there were pathognomonic changes in the urine in syphilis.

For a long time it was possible to give him parole, but on several occasions it had to be stopped, owing to his paying particular attention to one of the female patients. When spoken to about this, on one occasion he stated that he had proposed marriage to her, and at another time that he was married to her. He further alleged that the lady was not who she purported to be. This difficulty has recurred from time to time, but the patient's delusional system has increased, so that he now states that he is here to investigate conditions in the institution. He rationalises his talking to the other patients by saying that it is his business to talk to them, and to straighten out any difficulties they may have, and that it is his duty to investigate the mental state of the patients in the institution. He explained, furthermore, that no one could be kept in an institution unless a crime had been committed. He believed that all the patients had committed crimes of various natures. One patient, he said, had stolen his yacht; others were guilty of murder, and he was sure some were forgers. He also declared

that patients were sent from mental hospitals to the colonies, and that Southern Nigeria acted as an outlet for certain of the parochial institutions. When his own illness was discussed with him, he said that he had been in an institution abroad and had been accused of sodomy with native boys, but he entered a total denial of this crime, saying that he had been confined without a proper trial. In further explanation, he said that a high official had been accused of sodomy with English boys, and this matter had been reported to the patient, but he had not had time to inquire into it. In order to shield himself, this high official had therefore ordered that the patient should be accused of the crime, and should be confined in a mental hospital. Various magistrates had been " substituted " at his trial.

He did not believe that such things as auditory hallucinations existed ; a person could not hear a voice without the organ of hearing being stimulated. When told that patients did complain at times of hearing voices, the patient immediately remarked, " Oh, that's dementia præcox. The person is confessing to the doctor that he is suffering from dementia præcox, and that he should be confined in an asylum."

This patient is still in many respects very well preserved. He is perfectly polite, careful in regard to his dress and in regard to his general cleanliness. He now believes that his being in hospital is probably a result of misidentification. He elaborates the idea of his wife's death (which is a delusion), and states that she died on his estate in a certain county in England, and that his estate is at present being managed for him.

His general physical health is very good.

Case 53.—In another patient, D. G. B., there was no evidence of inherent predisposition, either in the family history or in the personal make-up. A " complex " of very long standing seemed to be the underlying cause—the memory of her husband's unfaithfulness, and the hurt he had done her many years before, had been accompanied (judging from the content of her psychosis) by a good deal of vengeful rumination, in which she had fancied herself unfaithful in her turn. Her illness began at a period of life when repressions are apt to fail, and the repressed material blossoms forth more or less indirectly as symptoms. Not all the paranoid developments occurring at this age are as completely elaborated as this one was. We have, for example, recently seen a woman of sixty, well preserved in every way, and capable of efficient work, who had developed a paranoid state with hallucinations—she thinks many people in her environment are talking about her, and she hears voices calling her a " Boer whore ". All this is based on the fact that she had a large family, all illegitimate, three of whom were born during the Boer war. The actual precipitant is interesting—her family, having grown up, discovered that their parents had not been legally married, and forced them to go through a formal process of marriage.

Symptomatically, the case of D. G. B. shows some common symbolisations of sex feelings—" electricity " and feelings of influence of various kinds. The paranoid trends are to be considered largely as projections of illegitimate heterosexual fancies.

This patient is 52 years old, and was admitted in 1923. There is no history of nervous or mental disease in her family.

The patient married when she was eighteen.

She is supposed to have been a very healthy child, and to have developed normally. She has had five children. The second was still-born, the remaining four are alive and well.

Her husband stated that she had been a most capable woman. He always considered her " a bit better than himself ", and she was the leader of the household, though never domineering. Her interests were centred in her home and in her family. She was sociable, a good hostess, even-tempered and met her difficulties courageously. She was well read, and interested in affairs generally.

Her present illness is stated to have begun in 1917, that is to say, six years previous to her admission. At that time, while on holiday, a room in the house in which they were staying was kept locked. The patient complained that she thought there was some one in the room who came out when they had left the house and examined their property. At the same time she told her husband that she was certain that some man was following her. Her husband investigated this, and found that there was no foundation for her belief. She stated that she could not stay in the house any longer, and returned home after a fortnight, having intended to stay one month. On her arrival home she at once complained that the house was in a filthy condition. This was not true. She began to accuse her husband of allowing people to come into the house " to show off the dirt ", and so induce people to believe that she was not doing her duty. She also stated that she was certain that her husband had men in the attic of the house who influenced her by Röntgen rays in order to prove her immoral. About the same time a young woman visited the house as a collector for a bazaar. When her husband returned home the same evening he was challenged with keeping company with this woman, whom he had never seen. She was told that her ideas were imaginary, that she was suffering from delusions, but in reply she stated that her husband was trying to make her out a lunatic, and when the law of divorcement for lunatics was introduced, that he would then marry this girl. She refused to allow her husband to leave the house in the evenings; she accused him of making signs to his agents, the Röntgen ray operators, to influence her. She changed in her disposition, became irritable and in fits of temper she struck several members of her family. A doctor was called in to see her, but he was informed that he was an agent employed by her husband to make her do things in order that her husband might get rid of her. She complained of the noise of the tramcars, and said that the noise was made at her husband's desire, to annoy her.

At the time of her admission she denounced her husband for having brought her to such a place, saying that he would never be forgiven, and that there was no justification for it. Later she said that it had been a great shock to her, that her husband

had exaggerated her illness in order to get rid of her and that he would live to regret it. She said that she had been annoyed and worried because electric sensations had been entering her body, and that she had seemed to see twinkling lights and shades in her own house, and also in the doctor's house, who lives not far away. These phenomena were all produced by agents, unknown to her, but probably employed by her husband or by the church. The motive was to make her do and say things in order to make people believe that she had delusions, so that she could be put away by her husband. She stated that in 1921, two years previous to her admission, she had had a quarrel with her husband, during which she had told him that he should give up his eldership in the church, as he was not good enough to hold it. He agreed to do this. Later on, in the same year, she had gone to stay with friends, and while there a gentleman in the house told her about a woman whom the patient identified with herself. This woman had had suspicions of her husband, and the description of her family and her household surroundings corresponded so closely with those of the patient that the patient became convinced that she was the woman referred to, and that this gentleman must have got all his information from her church people. She began to notice now that people in the street seemed to know about her domestic affairs and were talking about her; her husband, she thought, must be spreading tales broadcast. Later she was convinced that an agency was formed to influence her, in order to make her appear to be suffering from delusions, so that her husband could get a divorce and marry again; he exaggerated her illness to such an extent that there could be no other motive. She also became convinced that the family doctor was in her husband's employment. She spoke quite clearly and connectedly, and had an excellent appreciation of time and place and those around her. Her memory, both for recent and remote events, was excellent, and her power of retention, her grasp on general information and her memory for school events were all very well maintained.

Physically she was a stout woman, in good general health.

Following her admission, she requested an interview with the physician, and stated that she had neglected to tell him that when she was pregnant with her second child she suffered from venereal disease, for which she blamed her husband at the time. There was no evidence of hallucinosis at the time of her admission, and she denied that she had ever heard voices. She described her condition somewhat as follows: "At times it seems as if words were being put into my head, as if I was being the mouthpiece of somebody else. I will tell you the sort of feelings I have had. I have had different experiences: I have had the feeling of being almost benumbed—like catching the handle of a galvanic battery—I have had other experiences of something that makes my pulses beat faster. Perhaps I would be in the middle of something, when suddenly there was some-

thing like a stop put into my head, and things forgotten would come back, songs perhaps, or even conveying some message to me."

When asked if she had ever heard anything that sounded like a voice, she said, "No, I have never heard a voice at all; but I gave utterance to things; in regard to the church—I have been the friend of the church, and I have been religiously inclined all my life, and yet I have spoken and said terrible things about the church while that particular thing was on me. I acted under influence. I have no tendency now to swear as I did before, a thing that used to make me shudder. Once or twice the electric forces worked on me since I came, but nothing like to the same extent."

During her residence in the hospital her condition has shown considerable progress. She is very well preserved in her general mentality, but she is now constantly dominated by auditory hallucinations. Often she can be heard talking and shouting in her room, in response to them. She will not go out into the grounds by herself because she feels that everybody is talking about her and making remarks about her, and she continues to believe that she is being persecuted by X-rays. In addition, she feels that she is being watched at all times, even when she is in her own room. She feels that it may be all on the basis of jealousy. She has been so tormented that on occasions she has refused to sleep in her room, and for a time refused to go to bed. She was certain that if she did so she would be interfered with when she was asleep. A sample of her talk is as follows:

"There is going to be no insane certificate for me. It is M——, N—— and Company who are doing this. I am only claiming my legal rights to leave the institution. My husband has been paying for me, but N—— puts it all in his pocket. It is thousands of pounds they are swindling. I would not have a medical man made a criminal to save me. I should have been home long ago. M—— and N—— have called me a forger, a prostitute, and I am a highly respectable lady. Please sign my letter of clearance from the institution. Would you believe what N—— had the audacity to say to me, 'Would you, for a piece of money, allow M—— to commit adultery with you?' I would never sell my honour to any one."

In May 1935 her condition is noted as still unchanged.

Case 54.—In this patient, G. H., the paranoiac development occurred late in life (æt. 58). The significant points are the patient's personality—ambitious, sensitive and suspicious; and the origin of the condition in a very definite event—the failure of a cherished ambition. This case furnishes a very apt illustration of the psychogenesis of certain paranoias, as described by Bleuler.

G. H., a married woman, 58 years old, was admitted to hospital in 1921.

Both her father and mother were stated to have been alcoholic.

The patient has six brothers and sisters.

Her early life was a somewhat hard one, because her parents neglected her. She received a good schooling, however, and after leaving school worked as a dressmaker. She married comparatively late in life, when she was about forty years old. There were no children. Her husband described her as being naturally ambitious, anxious to climb socially, of rather a suspicious cast of mind, "apt to put two and two together very quickly", and to read meanings into things. She was sensitive, and apt to apply remarks to herself which were not intended for her.

She is stated to have been well until about six months previous to her admission. Two years before her admission she had suffered a serious disappointment, having failed to inherit from a millionaire relative a large sum of money which she had expected. In 1921 her brother, who was a trustee on the estate, told her quite definitely that nothing had been left to her. She felt that a gross injustice had been done her, and began to speak of taking legal action. A few months later she became definitely suspicious. She began to think that some one must have been slandering her reputation, so that she was kept out of the estate on the plea that she would be unable to manage it. She gradually developed this idea. First she became suspicious of her brother-in-law, then of her relatives in general and finally of her husband. She began to pour out her troubles to various friends, and even to the clergyman. She imagined that people would come in the night and take her away. She accused her husband of throwing dirty linen out of the house to expose her, so as to damage her reputation, and of spreading stories that she was addicted to drink. Her husband stated definitely to the physician that she had not been in the habit of taking any alcohol at all. Three weeks previous to her admission she began to believe that another millionaire had left her a large sum of money, and she called on various people to see what could be done about it.

At the time of her admission to hospital she was in excellent physical health, and there was no suspicion of any organic disease. She stated that she had been in a highly nervous state, that she was in need of a rest and that she had decided to come voluntarily. She spoke about her ideas quite freely, stating that she was certain that her husband and others had been working against her, that she had been left a large sum of money and an estate, that the money had actually been deposited in a certain bank, but that for some reason or other she was denied access to it. She declared that her husband was spreading tales about her to the effect that she was dissolute and immoral, that he was hand and glove with a man called Brown, a publican, and that these stories were spread with the idea of damaging her reputation, so that she would not be considered fit to receive the money left to her. When she was in Edinburgh, and walked in the Gardens there, she saw a woman talking to one of the gardeners. The woman lifted her elbow as the patient passed. The latter interpreted this act as an indication that the woman

was signalling that she (the patient) drank.

After a month's residence she stated that she did not feel that she could stay any longer, and she was discharged.

Four months later she was readmitted under certificates. After she left the hospital, she stayed quietly at home for a fortnight; then she engaged a room in a hydropathic, and remained there for a period of five weeks. She then went back to her own home, arriving late one night, and for some time after she behaved in a most extravagant way. She ran up bills with tradespeople and for motor-cars, and began to express ideas of grandeur, saying that she was the laird of a vast estate, that her husband was bound to give her £5000 a year and that she would see that she got justice.

When she was brought to the hospital she was in an angry mood, saying that there was no reason why such an action should have been taken, that it was gross injustice and that she protested very strongly against it.

During her present admission her ideas of grandeur have become even more marked, and are freely expressed. She maintains that she has estates, that she is a millionairess and that she is being kept out of her money and her estates by certain financial trusts. She claims Mary Queen of Scots and King David of Scotland among her relatives.

A good idea of her condition may be obtained from one of her letters:

"I claim the privilege of a private citizen. After two years of annoyance, my house open to ladies and gentlemen, everything inspected by them, drawers opened, letters read, garments displayed, fun made of them, the most private relations of home life, I have been tracked and tracked both outside, and watched in my home, by land and sea. Men have been engaged to traduce my kith and kin, because of the inheritance which is the dowry belonging to the heirs of Queen Mary and King David, grandson of Robert the Bruce. Everything has been done to disgrace me. I was brought here by force, and am kept until the inheritance is divided."

Her personality is well maintained. She is always most careful about her appearance. Her antagonism to her detention is undiminished, and her grandiose ideas go on increasing steadily. When she begins to talk about them she becomes slightly incoherent, but her ordinary conversation does not show this.

In May 1935 she is noted as most extremely grandiose, so that her conduct is governed entirely by her delusional system. Her personality has not undergone any deterioration.

Paraphrenia

Kraepelin stated that about half of his cases of paraphrenia exhibited the slowly developing type of disorder described by

Magnan, and these cases Kraepelin formed into a subgroup, terming them **paraphrenia systematica**. In addition to this form Kraepelin described three others, termed respectively the expansive, the confabulatory and the fantastic. He defined "paraphrenia systematica" as characterised by the extremely insidious development of a continuously progressive delusion of persecution, to which later are added ideas of exaltation, without disintegration of the personality. This condition is usually ushered in by sensitiveness and irritability, with ideas of reference. Gradually the persecutory ideas are more freely expressed, and are of the most varied nature. After a period of years, auditory hallucinations begin to show themselves, and, to a lesser degree, hallucinations of the other senses also occur. Gradually the ideas of persecution may be replaced by ideas of grandeur. Some patients, for example, make claim to large sums of money, and others show erotic trends, believing themselves sought in love by titled people. The patient's idea of his own importance rises higher and higher, and finally he may identify himself with God. Notwithstanding the deterioration of judgment that such ideas would suggest, the mood does not show any disorder *per se*, but remains appropriate to the disordered ideas. The general intellectual faculties of the patient are well preserved, and the patient's capacity for work may not be interfered with. The condition is slowly progressive, the delusions and hallucinations becoming more definitely fixed; but usually the personality is well maintained.

In considering these cases Kraepelin states that he has seldom been able to find any external cause, but "that the disease is engendered by internal causes—of what kind it is not possible for us even to make a hypothesis". He admits that the permanent preservation of the personality is the factor above all others which has led him to differentiate this group from the paranoid forms of dementia præcox, and he adds that there is a question whether his standpoint is justified. Similarly, he admits that there is great difficulty in differentiating this type of disorder from a "real paranoia".

The other types described by Kraepelin are much less satisfactory than the one already mentioned. The **expansive** type shows exuberant megalomania, with predominantly exalted mood and slight excitement. The descriptions which he gives are impossible to differentiate from the other types. He does say, however, that in the expansive type, in contrast to the systematic form, the hallucinations appear fairly soon. He

admits that along with the megalomania there are invariably ideas of persecution, and that the general intellectual activities are well retained. In discussing the delimitation of this type, he admits that it is very doubtful whether such cases constitute a clinical entity. Such cases are differentiated from the paranoid forms of dementia præcox by the very slight impairment of the personality, and from the systematised paraphrenias by the fact that in the expansive type the hallucinatory factors preponderate over the delusional, that the disease is more rapid in its development and that the mood is characterised by exaltation in spite of the ideas of persecution.

The third of Kraepelin's paraphrenic groups, the **confabulatory**, is seen more rarely, and is distinguished by the dominant rôle which pseudo-memories play. We do not believe that this type exists by itself, because all such delusional states are largely based on pseudo-memories, and often in such cases we cannot differentiate clearly pseudo-memory from real memory.

His fourth group, the **fantastic**, he characterises by " the luxuriant growth of highly extraordinary, disconnected, changing delusions ". This description fits exactly what is meant by the general term " paraphrenia ", and it seems beside the point to describe special subgroups of this particular nature. Kraepelin admits that it must remain doubtful whether this type corresponds to an independent morbid process. It cannot be denied, he says, that there exist many similarities with the paranoid form of dementia præcox, especially with the præcox cases which issue in drivelling dementia.

It is readily seen that Kraepelin's description of the paraphrenic group has tended to go too far. He has attempted to differentiate too finely, and to simplify a descriptive field overmuch. At the present time it seems far better to describe the broad general groups, without attempting minute differentiation. It will be seen from his description (*v. infra*) of what he calls paranoia that it is almost impossible to differentiate his paranoia and paraphrenia systematica from what has been called paranoid dementia præcox or paranoid schizophrenia, which we now call simply a paranoid state. On that account we have thought it best to keep all these groups under the same heading.

Paranoid States

Patients with paranoid states are usually between 30 and 35 years old. The delusions which are expressed are multiple,

unsystematised, changeable, usually of the most fantastic and illogical nature and accompanied by hallucinations. These ideas may be of any type; they may be persecutory, depressive, or grandiose, as will be illustrated by the case record (Case 55).

Case 55.—Summary: Paranoid schizophrenia. A difficult, stubborn, jealous woman, whose mental illness started insidiously with ideas of reference, visual hallucinations, and numerous varying delusions of persecution: impulsive excitement: diffuse talkativeness with some incoherence; and at times a disharmony between mood and thought, but always a lack of appreciation of the seriousness of her illness.

G. D., a woman of 33, was admitted in January 1925. There was no history of nervous or mental disease in her family.

The patient attended school from the age of 5 to 16. She was an average scholar. She was always a somewhat difficult, stubborn child, and a good deal of tact was necessary in her management. After leaving school she trained as a typist, and was afterwards employed by various firms as a typist and secretary. She was sociable and self-confident, and had numerous friends both among men and women. She was jealous of her younger sister, who was a teacher and earned a higher salary than she did. Towards the end of 1918 she took a course of instruction in domestic science, and after getting her diploma she obtained a position in the north. During her last year at college she complained that the other students were talking about her and saying she was pregnant. She said there was a plot to prevent her and her fellow-students from getting employment. After obtaining her diploma she stated that it was of no value, and that she and the other students were to be used for other purposes.

In April 1921 she had some sort of "faint", and after it lay in bed for a week, was very quiet, slept a great deal, could not rouse herself, or take any interest in her surroundings. Next she became excited and extremely noisy, had visual hallucinations and said that people were entering her room and spraying some substance into it. This continued for about six weeks. Gradually her condition quietened down, and she was able to be up and about, but at intervals she expressed persecutory ideas, saying that there was a strange man in the house, and that her family were about to be involved in some trouble. She mentioned various names in connection with her delusions, and in particular the name of a lawyer in a neighbouring town, who she said was responsible for the trouble. She tried to interview this lawyer, but was prevented. Soon she became antagonistic to her family. In 1923 she obtained a position as an Assistant Matron in a hostel. She had not been there many weeks before it was noticed that her letters home were carelessly written. Finally she ceased to write altogether. Her brother visited her at her hostel, and found that her persecutory ideas had returned. Later in the summer she was

able to go with her brother and some friends to a holiday camp, but while there she took a violent dislike to her sister and to another girl friend of her sister's, making accusations against this girl's moral character. On her return home she was still excited and violent, and abusive towards her family. She said that her uncle wanted to ruin her moral character. This condition continued until she could be kept at home no longer, and was certified and sent to a parochial institution. Before she left home she had taken a strong dislike to her mother, and accused her of being a prostitute. The patient declared that her relatives wanted to share her with an unknown man for immoral purposes, and also stated that a friend had desired her to have an imbecile child.

At the time of her admission to hospital she was talkative, excited and diffuse in her conversation, readily expressing ideas of persecution. She protested strongly against her detention in an asylum, saying that there was nothing wrong with her, and that this was simply a case of systematic blackmail.

Physically she was in excellent general health. The mental examination was difficult, as she was evasive, constantly saying, "But I don't know who you are", or else, "Oh, what is the use of this; you know it all already". She seemed to have great difficulty in concentrating, and when she attempted—at her own wish—to write answers to certain questions that were asked her, she did not write sentences, but only single words. Frequently she spoke in a low voice as if she was afraid she might be overheard, and occasionally she asked the Medical Officer not to tell any one what she was saying.

Her thought was diffuse, but she succeeded in relating her career, during which she had frequently changed from one post to another. She gave the impression that she felt she was intellectually superior to others. "I had nothing but disappointments. I could not get anything I wanted. I was a person who always wanted to achieve something." "What was your illness?" "The trouble was that I was suddenly told that I knew too much about other people's business." She then went on to say that there were too many women in the world, that they were being got rid of systematically, and put into asylums. This was being done by lawyers, by representatives of the Engineers' Employers' Association. In an inconsequent way she said that she was supposed to be a duchess, and added that "Asquith's daughter married a Serbian", and that a doctor had married a Greek woman. "For Heaven's sake, don't say anything. You see, there was an awful mess at college. There was a Catholic girl there. Her people were shot. You know it all. It is a political intrigue. You see, R——'s son was shot in Ireland, and M—— was shot in P——. I was asked if I knew Stevenson. You see, you are only making an awful mess. You see, we had a Catholic maid, and I found out something from her. It is only common know-

ledge—that was all in the papers. For Heaven's sake, don't say that to any one interested in the police. It will only be worse for us. You see, the man who brought the Serb to our home had French connections. I needn't say any more. I was told that we were all to be crucified. That's what I was told by one of the teachers." Another good example of her disconnected talk was elicited by the question "Are you being interfered with?" She replied, "One Canadian who was with my brother told me that they had opened paper mills in Canada to have something to go back to. There is a Swede. He was friendly with my uncle. Yes, I am being interfered with. I was getting powders all round. That is contrary to the interests of Lord Salvesen. We had an interest in the paper pulp works in Finland. I was at the geographical lecture about it. When I was ill at home my sister went to Canada. There was a big forest fire. The girl who was with my sister went to Vancouver. She visited Finns in Canada. I suppose she would be taking them a message. They were building a railway right across Alaska to Manchuria. You see, I had a friend who used to go. He had interests in China. His uncle was married to a Chinese lady, but listen! for Heaven's sake, don't show this to any one. They are making use of my friends behind their backs. You know how they keep things up. There was a girl in L—— who knew the Swede and the German, and she was keeping me under, and I think she was putting powders in my food—at least, I think she was. I was always queer afterwards. It is all political."

Her delusions were very numerous, and were quite unsystematised. "People had said that she was married", and that her mother was a "street woman". On one occasion she was "followed by a black man", and her home was "nearly blown up by a black man". No evidence was given to support her statements. She connected herself with everything and every one, with the War, with India, with the coloured races, with politics, with Catholics, etc. All of her ideas were extremely vague, and many of them were quite ridiculous.

At this time there was no evidence of hallucinations, and she denied that she had ever heard voices. In association with these ideas there was no particular disharmony of her mood; affect varied a good deal. At times she seemed happy and cheerful, and satisfied enough, but at other times she was very much concerned about her detention in a mental hospital, and stated that there was no real reason for it.

She was correctly oriented; her memory both for recent and remote events was good: her power of retention was unimpaired, and her grasp on general knowledge and her ability to calculate was not affected.

During the period of her hospital residence there has been little change in her condition. She is still difficult to manage, and has periods during which she becomes excited and assaultive. She continues to express vague ideas of persecution, and she maintains

that there is no reason to detain her under institutional care. Her memory and her general intellectual faculties remain unimpaired. She asserts that she does not know why she was ever taken to an institution. She thinks that she was being made use of for some purpose or other ; she " has found things out since she has been in asylums ". Her incoherence is marked, and her statements are all vague and difficult to follow. " My case ", she says, " goes back to the beginning of the War ; some one who stayed with us was followed. It was insinuated that he was a spy, whereas really he was a Highlander. There seems to be a whole sequence of events that may have a bearing on it." She then began to talk of a certain lawyer, who she said spoke a lot of nonsense. " I have a letter proving the date of the event. It was also said that I was pregnant, and that I was married. The marriage of a person of my initials was reported, and people thought that it was I. No address was given. Why it should come back on me I don't know. They told me that the Luss estate belonged to my uncle. They spoke about my being Lady Bowes-Lyon. It was stated that I was a duchess. They seemed to have the gossip of my life. There was one person who had to do with the Secret Service, and it was he who said, ' You are the Duchess of So-and-so '." In the course of time this patient made such a surprising improvement that she was able to be discharged.

For several years she has lived at a wonderfully good social level, but more recently the impression was gained that she was not well mentally, as she had telephoned to the hospital, having been prompted to do so by paranoid motives. A review of this case, formerly regarded as a paranoid schizophrenia, shows little differentiation from many cases of paraphrenia.

Conclusions

The causation of paranoid conditions is probably not by any means a uniform one. Very similar syndromes, all with the general stamp of paranoia, are apparently capable of arising on the basis of factors which differ greatly in their relative importance in different cases. The type of personality is one of the commonest predisposing elements. The sensitive, suspicious, jealous, ambitious person; the shy, prudish, dreamy and unpractical; and the selfish, vain type were all represented in our series. In some paranoid patients, however, no suggestive traits of personality are discernible in the previous history. Another fairly frequent factor is the existence of some " complex " with a very strong affective value, *e.g.* a history of venereal infection, with a great deal of shame and self-consciousness attached to it. Upon such a predisposition, either of personality or of a more

isolated "complex" derived from personal experience, the effect of some trifling incident is sometimes profound, presumably in some cases from the stirring up of associations, *e.g.* the innocent visit of a policeman to a man who had long cherished in secret his shame of venereal infection. Conversely, in cases dating from some definite incident of this kind, it is nearly always possible to trace a predisposition, either of the total personality or in the form of some more localised "complex". The importance of homosexuality in the ætiology of paranoia is not so widespread as the psychoanalytic school would have it. It was clearly a factor in 4 out of a series of 11 paranoiacs. The remainder were preponderantly heterosexual, judged both by their ordinary lives and by the content of their delusions. Homosexuality acts largely as other causes of social difficulty or ostracism do—by producing feelings of inferiority or actual guilt; while it can also act in the way Freud described, by being repressed and projected upon individuals in the environment. Feelings of influence may represent equally the projection of homosexual or heterosexual feelings.

In the genesis of paranoia the rôle of inferiority feelings, on whatever ground, is very considerable. The sense of inferiority may be the result of disappointment of inflated ambition, or it may be associated with guilt-feelings, auto-, hetero-, or homosexual in origin. In either case the resulting paranoiac development consists first in ideas of reference, and then of actual persecution. A sense of superiority, or at least a striving for it, often exists concurrently, and leads sooner or later to grandiose delusions. Not less important than feelings of inferiority and guilt and superiority are wishes which may or may not have been repressed. These wishes are either sexual or social—for wealth or position. The sexual desires being of a forbidden kind (heterosexual in women, and usually homosexual in men) have been repressed, but are now projected as ideas of persecution, or as frank fantastic delusions of marriage to important personages. The persecutory types of sexual delusion seem to be more common in men (homosexual), and the frank, wish-fulfilling type commoner in women. Projected heterosexual trends were plainly evident in 4 out of 5 female paranoiacs, 2 of them frankly wish-fulfilling in nature. Projected homosexual trends, all in the form of persecution, were evident in 3 of our 6 male paranoiacs.

The sources of secondary elaboration of the delusion, especially the development of grandiose trends concurrently with or after

persecutory ones, are multiple—the affect of the original complex continues to operate; more or less logical influence is brought to bear on phenomena observed under the influence of the first factor; and the compensatory superiority feelings sometimes present in great force produce flattering rationalisations. The sequence, delusions of persecution and delusions of grandeur, in that order, is usual. One does not see the reverse order, although sometimes the development of the two delusional trends seems to be concurrent.

In their psychopathology paraphrenia and paranoid states are similar, such differences as there are being symptomatic and dependent on the degree of disintegration of the personality, which in turn probably is related to the degree of maturity and integration which the personality had originally achieved.

Prognosis.—The occurrence of circumscribed paranoid states running an abortive course has already been referred to. The prognosis of well-developed paranoiac conditions is on the whole extremely poor. A small minority of those entering mental hospitals make a sufficient readjustment to enable them to live outside again, and even to lead useful lives. Some never become sufficiently ill-adapted to make it absolutely necessary for them to enter hospital.

Treatment.—Treatment is usually very unsatisfactory. The desirability of placing paranoid patients in a mental hospital is determined not only by the degree to which their delusional beliefs lead them into conduct producing discomfort and loss to themselves or into antisocial activities, whether these be in the nature of homicidal attempts (which are not common) or simply of annoyances to others by accusations, petty litigation, or what not. Hospitalisation is also desirable, as a rule, if any attempt at therapy is to be made, because this is likely to have more chance of a modified success if carried out in a quiet and controlled environment. Meyer emphasises the necessity of a thorough study of the patient's life-history, in order to attain as complete an understanding of the patient as possible, while at the same time winning his confidence to some extent. Having prepared the ground in this way, the physician can proceed to explanation and persuasion with some hope of a result sufficient to enable the patient to be a useful, if still not at all a normal, member of society. A critical attitude must be rigorously avoided. The cases of paranoia for which anything like complete therapeutic success has been claimed with a show of justification do not

number more than half a dozen in the whole literature. The newer methods of physical treatment do not seem to help these cases. When a paranoid state clears up after " shock " therapy it is more probable that the condition was fundamentally a depressive one.

CHAPTER XII

PSYCHOPATHIC STATES

We include under this description persons who have been from childhood or early youth habitually abnormal in their emotional reactions, but who do not reach, except episodically, a degree of abnormality amounting to certifiable insanity; they show no intellectual defect and therefore cannot be classified in terms of the Mental Deficiency Act; and they do not benefit under prison treatment. They constitute a rebellious, individualistic group who fail to conform to their social milieu, and whose emotional instability is largely determined by a state of psychological immaturity which prevents them from adapting to reality and profiting from experience. They lack judgment, foresight and ordinary prudence. " The judicial, deciding, selecting processes described as intelligence, and the energising, emotivating, driving powers called character " do not work in harmony. Such cases constitute a huge social problem. They are the misfits of society and are the despair of parents, of law courts and medical men. Social workers concerned in the proper placement of such cases have been acutely aware of the complexities presented by them. Now, however, that the trend of medical education and training is towards the consideration of social factors, the problems presented by such cases will receive wider attention. They constitute a challenge to preventive medicine and make us alive not only to the necessity of ensuring that children will be born preponderantly to sound stocks but to the need for the conservation of their well-being by educating the community in the irreplaceable value of a sound home-life for ensuring future stability.

In 1835 J. C. Prichard of Bristol, under the title of " moral insanity " and " moral imbecility ", described a series of cases which may be taken as the prototypes of the psychopathic state as we know it to-day. The term " moral imbecility " was incorporated and defined in the Mental Deficiency Act, 1913, but we consider

it advisable to remove it from that classification altogether, and to make a clear distinction between states of intellectual and moral defect. While Prichard was the first person to give a systematic description of those so-called moral disorders, others before him, notably Pinel, Esquirol, Georget and Rush, had drawn attention to their existence and had appreciated their significance. Then later came notable contributions from Morel and Magnan in France; from Lombroso, Bianchi and Tanzi in Italy; and from Krafft-Ebing and Ziehen in Germany.

In 1888 Koch introduced the term psychopathic inferiority and made the suggestion that certain of the hysterics and obsessional states might be so regarded. This conception was elaborated and widened by Kraepelin, who drew attention to the fact that a vast variety of syndromes occurred which could be described in terms of the most obvious presenting symptom, *e.g.* excitable, impulsive, eccentric, liars and swindlers, anti-social and quarrelsome. He further suggested that closer clinical analysis might show that the psychopathic element might form a constituent part of certain psychoneurotic and psychotic states. During the present century the contributions of Healy, Kahn and Partridge in America, and of Birnbaum in Germany, each from their individual view-points, have been outstanding. While Healy and Kahn have attempted a more accurate clinical analysis and differentiation, Partridge and Birnbaum have drawn attention to the sociological implications of the group and have suggested that the term Sociopath might be more appropriate.

This is not altogether a happy term, since society does not always suffer as the result of their instability; some, as will be seen, even benefit the society in which they live. For such a diverse group it is difficult to devise a satisfactory nomenclature. We feel that it is better to describe samples of the group under convenient but admittedly somewhat arbitrary headings, so as to give a foundation upon which further experience may provisionally be based. The complexity of this group is best illustrated by the following case:

CASE 56.—M. B., 24 years old, single, was a young lady of attractive appearance and address, who came from a neurotic stock. For a long number of years this patient had been creating a great deal of difficulty in the home, so that her brothers and sisters felt that their mother's life was not safe. It was stated, "Her vindictiveness is so extreme that she is capable of anything, while, at the same time, she is so plausible and cunning that she is able to impress all strangers that she is a persecuted saint condemned to live in a family of criminals and savages".

A few instances of her conduct are sufficient to describe the case. One of her brothers arrived home on leave from France to visit his father who was dying. She refused to sit by her father when he was ill, to prepare food for him, or to relieve those who had been constantly with him night and day. On the contrary, she jeered at the constant " morbid atmosphere " of the sickroom. The family tried to induce their mother to have a nurse in the house, but she refused to do this lest a stranger should talk outside about her daughter's conduct. She terrorised the home for years, and drove more than one of her sisters away from home by her threats and her violence. On another occasion when her brother came from France she did not speak to him during the whole time he was in the house. She sat at meals with her face turned away from him, and when he left to return to the front he had to search her out to say good-bye, and his farewell did not meet with any response. Her mother had to sleep at night with her bedroom door locked for fear of her daughter's violence, and she had also to lock her door by day in order to guard against thefts. The patient for weeks on end would not speak to any member of the family, except to demand money or clothing. It was also stated that one of her brothers, who was an apprentice engineer, had to stand over the water which he had heated to have his wash, because if he relaxed his vigilance the patient would take the warm water and pour it down the sink. One day in mid-winter she threw a bucket of cold water and deluged his hens, which were his hobby, " just to see what he would do ". Frequently she told her mother that she " would make her suffer ". On one occasion she walked through the house and crumbled every gas mantle into dust. She lit all the gas jets of the gas stove, and put over them every pot, pan and kettle the stove would hold, and then slipped quietly out of the house. Her habit was to rise any time from 11.30 to 2 P.M. to cook a meal for herself, and then to leave the house without a word to any one. " What she does, where she goes, and who her friends are, none of us are quite sure." Indian ornaments, sent home by a sister, disappeared, and some Greek metal-ware which was also in the house disappeared and was discovered hidden in the commode in the patient's bedroom, awaiting a chance to be smuggled out of the house. A brother came home unexpectedly, and found his sister arguing with a rag-woman for the sale of his boots—his second-best pair.

On account of the difficulties of management, she was certified as being of unsound mind, and was admitted to hospital. During her stay in hospital she has been unreliable in every way. There have been times when she has been better controlled and better behaved, but sooner or later she gets into difficulty again. When found fault with, or criticised, or restrained in any way, she has outbursts of great passion, during which it is almost impossible to control her. She is sullen, sulky, spiteful and destructive, making life difficult for the other patients, and even

striking those who are most helpless. At other times she can be most attractive and charming, and seems almost out of place as a patient in a mental hospital.

Causation

It is very difficult to explain the origin of such cases, because in every one we require to think of a combination of hereditary, neurological, biochemical, psychological or environmental factors. In some cases the hereditary loading is considerable, while in others obvious environmental factors such as poverty, broken homes, illegitimacy, etc., may seem to play the predominating rôle. There are, however, more intricate conditions which may be created by a disturbance of the pre-frontal hypothalmic connections, by diffuse organic conditions such as encephalitis, chorea, idiopathic epilepsy, brain injury, or by the even more intricate metabolic and biochemical functionings associated with an involvement of the autonomic system and imbalance of the endocrines. In all of these instances the conduct of the individual may be so seriously interfered with as to render him unable to adapt to society. He is governed by thoughts and impulses which are uncontrollable, and which can only be understood in terms of his total personality.

Electro-encephalographic studies have shown that 65 per cent of aggressive psychopaths and 32 per cent of inadequate psychopaths have abnormal E.E.G.s compared with 15 per cent of normal controls (Hill and Watterson, *Jour. Neurol. and Psychopathol.*, 1942, 5, 47). These authors suggest that the abnormality exhibited by the E.E.G.s points to a failure of development in the central nervous system, especially as similar findings are obtained, although not invariably, in "problem" children of the irritable, hyper-active, moody and aggressive type (C. Bradley, *Coun. State Med. Jour.*, 1942, 6, 773).

In 75 criminal psychopaths, characterised either by aggressiveness and hostility, or by extreme selfishness, or by inferiority feelings and self-destructiveness, the great majority were found to have either an abnormal E.E.G. or an unsatisfactory early home life, or both (D. Silverman, *Arch. Neur. and Psychiat.*, 1943, 50, 18).

The factor of illegitimacy is worth emphasising in more detail. In a personal study of 34 mothers of illegitimate children it was found that 50 per cent were psychopathic.

In Binder's analysis of 350 cases of illegitimate pregnancies he found that one-third of the mothers were normal, one-sixth

oligophrenic (feeble-minded) and 50 per cent psychopathic. It was further noted that 113 of the women were under 20 years of age ; the love factor had not entered into the pregnancy, and in many instances there was hatred towards the unwanted child. It is easy to see that any inheritance of psychopathy from the mother will be reinforced by a sense of insecurity in the child, with the possible consequence of anti-social behaviour, *e.g.* stealing in the " affectionless thieves ", who steal apparently to compensate and revenge themselves materially for that of which they have been emotionally deprived.

It may be noted that in accordance with the criminal law of Scotland provision has been made for mothers of this type who commit infanticide. Such patients, although they cannot be considered completely of unsound mind, yet are suffering from " some form of unsoundness " and are " only partially responsible for their actions ", so that the charge may be reduced from murder to culpable homicide. It is reasonable to suggest that the law might make greater allowance for mitigating circumstances in all other types of criminal conduct, for instance cases of assault and sexual offences in psychopathic persons. Although the psychopath is not of unsound mind in terms of certifiability and is not mentally defective in terms of intelligence, yet in certain instances he may show an approximation to both of the above categories. The psychopathic person may be no more able to control his conduct in certain circumstances than the paranoiac to correct his delusional beliefs.

Clinical Groups

The line to be drawn between psychopathic states as a medical problem and delinquency as a penal problem is sometimes very narrow indeed, and almost inevitably a certain amount of confusion in differentiation must exist. There are a large number of delinquents who may be described as having psychopathic personalities, but many people who are psychopathic may never become delinquent. We feel, in the present state of our knowledge, that it is unwise to be too detailed in our analysis, and that it is more profitable to work with broad groupings which are capable of a certain amount of subdivision. We suggest that our clinical material can be divided as follows :

(1) Predominantly aggressive.
(2) Predominantly inadequate or passive.
(3) Predominantly creative.

The above groups in certain instances may merge into one another but yet they are distinct enough to merit separate consideration.

(1) Predominantly Aggressive.

Those who constitute this group exhibit disorder of conduct which may reach the highest degree of violence either directed towards themselves or others. The characteristic feature is that it is not sustained but occurs in the form of episodes of shorter or longer duration, and is followed by a period of relative calmness, often with considerable insight into the occurrence. The attack, whatever the nature of it, seems to clear the air just as an epileptic fit so frequently does. The principal clinical features of this group may be exhibited in the form of suicide, homicide, alcoholism and drug addiction, epilepsy, and sexual perversion. All of the above conditions may be part and parcel of an accompanying psychosis, but in the present instance we are considering them merely as features or symptoms of the underlying psychopathic state. A detailed investigation of the life-history will show that from an early age, and at intervals throughout their development, whether at home, school or place of employment, their conduct has given cause for alarm owing to its wayward, impulsive, violent and undependable nature. As has been explained already, this conduct may be determined on the basis of a multiplicity of factors, some of which may be entirely obvious, but its intensity and fierceness seems often to be related to feelings of hate and frustration which have their roots in the instinctive life of the individual. There is little or no premeditation, the action is almost in the nature of a reflex —a trigger-like reaction giving rise to the " chance, affect and opportunity " criminals described by Aschaffenburg ; there is usually a clouding of consciousness with a varying degree of amnesia. There is a coldness, a hardness, an insensibility to the feelings of others, and an absence of remorse which relates the condition to a primitive level, and exemplifies the catathymic crisis described by Hans Maier and Wertham.

While the above described features are evident, especially, in cases of suicide and homicide, yet it is the same type of impulsive, ill-adapted personality that uses alcohol or drugs, or shows epileptic phenomena or sexual perversion. The drunken bout, the unconsciousness of the epileptic, or the retreat to sex-perversion, are sometimes methods of escape from situations which for the moment have proved intolerable. They are the immature ways in which the personality attempts to evade reality.

(2) Predominantly Inadequate or Passive.

This again is an important and numerous group exhibiting symptoms which may not be so dramatic as those already described, but which may be more persistent and with less chance of readjustment. Roughly we see two main types: (1) the petty delinquent class with thieving, lying, swindling propensities; (2) those who develop types of invalidism closely allied to psychoneurotic and psychotic states. The background in each is essentially the same. On the one hand we have placid, suggestible, rather charming persons who readily accommodate themselves to the domination of others, and always follow the path of least resistance; on the other hand we meet cold, frigid, apathetic persons who, irrespective of the fix in which they may find themselves, are utterly detached and individualistic. Under these circumstances and with such ill-balanced personalities it is not at all to be wondered at that a multiplicity of symptoms should on occasion present themselves as reactions to the various situations in which the persons become involved. For instance, we see the so-called kleptomanias and pyromanias, conditions which are more common in children than in adults, due to their greater state of emotional instability and their embryonic state of social development. It has been shown especially by Healy and Stekel that the anti-social acts are very frequently the outcome of some conflict produced by ill-understood sexual impulses. Stekel uses the term "parapathic impulses", representing a craving for repetition, a striving for infantile impressions and pleasure. The criterion of pathological stealing (kleptomania) is similar to that of pathological lying, namely, that the misconduct is not proportionate to any discernible end in view (Healy). Of "kleptomanias", Godden says that 90 per cent are women, but most are at the menstrual period, and that a lack of conscious intent is shown by the fact that the stolen goods are commonly returned anonymously. But this is not everyone's experience.

Pathological liars are persons who lie habitually and without external need. The condition seems to involve two processes: (1) falsification of the memory of actual occurrences, and (2) entirely new creations of phantasy. The haziness which normally obscures the details of remembered events is filled in circumstantially, at first perhaps with a feeling of uncertainty, but later, when the true details and the false have become inextricably mixed up, with assurance.

The pathological liar never tires of phantasies, which are

usually of the nature of wish-fulfilments (often compensatory for a felt inferiority), and which he recounts to others with apparent belief in their veracity. The condition is the continuance into adult life in an exaggerated form of a tendency not uncommon in children. One lie leads to another, since previous statements have to be substantiated. The usual topics of the phantasies are the possession of wealth and position. The phantasies do not develop, however, into actual delusions—the patient seems privately to realise that they are fabrications.

A patient of ours, for example, recounted how he could indulge in imaginations for hours at a time, " I could go to a dealer's and buy a Rolls-Royce, pay for the car, drive it home, visit my friends and so on ", and he could recount such events to any chance acquaintance. But he had full insight, and said he realised he must stop the practice. This attitude of reform and desire to do better is not by any means always present. Some deny that they ever made such statements, and assume the attitude of injured innocence. Emotionally they are usually light-hearted, and have very little sense of responsibility. The patient mentioned above gave up his post as ship's officer, and was entirely unconcerned that there was no prospect of any other occupation for him. This attitude of complacency is usually accompanied in such patients by confidence in their own powers. They make a good impression socially, being gay and talkative, and full of information, which is superficial and, of course, unreliable. Intellectually they are usually equal to the average, and sometimes above it. Healy states that a few ultimately abandon the habit.

The pathological liar develops readily into the *pathological swindler*. In them the phantasies are translated to some extent into reality. The swindler not only says he is the Earl of X., but acts as if he were so—putting up at expensive hotels, running up bills for motoring and clothes. Such cases are frequently reported in the newspapers. East describes a good instance of this type :

Case 57.—The patient had an intellectual capacity considerably above the average for her station in life. There was no record in her family of insanity, epilepsy, or nervous disease of any kind. She was dismissed from her last school on account of pilfering. She was described as having had a good, but superficial, education, as being a singer and pianist of more than ordinary merit, with attractive conversational powers. At the age of fifteen " Jane " became intimate with her mother's lodger,

and subsequently married him when she was seventeen years old, her baby being born shortly afterwards. Her married life was very unsatisfactory ; she was recklessly extravagant, involved her husband in debt, and they shifted about from place to place. She neglected her home and children, and led a gay life, on account of which her husband eventually left her. Before they actually parted she posed to a lady as an heiress having a guardian. After leaving her husband she obtained a situation in a hotel as a book-keeper, but was discharged on account of her unsuitability. It was then found that she had obtained goods from local tradespeople, representing that she was the hotel proprietor's wife. She was arrested, and sentenced to a short term of imprisonment. After her discharge from prison she went to a rescue home, from which place she wrote to Mrs. X., the lady to whom she posed previously, representing the home as the mansion of her guardian, Mr. Y., who, she stated, was asking her to marry him. She stated that as her fortune was tied up until she was twenty-three years of age she felt at his mercy, but was determined to resist his attentions, and she asked Mrs. X. to take her as a paying guest. This plan did not materialise, and J. was recommended to another rescue home, where she made herself popular with the inmates on account of her social talents and engaging personality. She told them that she was about to be married to a young gentleman, who eventually arrived for the ceremony. As soon as he discovered that she was a married woman with children he left her abruptly. Later she stayed in a local hotel at a seaport town. Fire broke out a few days later in one of the bedrooms, and the place was gutted. The next day it was discovered that the cash-box and a sum of money were missing. J., who had left the town, was traced, pled guilty to the theft and received a short sentence of imprisonment. On her release she resided in a leading hotel, posed as a rich ward in Chancery and at this time had plenty of money. She took a situation, succeeded in introducing herself into the manager's home circle, and while there she met a gentleman, Mr. Z., who within a few days proposed marriage and was accepted. Ultimately she married Mr. Z., but her life soon became very unhappy. She involved him in debt with her reckless extravagance ; at one time he was paying rent simultaneously for three different houses she had taken in his name. She alleged that she was ill-treated by Mr. Z. She was attended by various doctors, and to one she said that she was the illegitimate daughter of a lady, an admiral's wife, who had erred during the absence of her husband at sea, and that she was under guardianship. This doctor considered her to be morally insane, and informed Mr. Z. that she had already had children. On hearing this Mr. Z. separated from her. Soon after this J. wore her hair in public as a long plait reaching below her knees, but no explanation was given for this conduct. Later she obtained a situation, but was discharged for stealing. Next she was companion to a

lady under treatment for inebriety, but J. continued to supply her with intoxicants, and the inebriate lady became so much worse that she had to go to an institution She then set fire to this lady's bedroom, stole a large quantity of her clothing, saturated some of the other beds with water, lighted a large fire on the kitchen floor and so terrorised the other servants that they all left the house together. She was arrested, charged with theft and sentenced to imprisonment. Following this she carried out various impersonations. She called herself a nurse, and was engaged to take care of a lady who was dying of cancer. A night or two afterwards she was discovered bringing men into the house, and instead of attending the patient she was usually absent from her.

The swindling and lying were the prominent aspects of this case, which would usually be classed as one of "moral imbecility", secondary to inherent emotional instability.

The **pseudo-querulants** are usually described as a separate type. It is really a matter of accentuating a trait that is not uncommon in the emotionally unstable. They are very irritable. Hence they readily come into collision with other people, and regard trifling differences as grave injustices. They are also arrogant, and this combination of irritability and arrogance leads them not only into quarrels but lawsuits. They seek satisfaction from higher and higher courts, if permitted to do so. If frustrated in this direction, they try other methods—making charges of perjury against the witnesses, and indulging in other slanders. This quarrelsomeness never involves them in actual delusions. Their feelings would be legitimate in isolated cases; it is the aggregation and universality of their feelings of grievance, and the manner in which the latter lead them into falsifications and inventions, that mark them out as abnormal. They are further distinguished from the litigious paranoid type by the fact that in the pseudo-querulants the tendency exists from youth up.

Eccentrics.—"They are the only representatives of the constitutional aberrations in whom the affectivity is apparently not preponderatingly disturbed" (Bleuler).

The group is one which does not usually come within the physician's purview. When it does, it is usually difficult to distinguish the symptoms from schizophrenic manifestations.

Numerous other types of constitutional psychopathic inferiority could be described. Thus Schneider mentions, among others, the "insecure", characterised by feelings of insufficiency; the "self-seeking", including the "hysterical character", so called,

which he rightly regards as a misnomer, holding as we do that the " hysterical character " and " hysteria " are not at all the same condition ; the " explosive ", the " weak-minded " and the " asthenic ", the latter including those whom we have elsewhere alluded to as the scanty group of " congenital neurasthenics ".

There is considerable evidence to show that the inadequate, immature, dispositional background of the psychopath may exercise a considerable influence, prognostically, on cases which symptomatically might be classified as psychoneurotic or psychotic. We should pay more attention to this influence, and should not think too exclusively of psychoneurosis, or of what we term schizoid, cycloid and paranoid. The outlook, heretofore, has been too circumscribed.

(3) Predominantly Creative.

At first sight it may seem strange to associate creativeness developing to a condition of genius with the aggressive and inadequate groups already described. Popularly, genius and " madness " have always been closely associated, but that is an over-statement, and just as the aggressive and inadequate groups do not include madmen (as that term is used generally), neither does the creative group. We find, however, intense individualistic people who carve out a way for themselves irrespective of the obstacles which bestrew their path. Genius in its truest and greatest sense is a multiple quality, it has many facets, and associated with it there must be sufficient energy to accomplish whatever has been conceived. Such persons are not many in number. Kretschmer has postulated the interesting idea, while recognising that " gifted parents have gifted offspring ", that individual geniuses are more frequently due to cross-breeding, and that this may produce a variety of contrasts and conflicts which while leading to genius is also productive of psychopathological conflicts. It is understandable that the sensitive nervous system of the genius is one which might quite well show vagaries in many directions. It is something which crops up in the process of variation. When we study the lives of those who have been famous in many diverse fields we find with singular regularity dispositional traits which are in fairly close conformity to the psychosexual immaturity, and emotional instability, and individuality of others termed psychopathic. Joan of Arc, Napoleon, Lawrence of Arabia, may all be taken as examples of persons with great qualities of leadership and of vision, but yet associated with a certain unevenness in their

make-up which differentiated them markedly from their more ordinary companions. There is an uncanniness and an inspiration about them which is far beyond what, ordinarily, may be expected. Their objective is gained by a feeling that their way is right rather than by thoughtful, methodical planning.

It is believed that the clinical groups delineated are of great psychiatric and social interest, and that while they may seem heterogeneous, yet they have a common background in their constitution and their psychobiological development.

Prognosis.—It will be obvious at once that we cannot discuss the prognosis of such cases in a categorical way. So much depends upon the circumstances producing the actual situation or reaction and how far a modification can be effected. Where the hereditary loading is severe, where the individual has developed a cynical fatalism which makes his persistently rebellious and individualistic conduct something which he glories in rather than despises, we may admit at once that the prognosis is serious, and that little or nothing can be done to modify its malignant progress. On the other hand, a much larger number of those cases than might be thought, are eager to obtain help and co-operate in treatment. In such cases we may obtain results which are satisfactory, even although a long time may be required to effect them. For instance, the Gluecks have been impressed by the importance of the ageing factor even up to the age of 36 years. Many young people commence badly, it would seem as if nothing could save them, but then a change may occur in the process of development, a sense of responsibility begins to arise, and readjustment sets in.

Treatment.—It is evident that if we are going to deal successfully with the cases depicted, our treatment must be developed on a preventive basis, or at the earliest possible moment. Once a person has reached adult years he has become more or less set or fixed in his mode of reaction, and it is only very occasionally that he can be benefited. Considered, however, from the angle of medical sociology, it would seem that we might be able to effect more than we have done in the past. It should be remembered that these patients, even although they may come from a bad stock, are well endowed intellectually and are not so far involved as to be dealt with under the insanity or mental deficiency laws. Furthermore, we know that the majority of them start in childhood, at a time when the various circumstantial factors should be modifiable, provided the right methods are utilised. It seems essential that the medical pro-

fession should receive training not only in relation to the physical needs of the child but also in relation to the mental hygiene of childhood. Parents also should realise that the tantrums, the perversities, the hates and the rebelliousness of the child are due in many cases to the unfortunate circumstances which surround them, and that it is imperative to obtain skilled help at the very beginning. We do not wish parents to become too psychologically-minded, but we wish them to appreciate that children cannot all be brought up alike, that there has to be sympathy and understanding for the more sensitive, and that the success of the child's future may depend on it. We believe that if the profession, and through them the public, could learn to think in terms of a psychobiology, a body-mind relationship, these disorders of conduct, however determined, would be more successfully dealt with.

In addition, however, we strongly advocate the development of a colony system, something between the prison and the mental hospital, where persons showing such tendencies could be maintained and treated while learning to develop a sense of responsibility.

CHAPTER XIII

SPECIAL METHODS OF PHYSICAL TREATMENT

THE special techniques which have been introduced recently are a considerable advance. In a large group of cases of nervous and mental disorder they have already produced results in the cure and easier management of so-called " functional " psychoses which only a short time ago seemed unattainable. Such treatment, although still empirical, nevertheless constitutes a new approach along pathophysiological lines, which may mean much in the further understanding of clinical problems that have, so far, defied pathological interpretation. The results obtained are in many cases remarkable. The various methods which have been utilised may be listed as follows :

1. Insulin therapy.
2. Cardiazol therapy.
3. Electric convulsion therapy.
4. Leucotomy.
5. Continuous narcosis.
6. Narco-analysis.

INSULIN

Sakel, while working in Pötzl's Clinic, Vienna, was the first to suggest that insulin might be utilised so as to produce a hypoglycæmia that might prove valuable in the treatment of schizophrenia. Previously Sakel had used insulin in the treatment of drug addicts and had been impressed by the manner in which insulin tended to control the restlessness and irritation which constitutes an important factor in such cases. It was not long before insulin came to be used extensively in the treatment of schizophrenia, and results were received from many quarters

which raised a hope that at last a form of treatment was available which could do so much to prevent the slow deterioration which was so common a sequel in schizophrenia.

This method, the use of which has been practically confined to schizophrenic psychoses, depends on the production of hypoglycæmia of considerable intensity, usually to the depth of coma, on many successive occasions. It is a method that in insufficiently skilled hands can entail considerable risk to life, but in practised hands the mortality is about one per cent. It is time-consuming and requires as much vigilance as the administration of an anæsthetic.

The patients selected for the purpose should be free from serious organic disease. Also, patients of very asthenic physique with cold extremities and low blood-pressure are poor subjects for this treatment and require special care.

Sakel, the originator, described four phases :

Phase I covers the time during which insulin is administered to an extent sufficient only to produce symptoms and signs of increasing hypoglycæmia.

Phase II is considered to date from the first coma.

Phase III denotes the seventh day out of each week when the patients are allowed a rest from the treatment.

Phase IV indicates the rapid reduction of insulin dosage from the coma dose down to nil in the course of a few days.

It is necessary to have a specially trained nursing staff and experienced doctors, who should preferably have obtained first-hand knowledge of the treatment in a clinic where it is already a routine matter. One doctor can attend six to eight patients, but it is wise to have another within call, lest emergency arise in two patients simultaneously.

An emergency tray should always be at hand with the following apparatus :

1. Injection syringe, at least 10 c.c.
2. Injection syringe, at least 2 c.c.
3. 6 intravenous needles.
4. 3 needles for intramuscular injection.
5. 1 box of ampoules of 33 per cent glucose (Osmon).
6. 5 ampoules of adrenalin 1/1000.
7. Cardiazol, Lobeline and Caffeine in ampoules.
8. Files for opening ampoules.
9. Lint and ether for disinfection.
10. Band or tube to arrest venous circulation.

11. 2 mugs filled with strongly sugared tea, milk or water (150 to 200 grammes sugar).
12. Funnel and tube.
13. Glycerine or liquid paraffin.
14. 1 glass syringe, 150 c.c.
15. 1 dessert spoon.
16. Strips of litmus paper.
17. Sphygmomanometer.

Phase I.—The dosage begins as a rule with 20 units of insulin, but less in debilitated patients. It is given intramuscularly each morning at 7 A.M. The dosage is increased by 5 to 10 units daily till a dose is reached which produces coma.

Signs and symptoms of this phase consist of flushing of the face (followed by pallor), hunger, sweating and somnolence. There is often a mild euphoria which may pass into considerable or even violent excitement. It is necessary to protect the patient from self-injury by padding the bed or, as on the Continent, with netting over the bed. Clonic twitchings may appear and sometimes actual epileptiform attacks. The latter are now considered therapeutically useful in this stage.

Phase II dates from the beginning of the first coma, *i.e.* unconsciousness to a degree in which the patient does not respond to touch or to loud sounds such as shouting.

In this phase there is profuse salivation. Hypertonus with flexion of the limbs is followed by hypotonus. Plantar reflexes become extensor. All other reflexes, including the corneal reflex, are absent. Ultimately hypertonus in extension may appear, the pupils being dilated and often fixed. This stage of hypertonus in extension is really a decerebrate rigidity and makes interruption imperative.

The temperature falls during the coma, probably from paralysis of the heat-regulating centre, and hot-water bottles are necessary.

The dosage should be so regulated that coma does not appear before the third hour after the injection of insulin. The coma should be gradually lengthened by increasing the dose of insulin on successive days. Deep coma, that is with loss of the corneal reflex and plantar reflexes, should never be allowed to last for more than an hour and a half. Coma is terminated ordinarily by passing a nasal tube and feeding with sugared tea : 200 g. to half a litre, or 7 oz. in 600 c.c. It is very important to know how and when to interrupt the hypoglycæmia. Ordinarily this

is done by a nasal tube as described, the tea being given following the introduction of 2 minims of 1/1000 atropine solution to prevent vomiting.

In patients who have been refusing food prior to the treatment the sugar is given along with a good mixed feed as in an ordinary tube feed. As a preliminary, however, when the tube is first passed, to make sure that it is really in the stomach the gastric juice is aspirated and tested with litmus. When the tube is withdrawn after the feed it must be withdrawn rapidly, the upper end being pinched tightly between the finger and thumb to prevent aspiration.

After interruption the clothing should be changed on account of the perspiration which has occurred, and the patient must be kept warm. After-shock, *i.e.* the reappearance of hypoglycæmic symptoms, is prevented by the administration of good meals during the rest of the day and by a meal of sugar or chocolate at bedtime.

If interruption has not been previously carried out, then it is invariably performed at the end of the fifth hour from the injection of insulin. Deep coma (*i.e.* all defensive reflexes abolished) should not last longer than one and a half hours.

The other indications for interruption are :

1. A pulse rate of above 120 or a very irregular pulse.
2. Persistent hypertonus.
3. Epileptiform fits in the pre-coma stage indicate interruption directly the fit is over.

If the nasal feed is not effective in interrupting or is followed by delayed awakening (no sign of awakening in half an hour after the feed) or by actual deepening of coma, interruption must be done by the injection of intravenous glucose; 60 to 120 c.c. of 33 per cent glucose is given by means of a 20 c.c. syringe, which can be refilled while the needle is left in position.

Immediate interruption by the intravenous method should always be carried out in the following emergencies :

(i) Laryngeal spasm.
(ii) Premature appearance of coma from too big a dose or in an insulin hyper-sensitive patient.
(iii) Signs of cardiovascular weakness or actual collapse, including pallor or cyanosis, or weak pulse.
(iv) When epileptiform fits occur during coma even after the administration of sugar.
(v) Vomiting.
(vi) Wild excitement.

After intravenous interruption a nasal tube should be passed and a feed introduced into the stomach to avoid after-shock. In cardiovascular collapse subcutaneous adrenaline should be given. Hadorn recommends also caffeine and coramine with later a small amount of morphia, and he prefers sympathol to adrenaline.

If intravenous injection of glucose is impossible owing to collapse of the veins, intracardiac injection of 2-4 c.c. of 33 per cent glucose is recommended, to which adrenaline may be added if it has not already been tried. For the laryngeal spasm also subcutaneous adrenaline is advised.

If intravenous interruption fails, betaxan, a preparation of Vitamin B_1, has been recommended (1 c.c. intravenously), followed if necessary by lumbar puncture and bleeding. Inhalation of an atmosphere containing 5 per cent CO_2 and 95 per cent oxygen is useful in this case, as well as in cyanosis and in laryngeal spasm.

For œdema of the lungs, due to cardiac failure, the very slow intravenous injection of 20 c.c. of glucose with 0·00025 g. of strophanthin is recommended. As an additional remedy in reviving the patient Dussik recommends chromosmon and advises against the use of CO_2.

Complications.—Nephritis has been observed following severe epileptiform seizures (rise in blood-pressure, hæmaturia and disturbances in concentrative capacity), but it soon disappeared (Dussik). Primary oliguria without kidney damage has also been observed; it was very much helped by pituitrin. One of the most frequent and dangerous complications is pulmonary œdema, which has been successfully treated by strophanthin and oxygen.

Clinical Course during Treatment.—In the first stage before coma is reached, insulin has a sedative effect in excited patients. It can also have the effect of abolishing for the time being the psychotic symptoms such as delusions, but these return later in the day, when the general effect of insulin has passed off.

During awakening from coma after tube feeding, Sakel declares that a return of neural function can be observed in a manner which suggests a recapitulation of phylogenetic development. Reflexes are the first to appear—*e.g.* Babinski's reflex, which had been abolished and which in turn is succeeded by the normal reflex. Swallowing and corneal reflexes return: then crude sensation and motor response. Mental functions manifest themselves slowly—the patient reacts to perceptions

before he understands their meaning. His condition, therefore, resembles that of a person with cortical blindness and cortical deafness. He goes through a stage resembling the recovery from an aphasic disturbance, but very rapidly. The patient's memory for the aphasic and paraphasic phenomena is very slight. The recovery is in the reverse order from the development of these phenomena at the onset of hypoglycæmia, and illustrates well the Jacksonian dictum that the most recent, least organised and least automatic functions are the most vulnerable.

In some exceptional but striking cases, the return to a childish emotional level that occurs for a few moments is most impressive. If the patient is asked how old he is, he will, for example, say that he is four years old. His expression and behaviour will correspond to this; he will imagine himself in his childhood surroundings, will mistake the doctor for the family doctor of his childhood, will talk about going to school, and will use childish expressions, such as that he has "tummy ache".

In uncomplicated cases, the improvement begins with moments of normality during the period of hypoglycæmia. The normal intervals lengthen, until they go further and further into the period of non-hypoglycæmia as well. Some patients show a curious paradoxical reaction, in that after the treatment has succeeded in producing normality during the hypoglycæmic and non-hypoglycæmic periods, the administration of insulin produces a return of symptoms during part of the hypoglycæmic period ("reactivation of the psychosis" or "reversal reaction"). In such an event, treatment is continued till the patient no longer shows the reactivation symptoms. It is always a mistake, according to Sakel, to interrupt the hypoglycæmia during this reactivation, since this procedure tends to fix the reactivated process as the permanent condition.

Some cases show an exacerbation of psychotic symptoms during the early periods of hypoglycæmia ("activation of the psychosis"), but in such cases it is claimed that the symptoms subside on giving larger doses.

"Hunger excitement" is described as occurring usually before the correct shock dose has been found, but also at a later stage when the dose of insulin has been diminished. A pronounced feeling of hunger persists and may excite the patient so much that the treatment is spoiled. Other observers declare that this type of excitement must be extremely rare.

The excitement has to be distinguished from the "activated

psychotic excitement" seen just before the onset of coma, in which the feeling of hunger is mild or lacking and the psychotic phenomena are the prominent features.

Sakel recommends either ending the hypoglycæmia by giving food, or waiting to see if the hunger excitement will prove transient and coma ultimately occur. If the hypoglycæmia is ended after what is really a sufficient dose of insulin, then the next dose may be placed too high.

Psychological Management.—It was early observed that patients undergoing insulin treatment were particularly sensitive to psychological influences especially in the lucid period following a convulsion. Paranoid attitudes, for example, are easily produced. Sakel, therefore, makes it a rule to avoid any psychological investigation until improvement has been stabilised, and he recommends against premature transfer to another environment, *e.g.* to the patient's own home.

Adaptation of the Shock Dose and of the Type of Shock to the Individual Case.—The dosage of insulin can be so regulated, in Sakel's opinion, as to produce disintegration of cerebral function to various levels. This observation has been used to favour the appearance and persistence of favourable mental reactions and the elimination of psychotic ones. For example, in cases where *paranoid* features predominate coma is allowed to develop to the full extent consonant with safety, but in a case of *stupor* the hypoglycæmia is interrupted when the patient has been made active—this "activation" may range from slight relaxation to excitement and actual awakening.

If "activation" is not produced in this way, then it may be necessary to proceed to the induction of convulsions by the addition of cardiazol. As soon as the stupor has been changed into an active psychotic condition by one or the other of these means, the treatment should be proceeded with as in paranoid cases—*i.e.* by means of deep coma.

For **katatonic excitement** insulin is given two or three times a day, in order to get the maximum sedative effect, the doses being increased daily by 5 to 10 units. In the early stages, as soon as sedation has been produced, the patient is fed, or where larger doses have been administered, is given 100 to 160 g. sugar. The dose is then gradually increased to the individual's shock dose, but the hypoglycæmia is terminated just as the patient is about to go into coma. Sakel recommends the avoidance of coma itself.

Since he believes it to be particularly desirable to avoid

forced feeding in these cases, he suggests that in many cases it may be best to wait till somnolence has reached the point where nasal feeding can be done without exciting the patient too much.

Insulin "shock" therapy is more difficult in cases of katatonic excitement than in the paranoid and stuporose types; but its sedative effect and the beneficial effect on the patient's nutrition are of great value in such cases.

It is occasionally remarked that after successful insulin therapy the patient is more equable than he has been for a considerable time preceding the onset of his illness—the relatives observe this and sometimes remark that the patient is better than they have ever known him. This result, however, is not peculiar to recoveries following treatment of this kind.

Sensitisation to insulin occurs in some cases, smaller doses being required to produce coma as treatment proceeds.

As regards recent modifications in technique, the most interesting appears to be that suggested for prolonging the insulin coma by administering infusions of 5 per cent glucose in saline intravenously at controlled rates. The blood glucose is maintained at a moderately high level, 35 milligrams per 100 mls. In order to determine the continued reversibility of the coma, patients are roused two or three times during each treatment by accelerating the infusion for a short time. In this manner the authors have prolonged hypoglycæmia as long as 20 hours, and comas as long as 18 hours, without mishap. They suggest that a single prolonged coma of this controlled type may be equivalent to long periods of ordinary treatment (J. Wortis and I. M. Korr, *Proc. Soc. Bio. and Med.*, 1942, 49, 128).

Certain workers prefer to use a combination of insulin therapy and convulsive therapy. In our opinion such a course has little to recommend it. A group of patients who had received both cardiazol and insulin and who were mainly schizophrenic cases did not show as satisfactory results as those treated with only one type of therapy. We have come to doubt whether it is really hypoglycæmia which is the important factor in the treatment of schizophrenics. The factor of coma is a common basis for all these forms of treatment, and it is probably this factor acting in some way on the nervous pathways which is so important. The change created does not merely affect the mental functions but has a marked physiological effect as well, *e.g.* return of menstruation and an increase of bodily vigour and vitality.

Results.—The following items may be already regarded as established.

Insulin is capable of modifying the clinical picture in schizophrenic syndromes to any extent, even up to the complete abolition of all schizophrenic symptoms.

It does so in a progressive way, and in a manner which suggests a quantitative relationship between dosage and clinical effect.

The effectiveness of insulin is closely related to the duration of the illness; and the shorter the antecedent period of illness, the more likely is insulin to be effective.

Insulin is capable of shortening the course of schizophrenic illness.

What is not yet certain is whether it does more than this, *i.e.* whether it cures or improves permanently cases which would otherwise not have been cured or improved. It is conceivable that in those cases in which it is effective, it is effective only in shortening an illness which would in the long run have been recovered from, wholly or in part. The fact that it is more effective the more recent the illness may be construed as meaning either this, or that after, say, the first year a considerable proportion of those cases which would have been helped by insulin have already recovered, so that the percentage of cases remaining improvable by insulin is less.

The problem of the effectiveness of insulin or of any form of therapy in schizophrenia is very much complicated by certain difficulties of assessment, some of which are well known, while others have been blatantly revealed under the searchlight of the results obtained with insulin.

This is partly the outcome of the difficulty in diagnosis, especially in the early days of illness of this type. It has been imagined, especially since Kraepelin's day, that there were two broadly different types of mental illness occurring in adolescent and early adult life, categorised as manic-depressive and schizophrenic. But that the differentiation has often been difficult from its beginning was shown by the fluctuation in the relative frequency of these diagnoses from year to year among cases admitted to the Heidelberg clinic during Kraepelin's tenure of the directorship there. That the obscurity and difficulty was even greater when the diagnostic assignations were made by other people is emphasised by the disparity in the relative incidence of these diagnoses at different centres. For example, whereas manic-depressive conditions are classified as constituting only 1·5 per cent of the admissions to the Burgholzli Asylum in Zurich, they usually comprise 15 per cent of the admissions to British

and American mental hospitals. The inference must arise that many illnesses which would have been classified as manic-depressive elsewhere have been included among the recoveries in the Swiss figures. This does not mean that insulin has none of the therapeutic effect claimed for it; for the recovery rate in the Swiss figures for the same general class of illness is doubled, in comparison with the pre-insulin figures (60 to 70 per cent complete and social recoveries combined, compared with about 30 per cent—Müller, *Amer. Jour. Psychiat.*, 1938, iv, 5). It only raises the question how far is the recovery rate of the ordinarily less recoverable type of illness (*i.e.* schizophrenia) really affected ?

This kind of criticism also applies to the figures originally produced by Sakel. These were derived from patients admitted to the Allgemeines Krankenhaus in Vienna, and belonged, therefore, to an earlier and more recoverable group than is indicated by admission to a mental hospital. Moreover, treatment was instituted as soon as possible after admission, often within a few days and therefore earlier than a diagnostic investigation could settle the matter one way or another.

From American mental hospitals, before the introduction of "shock" therapy, those schizophrenics discharged as "recovered" were estimated as 2 per cent in 1929 and 4·9 per cent in 1931, while those discharged "improved" were 28·9 and 34·9 per cent respectively. Evidently the criteria varied from one year to another. These figures have to be compared with Ross and Malzberg's figures for insulin: 11 per cent recovered within six months of treatment (of whom nearly 50 per cent relapsed) and 26·5 were improved (of whom a number went on to complete recovery).

There is not so much to choose between these figures, before and after insulin, as may appear on first inspection. Cheney and Drewry had followed up 500 cases two to twelve years after discharge from Bloomingdale Hospital and found that 47 per cent were either well or sufficiently improved to live outside mental hospitals, and that 26 per cent or over half of these were either completely recovered or showing much improvement. Furthermore, of those admitted within six months of the onset of the symptoms (as far as could be discovered) 60 per cent had either recovered or shown much improvement. The last figure is to be compared probably with the 70 or 80 per cent of the Swiss investigators for patients treated with insulin in the first six months.

The only sound type of experiment is one which takes two

closely similar series of cases as regards symptoms, type of onset and so on, and treats one series with insulin and the other without. A recent experiment of this sort strengthens the suspicion that treatment with insulin, even if it is undertaken early, does not increase the ultimate rate of recovery, whether in acute recent cases or others (Jacques S. Gottlieb and Paul E. Houston, *Archives of Neurology and Psychiatry*, 1943, 49, 266).

The efficacy of insulin shock therapy is still, therefore, somewhat difficult to estimate. One effect of its introduction has been to emphasise the frequency of recovery or social recovery without insulin. It used to be argued that insulin gave better results with the paranoid types of schizophrenia than with any other cases. Such a finding is contrary to all other clinical experience and raises a doubt whether such reports do not really concern themselves with episodic paranoid states bearing a close relationship to the manic-depressive group.

We have seen results with electric convulsive therapy in early schizophrenic states which are extremely satisfactory and we doubt whether it is of any particular importance to employ insulin should electric convulsive therapy not be successful. On the other hand, many prefer to try insulin first and use electric convulsive therapy in the event of failure.

Protracted Shock.—It had been observed that some cases were accidentally benefited by protracted shock (*i.e.* persistence of coma in spite of feeding with sugar, and in the presence of a hypoglycæmia). Kraulis decided to apply this to very chronic cases. Protracted shock enables patients to remain in coma for twelve hours instead of one to one and a half hours as in the original method. In order to reduce the danger (he had two deaths from unintentionally prolonged comas while treating early schizophrenics by Sakel's original method) at the third hypoglycæmic hour, just at the beginning of the coma, small doses of sugar are given by nasal tube. Such small doses have only a slight effect on the depth of coma, but hinder the occurrence of lasting damage to the brain. Protracted shock means that the patient remains in coma for twelve hours. Shorter shocks have proved therapeutically of little value in such chronic cases.

Of 32 cases which were treated by protracted shock, 10 were of under three years' and 22 of over three years' duration. Of the first 10, all gave good remissions, of which 8 were complete. The duration of treatment was on the average half that of the cases treated by the usual method. Since Kraulis became aware of

the danger of treatment by protracted shock he does not now treat recent cases by this method.

Of the 22 old cases, 5 recovered completely and are at work, 6 were discharged improved, and 11 remained unchanged.

The number of recoveries is not large, but the otherwise completely unfavourable prognosis made it, in Kraulis' opinion, seem justifiable to continue this method.

Physiological Changes in Insulin Shock.—Fall in blood sugar is, of course, the most obvious sequel to the administration of insulin. The greatest fall may occur in the first half-hour after insulin is injected, but usually occurs in the third half-hour, after which it begins to rise again. The clinical symptoms do not run parallel with the blood sugar. Their appearance is related more to the time that has elapsed and is fairly constant in the same patient. Georgi considers that this means that sugar is withdrawn from the blood into the brain cells, and that when the gradient between the intra- and extra-cellular concentration is highest, epileptiform phenomena are likeliest to occur. Then follows a compensatory withdrawal of sugar from cells into the blood, and with this the usual hypoglycæmic symptoms.

Circulatory system : Flattening of the T-wave occurs, not always rectified by intravenous administration of glucose. There is a rise in pulse-rate, and an increase in blood-pressure. The minute-volume rises proportionately to the pulse-rate but the volume of the circulating blood is diminished, as the result of the extreme dehydration (except in "dry shock"). The circulation-rate is correspondingly shortened and the oxygenation of the venous blood is increased.

The pH is shifted to the alkaline side.

The potassium content of the serum falls and the chloride content is at least maintained, in spite of a great loss of chloride in sweat and gastric juices. Insulin is thought to produce the opposite picture in the ionic distribution in the serum to that of an anaphylactic shock, and apparently hinders the passage of K-ions through the cell membranes to the plasma. Analysis of the brain in one case dead after insulin shock, showed an unusually high K/Na ratio (D. Beiglblock, Th. Dussik, *Schweiz. Arch. f. Neur. u. Psychiat.*, suppl. to vol. 39, 1937).

Histopathology.—Hypertrophy of the islets of Langerhans has been observed in rabbits.

In dogs, dying in insulin coma after a few "shocks" close together there has been observed acute diffuse œdematous alteration in the nerve cells of the brain as a whole, which is probably

reversible, and zones with a diminished number of nerve cells (*i.e.* zones of destruction). " Regressive " changes were described in the smallest capillaries. The sharp demarcation of the zones of actual destruction suggests a vascular basis (Accornero, *Schweiz. Arch. f. Neur. u. Psychiat.*, 1937, 39).

Moersch and Kernohan (*Arch. Neur. and Psych.*, 1938, 39, 242) observed petechial hæmorrhages in the pons of one case dying in insulin coma and degeneration in some of the nerve cells in another. Some astrocytes showed early degeneration. Kohler observed swelling and hyperæmia of the brain of both body and nucleus of nerve cells with some vacuolation.

Proliferation of the fibrous glia has been observed chiefly in the white matter. Typical ischæmic necrosis was only slight (Mackeith and A. Meyer, *J. Ment. Sci.*, 1939, 96). The histological evidence is considered by these authors to point to an anoxic rather than an ischæmic process.

Cardiazol Method

The treatment of schizophrenic psychoses by induced convulsions was introduced by Dr. von Meduna of Budapest in 1934, on the basis of the dubious observation that epilepsy was rare in schizophrenics, and of the deduction that there might, therefore, exist a biological antagonism between schizophrenia and epilepsy. However that may be, he found that by producing fits in schizophrenia he could influence the recovery rate. He claimed to produce 91 per cent of " remissions " including recoveries, social recoveries and " improvements " in cases of less than one year's duration.

The method consists essentially in the induction of epileptiform convulsions at varying intervals until a series of not more than twenty have occurred. The convulsant originally most used has been cardiazol or metrazol (pentamethylenetetrazol), a 10 per cent aqueous solution made up freshly every two or three days, sterilised by autoclaving at 110° for twenty minutes and kept in air-tight rubber-capped bottles. The commencing dose is 0·5 g. (5 c.c. of the 10 per cent solution) for men and 0·4 g. for women, injected intravenously. The injection must be rapid in order to produce the convulsive effect and so a wide-bore needle is used (9/10 mm. bore). If this dose fails to produce an effect, then an additional 0·1 g. is given at the next injection. Few cases need more than 0·7 g. to produce the first fit. The dose is kept at the same level so long as it produces a fit, but an increase

may be necessary during the course of the treatment. In view of this possibility of a need for an increase the needle is left *in situ* so that a further dose may be injected if the first fails to act, the subsequent dose being of similar dimensions to the first. The maximum dose recommended is 1·6 g.; not, it is claimed, because this involves any danger but because patients who sustain doses as high as this without being convulsed are not likely to improve in any case.

As a preliminary to treatment the patient is kept in bed for some days, and an attempt made to improve his condition. A number of the patients become very frightened of the treatment on account of the state of anxiety which may occur if the dose fails to produce a fit. But this disadvantage and also the difficulty produced by the memory of similar sensations experienced in the first few seconds between the end of the injection and loss of consciousness, can be overcome to some extent by the aid of pre-medication with morphia $\frac{1}{4}$ to $\frac{3}{8}$ gr., hyoscine hydrobromide $\frac{1}{150}$-$\frac{3}{200}$ and atropine $\frac{1}{200}$ gr.; the precise dose varying with the individual patient. Premedication has the disadvantage of increasing the threshold dose of cardiazol.

The fit which follows the injection takes place after about ten seconds and shows a typical tonic-clonic succession, followed by unconsciousness lasting from five to ten minutes. Occasionally there is subsequent confusion and restlessness, but most patients fall into a normal sleep. Prolonged excitement which occasionally occurs may be treated with paraldehyde. Tongue-biting is avoided by inserting a gag as soon as the mouth opens, which it does in the preliminary stages just before the actual convulsion occurs. Pressure must be exerted on the chin and the vertex so as to avoid the mouth opening too wide with consequent dislocation of the jaw.

It is clear that a careful physical examination must always precede the treatment. Cardiovascular disease is not an absolute contra-indication; neither is middle age in the absence of organic disease: each case must be decided on its merits.

The bed must always be provided with a mackintosh sheet, and the tourniquet used should be a soft rubber tube which is released at the moment of injection.

The chief difficulty in technique is concerned with the veins, which are apt to become thrombosed as the result, presumably, of an irritant action of the cardiazol. Buffering the solution to *p*H8 with an 0·1 per cent disodium hydrogen phosphate has been recommended. All traces of the drug should be removed

from the needle by washing in normal saline before insertion, and after injection extravasation may be diminished by a swab maintained throughout the convulsion if possible. The technical difficulty appears to have been surmounted by the introduction of tetrazol, which is cyclohexyethyl-triazol 156 or "Azoman". Tetrazol is said not to irritate the vein. Its dosage is much smaller than cardiazol, 0·015 to 0·03 g.; and it can be given effectively by any parenteral route, *e.g.* intramuscularly, and it can be given more slowly than cardiazol. The dose ranges from 0·7 to 2·5 c.c. given intravenously in 5 per cent solution. Intramuscularly about twice this dose is required. It is best to begin on rather less. Vomiting can be prevented by atropine $\frac{1}{100}$ gr. given one hour before the injection.

Complications of Treatment (Cardiazol).—There has to be added to the complications which may be produced by cardiazol, an effect on memory: not only an amnesia for events near the time of the convulsion, but a more lasting impairment of a minor but nevertheless demonstrable kind.

Of 16 cases treated with convulsants, a test confirmed the impression of organic intellectual impairment in 8 of the patients, though 2 of these did not complain of any disability. It is commented that, although the implications of this work are rather grave, it is doubtful whether they outbalance the value of the treatment in a selected case. The risk of memory impairment suggests, however, that convulsants should not be employed, except as an extreme measure, in patients whose livelihood depends on their memory and purely intellectual capabilities (Tooth and Blackburn, *Lancet*, 1939). This risk can probably be safeguarded, however, by giving no more than 8 or 10 convulsions.

It was observed that vertebral fractures occurred fairly frequently during the convulsion—in as many as 40 per cent of the patients (Polatin *et al.*, *J.A.M.A.*, 1939, i, 1684) when cardiazol was used. They are less frequent with the electrical method. The injury varies from a slight crush in the extreme tip of the body of the vertebra to a telescoping of the vertebral body. To prevent this, two different methods have been principally used—(a) curare, by intravenous injection (Bennett, *J.A.M.A.*, 1940, 114, 322) to produce general muscular piæsis, and (b) spinal anæsthesia (Hanson and Bennett, *J.A.M.A.*, 1939, i, 2244), a spinal injection of 100 mg. of procaine hydrochloride diluted in 4 c.c. of cerebrospinal fluid being given between the first and second lumbar vertebra from a half to one hour before the cardiazol is given. This level is chosen to ensure that the thoracic muscles will still be allowed to go into

spasm and the anoxic effect therefore is not interfered with.

But the striking thing is the absence of reports of clinical disability following cardiazol convulsions. The recorded evidence as far as vertebral fractures were concerned appears to be almost entirely radiological. Fractures in the long bones have been recorded, but are usually associated with the exercise of restraint, The avoidance of restraint during a convulsion is recommended.

Physiological Changes following Injection of Cardiazol.—Blood sugar either rises or falls in the pre-paroxysmal stage, followed by a change in the reverse direction in the inter-paroxysmal stage. Potassium level falls in the pre-paroxysmal stage and inter-paroxysmal stage, while the calcium concentration rises. Georgi concludes that there is a close similarity between the physiological changes induced by insulin and those produced by cardiazol, the former being a " slow motion " picture of the latter ; and that these changes point to an increased permeability of the cell membranes and an increased exchange of ions between the cell and its surroundings. Braun has made an observation that runs with this, that the C.S.F. barrier to bromide ions is lowered following cardiazol convulsions (it is raised in old-standing cases of schizophrenia).

Electric Convulsion Therapy

This form of treatment, which was introduced in 1937 by Cerletti and Bini, has certain advantages compared with either insulin or cardiazol. It is easy to apply, and unconsciousness occurs at once without the preliminary apprehension arising between the injection of cardiazol and the onset of unconsciousness which patients found so intolerable. Furthermore, bodily accidents are relatively infrequent. Suitable patients can be treated successfully in general hospitals, nursing homes or even in out-patient departments, although we are not greatly in favour of the latter procedure. The best results are obtained in depressions, including involutional melancholia, and even patients over the age of 70 years can be successfully treated provided there is no impairment or deterioration of their intellectual faculties. The results obtained in schizophrenia, psychoneurosis, psychopathic and paranoid states are less satisfactory. In all forms of nervous and mental disorder we prefer to use conservative measures to start with ; we consider it advisable to delay treatment by any of the so-called " shock " methods provided there is a reasonable chance of effecting recovery without them, but on the other hand

it is unjustifiable to submit the patient to the prolonged misery of depression with its accompanying risk of suicide, or to a dangerous degree of exhaustion, without resort to electric convulsion therapy. Even although a complete recovery may not be effected, yet the patient's misery is often greatly alleviated, and the duration of the illness may be shortened. This is an inestimable boon to the patient, to the relatives and to the doctors and nurses who have the responsibility of safeguarding and treating the patients through such a serious and distressing form of illness. The *modus operandi* is still conjectural. It has been suggested that it is fundamentally a matter of stimulation of the sympathetic (Gellhorn). In any case the production of coma is the basis of all those forms of treatment, as its occurrence is responsible in some way for stimulating the nervous pathways. The change effected is not confined solely to the mental functions, because the bodily or physiological functions are often materially stimulated, *e.g.* return of menstruation, growth of hair, and increase of bodily vigour and vitality.

A physical examination should always precede treatment, so as to avoid the risk of lighting up a tubercular or other toxic focus, or of aggravating a cardiac lesion. Otherwise there is no special bar to treatment. Even when there is evidence of myocardial weakness or of general arteriosclerosis, the strain on the cardiovascular system of prolonged depression and agitation must be weighed against the strain caused by a few convulsive seizures ; hypertension is not necessarily a contra-indication. In certain instances an X-ray of the chest and an electrocardiagram may be called for in deciding as to the risk of treatment. The technique of the method, as described by Tod and Daly in a series of 260 cases, is as follows.

Two types of apparatus were used, a Solus-Bini instrument and an Ediswan portable set ; both were extremely reliable, and the latter could be easily transported wherever it was required.

The Solus-Bini instrument has a voltage range of 50–200 volts by 10 or 5 volt stages and a time switch giving exposures of 0·1–0·5 sec. by 0·1 sec. steps. It incorporates a ballistic galvanometer which records the actual dose administered in milliampere seconds. The Ediswan apparatus has a motor-driven time switch giving exposures of 0·0–1·0 sec. varying smoothly over a dial calibrated in 1/20 sec. The voltage control similarly varies smoothly between 50 and 150 volts. No ballistic galvanometer is fitted to this instrument.

Two hours before treatment a light breakfast of tea and toast

is given, and an hour later the patient is given a subcutaneous injection of atropine sulphate gr. 1/100 so as to prevent salivation, respiratory embarrassment and vomiting; the bladder and bowels should be emptied. The patient lies on a wooden table, and it is an advantage for the table to be the same height as the ward trolley so that heavy patients can be gently slid from one to the other, thus avoiding disturbing the patient unduly. A pillow is placed under the patient's head and another under the heels so as to prevent injury during the clonic convulsive phase. During the course of the treatment no restraint was used other than that required to prevent the patient from rolling off the table. Occasionally a pillow has been placed under the thoracic spine, and mild restraint of the limbs has been maintained. With this procedure, out of 260 cases 4 sustained vertebral compression fractures, 1 fracture of the femur, and in several instances dislocation of the lower jaw occurred but was readily reduced during the period of unconsciousness after the convulsion.

The patient's clothes are loosened at neck and waist; dentures, metal hair-clips, artificial limbs or eyes, etc., are removed and also jewellery such as rings and crucifixes. After the temporal region of the head has been rubbed with ether, a contact paste (Shepley and McGregor, 1938) is applied. The electrodes are fixed over the temporal region not further back than the coronal suture, and are manipulated until optimum contact, as shown by minimum resistance, is obtained. The initial settings for the apparatus have been 80–100 volts and 0·2 sec. Usually these readings have sufficed to produce a major convulsion, but if only a " stun " or a minor convulsion results, the voltage is advanced a step, and another shock administered after respiration has returned to normal. If still another " stun " or minor convulsion results, the time switch is advanced a stage, *i.e.* to 0·3 sec. In the vast majority of cases these settings will produce a major convulsion, and the settings do not require to be changed on subsequent occasions. Rare cases showing a high resistance may require even larger doses, and Hemphill and Walter have administered as many as six shocks in succession. Older and thinner patients are often more resistant than the younger and plumper.

The moment the current is turned on, the patient's body gives a violent and sudden twitch followed by three types of activity. In the first the patient relaxes almost immediately, unconsciousness is momentary, but otherwise little change occurs. This is called the " stun " or simple shock.

In the second or minor type a fairly wide range of behaviour

is seen, characterised by (1) a change in affect, depressed patients may smile or chatter; (2) by waving of the arms or legs; (3) by a short tonic spasm.

Thirdly, a major convulsion occurs resembling an ordinary epileptic seizure.

Just before the convulsion occurs a rubber gag is inserted in the mouth.

Following the convulsion some patients appear frightened, others may show considerable violence, but usually the patients fall into a deep sleep which lasts from 10 minutes to half an hour. After this period the patients respond well to suggestions of an encouraging nature. All thave complete amnesia for the period of the treatment and for a short time beforehand. Occasionally the amnesia may extend back for years; one patient had no recollection of the seven years which had elapsed since she had left South Africa, and remarked that the weather was unusual for Johannesburg! Provided the treatment is carefully carried out and is not too prolonged, the memory disturbances which occur are usually transitory; cases are known, however, in which defects of memory have persisted for a considerable time. Treatment is administered twice or thrice a week, and in the great majority of instances if a good result is likely to be obtained, evidence of improvement occurs in the first six treatments. If we fail to obtain improvement in a course of twelve treatments we discontinue it. Whenever a satisfactory result has been obtained, even although the patient may have had only two or three convulsions, we discontinue treatment. We prefer to see patients recovering slowly rather than in too dramatic a manner, because the good result seems to be better sustained. In addition to the transitory disturbances associated with fractures, or amnesia, we have had experience of patients who, as a result of treatment, have passed from a depressive into a manic phase. In such instances the last state, at any rate so far as relatives are concerned, may be considered worse than the first. We once received a letter imploring: " Please de-electrify my daughter ", but a sequel of this sort is very uncommon. We have also seen one patient who, several weeks after treatment had ended, had a long series of spontaneous epileptiform attacks, which finally disappeared without leaving any physical residual; the patient, however, has continued in an excited, talkative, hypomanic state.

Indications for convulsion therapy.—We deprecate the use of this treatment in manic states; in our experience such cases are aggravated by it rather than benefited.

In a series of 61 cases of involutional melancholia 58 were cured or much improved and recovery began usually after only a few injections of metrazol (E. A. Bennett).

The same effectiveness is displayed by the electrical method, which has virtually superseded the other. Thus in 30 cases of involutional melancholia personally treated by this method 19 made a good recovery and 5 improved, while in 98 depressions of the manic-depressive type 45 recovered and 28 improved.

There are few contra-indications. The age of some involutional melancholics might be supposed to be a bar; but this is not so, provided the general health and personality are reasonably well preserved. Patients up to the age of 70, and sometimes older, have been treated with success. Naturally in older patients arteriosclerotic disease must give cause for concern. When there is evidence of myocardial weakness or of a previous coronary thrombosis or general arteriosclerosis, the strain on the cardiovascular system incurred by prolonged agitation must be weighed against the strain imposed by a convulsive seizure. Hypertension is not a necessary contra-indication.

If the patient when first seen is half-starved or dehydrated, an attempt must be made to get him into the best possible physical state before he undergoes treatment. Focal sepsis should be eradicated if possible. The commonest danger, however, from shock treatment seems to be the lighting-up of a pulmonary tuberculosis.

In the 260 cases treated by Todd and Daly the recovery and improvement rate in involutional melancholia amounted to 80 per cent, in depressions of the manic-depressive type to 75 per cent, and in schizophrenia (recent cases) to 52 per cent. In other types of nervous and mental disorder we prefer to use more conservative methods.

A review of 1603 patients treated in the Ontario hospitals showed that the results of cardiazol (metrazol) therapy were found to be much more satisfactory in manic-depressive and involutional states than in schizophrenia. It appears, therefore, that types of cases which are known to respond well to other types of treatment also react well to shock therapy. The best results were obtained with few treatments, *i.e.* from 3 to 8 convulsant doses.

Patients treated with insulin therapy showed a slightly less satisfactory outcome than cardiazol-treated cases, but this difference could be attributed to a predominance of schizophrenic diagnoses in the insulin-treated group.

The death-rate in a series of cases has been respectively 0·6 in insulin, 0·1 with cardiazol and 0·5 with electric convulsion therapy (F. E. Ebaugh, *Annals of Internat. Med.*, 1943, 18, 249).

It has been noted that the sudden withdrawal of habitual large doses of hypnotic, as used in the method of continuous narcosis, may be followed by a convulsion. An attempt has been made to utilise this fact in the treatment of schizophrenia, in the hope that the beneficial effects observed after convulsion therapy are due to the convulsive seizure and the physical conditions accompanying it, and not to any specific effect of either cardiazol or insulin. Horsley quotes 10 cases of schizophrenia treated in this fashion who were able to resume their occupation (Board of Control Report, London, 1938).

Histopathological Changes after Convulsion Therapy.—In rabbits the only definite findings, after sometimes as many as 32 convulsions by means of cardiazol, were some small subpial hæmorrhages (A. Stender, *Munch. Med. Wochenschr.*, 1937, 1893).

Widespread changes of the nerve cells have been reported in dogs following E.C.T. With a dosage the same as that used in man the changes were mostly reversible, and in the estimation of some authors, less severe than with metrazol (Karl Neuberger *et al.*, *American Journal of Medical Sciences*, September 1942, p. 204).

A. Meyer and Drewry (personal communication) have found a certain amount of cortical gliosis in a patient who died a short time after having over 20 cardiazol fits.

While these methods of treatment have in many cases proved of extraordinary interest and benefit, they are methods which should be handled with the greatest consideration and should only be utilised in carefully selected cases.

Prefrontal Leucotomy

In 1935 Egas Móniz, a Portuguese surgeon, introduced this operation so as to divide the association pathways between the frontal lobes and the thalamus. The original method consisted of the injection of small quantities of alcohol into the white matter of the pre-frontal region, but this method was superseded by the use of the leucotome so as to divide the white matter of both frontal lobes.

As regards rationale, the operation was originally devised on the basis of clinical and experimental observation. Cases such as the crowbar case described on p. 510 showed that widespread and bilateral damage to the frontal lobes produced a state of euphoria. Evidence from animal experiments produced the general conclusion that there was a change in temperament as a result of bilateral frontal lobe injury, J. F. Fulton (*Physiology of Central Nervous System*, New York and London, 1938) remarking that the animal became like " a good-natured drunk ". Chimpanzees who had developed an " experimental neurosis " in that they became irritable over their mistakes in learning, lost all concern over them after leucotomy. The fronto-thalamic fibres seem to be concerned with a special relationship between the more intellectual and the more emotional aspects of mental activity, and although the operation cannot produce a *restitutio ad integrum*, it terminates the disturbance in this relationship. Cobb suggests that it may work by " short-circuiting " impulses normally passing through the cortex. It is impossible to do more than speculate, until much more experimental work has been done. At any rate, after the operation individuals with distressing hallucinations may continue to have their hallucinations but are no longer distressed by them. Obsessional thinking dies out, perhaps because it is no longer sustained by its affective component. Consequently the operation appears to be particularly applicable to states of distress and tension.

Following the operation the personality of the individual may seem to have retrogressed, but as time goes on a great improvement has been noted ; on the other hand a few cases of the agitated impulsive sort may show temporary improvement only to relapse.

The general aim of the operation is to modify the disordered behaviour of the many psychotic and neurotic patients whose illness has been of prolonged type. The tendency is to select patients for treatment more on a symptomatic than on a nosological basis.

Freeman and Watts state that " The individual who is ideally suited to prefrontal leucotomy is one whose emotions are largely concerned with himself. This is the patient who fears heart disease, cancer, syphilis or contamination ; who is a prey to ideas of guilt or persecution, who broods over the future and who is confused in the presence of others and obsessed with the idea of death. A less favourable group are those who have drifted

away from reality, who are hallucinated and are lacking in emotional tension. If the patient is completely apathetic, then psychosurgery (*sic*) is unlikely to be very helpful. A patient with obsessive compulsive symptoms is supposed to have a better chance than patients persistently hallucinated ; an illness which develops in an older person is more hopeful than when a younger is affected."

Strecker and his co-workers consider that a syndrome composed of fear, anxiety, actual mental suffering and aggressive violence is a better criterion for suitability than a diagnostic label. In involutional melancholias which have failed to respond to electric convulsive treatment, and which have lasted a very long time, leucotomy is justified by its results.

Now that this operation is being more commonly performed, its technique has undergone considerable modification. Every care is taken to inflict as little damage as possible on the surrounding brain substance. McKissock advocates the following procedure.

A point 3 cm. behind the lateral margin of the orbit and 5 to 6 cm. above the zygoma is taken as the centre of a 2 cm. to 3 cm. skin incision. A 1 cm. burr-hole is then cut in the line of the coronal suture and a cruciform incision made in the dura. For sectioning the brain substance an ordinary brain needle with a side eyelet, just short of the blunt point, and a close-fitting stylet is used. The needle is directed in front of the anterior horn of the ventricle to a depth sufficient to be just clear of the grey matter of the medial aspect of the front lobe. The stylet is withdrawn and the needle made to pivot about the point of entrance through the dura so that the blunt inner extremity travels upwards towards the superior surface of the frontal lobe. As the point is made to travel upwards the needle is pushed more deeply into the brain so that the line of the section runs parallel with the falx and does not, as it otherwise would, become steadily more distant from it. When the needle has reached sufficiently close to the upper surface of the hemisphere it is withdrawn and reintroduced along the original line in order to deal with those fibres running from the lower part of the frontal pole ; on this occasion the point of the needle is made to travel downwards, again parallel with the falx, and is then brought laterally across the anterior fossa roughly in the same vertical plane as the lesser wing of the sphenoid until it reaches a point just short of the lateral aspect of the skull. During this part of the section the needle is progressively withdrawn for fear of

damaging the grey matter of the orbital surface of the frontal pole (Symposium on Pre-frontal Leucotomy, *Journal of Mental Science*, 1943, 39, 161).

Effects of Leucotomy.—As regards the ultimate after-effects, apart from symptomatic improvement there has been recorded a restoration of energy and interest, greatly increased appetite, a gain in weight, and even, although rarely, an improvement in the pre-psychotic personality. Thus Strecker, Palmer and Grant record of one patient that she exhibited resourcefulness and common sense to a degree which she had never previously possessed, although on the debit side there is apt to be a shallowness of feeling, a loss of tactfulness and a tendency to live at a simpler level of interests. Freeman and Watts believe that the fundamental alteration is a diminution of self-consciousness. In the violently disturbed patients the gain consists at least of their being made an easier problem of management. In melancholics the apprehension and anxiety disappear. Hallucinatory and other psychotic ideas may remain but the patient is no longer disturbed by them. There is usually no measurable loss of intelligence, but there may be less initiative. Hutton believes that reproductive memory is replaced by associative memory so that patients live in a perpetual present (E. L. Hutton, *Journal of Mental Science*, 1942, 88, 275).

A survey of bilateral pre-frontal lobotomy operations reported from 18 different clinics in the United States and Canada on patients with a variety of psychiatric reaction types, schizophrenics predominating, gives the following results: First operation, 1936: 75 per cent operated since 1939. Total number operated, 604; died as the result of operation, 11; died subsequent to operation, 18 (2 from suicide); rendered clinically worse after operation than before, 8; clinically unimproved after operation, 59; clinically slightly improved after operation, 106; clinically much improved after operation, 188; recovered after operation, psychotic or neurotic symptoms disappeared, 213; recovered, not only did symptoms disappear but patient better than at any previous time in life, 1; number of patients known to be in hospital now, some able to work, 266; number known to be outside hospital unable to work, 59; number known to be outside hospital working part or full time, 250 (L. H. Ziegler, *Amer. Jour. Psychiat.*, 1943, 100, 178).

Among the unfortunate results of leucotomy, Freeman and Watts have listed euphoria, tactlessness, lack of initiative and laziness. In the majority of instances these defects were tem-

porary, the only one that tended to persist in the majority being diminution in tactfulness. They relate this diminution to a loss of self-consciousness and to a tendency to be content with an inferior quality of performance socially and intellectually. They emphasise particularly a diminution in foresight and care for the future.

Of after-results in the physical sphere incontinence is one of the commonest. It is usually temporary. Epileptiform seizures, aphasic disorders and in some cases dementia have supervened.

On the whole, the possibility of serious and permanent damage to the mental functions makes it necessary to reserve the method for cases where all other suitable methods of treatment have been tried and failed; where the illness offers no reasonable hope of spontaneous recovery, and where the patient is disabled more or less completely from useful occupation or from modest enjoyment of his life.

Continuous Narcosis

The essence of treatment by prolonged sleep is the spaced administration of hypnotics at such intervals as will keep the patient asleep for 18 to 20 hours out of the 24. It was originated by O. Woolf in 1901 and extensively used by Kläsi.

Continuous narcosis, if thoroughly carried out, is still fraught with some danger, in spite of modifications in treatment. The degree of freedom from risk is proportionate to the experience and care of those undertaking the treatment, rather than dependent on any particular modification of technique.

It has been claimed that by adding insulin and glucose to the treatment by narcotics, the danger to life which attends the method (from collapse, respiratory complications, etc.), producing sometimes a death-rate as high as 5 per cent, has been minimised. The best safeguard is experience. The routine consists in putting the patient to bed in a quiet darkened room. Somnifaine (each c.c. containing 0·1 gm. of diethyl-barbituric acid and 0·1 gm. of allyisopropyl barbituric acid) is usually chosen and given intramuscularly in 2 c.c. doses. The average amount required is 6 c.c. in 24 hours. A dosage of 8 c.c. should only be exceeded in exceptional cases and then with extra care. Simultaneously with each dose of somnifaine 10–18 units of insulin are given hypodermically and an ounce to an ounce and a half of glucose is given by rectum. Insulin is considered to facilitate oxidisation in the tissues, to inhibition of which by the hypnotic the toxic symptoms that may arise have been attributed. The treatment

usually lasts 14 days. The method has been extended to a variety of reaction types.

Many other hypnotics have been used of which sodium amytal enjoys the reputation of being among the safest, in doses of 3 to 6 grains up to 30 grains in the 24 hours. Medinal or dial supplemented by paraldehyde, or medinal and luminal, and various other combinations, have all been used.

The blood-pressure should be taken frequently, some say as often as every half-hour; a fall below 90 is an indication for ephedrin under the tongue, or oxygen, or if it is sudden and severe, adrenaline should be used. The urine is also watched for the appearance of acetone, but this can usually be prevented altogether by the use of insulin and glucose.

The temperature is read at frequent intervals. A consistent rise to 100 or more is an indication for discontinuing treatment. Signs of focal sepsis should be looked for before the treatment is begun. The dangers of aspiration pneumonia should be remembered during the feeding periods. These take place when the patient is wakened up from a previous dose of the drug. During the intervals also bowels and bladder are attended to. The patient has naturally to be supported at these times. The chief danger is of pulmonary complications. Apart from aspiration pneumonia there is a proneness to respiratory infections. Good nursing and the wearing of a pneumonia jacket are the chief preventive measures.

The recovery rate in continuous narcosis in recent psychoses never exceeds and usually falls short of the ultimate spontaneous recovery rate. Its therapeutic value is, therefore, confined mainly to curtailing the duration of psychotic conditions which would sooner or later recover spontaneously.

A recent review of the literature has shown that out of 455 cases of manic-depressive psychoses, mainly manic excitement, to which this method has been applied, approximately one-third were cut short. In depressions the method is successful in cutting short the attack in a much smaller percentage of cases. The method therefore succeeds in abbreviating the illness in a proportion of cases, but there is no evidence that the ultimate recovery rate is favourably affected by it. Nevertheless abbreviation is a great advantage. Some of the cases which are not cut short remain more manageable after a course of treatment by continuous narcosis. The method has proved useful in the reactive anxiety-states of war casualties.

With recent schizophrenic disorders, its effects in curtailing the

duration of the illness are seen mainly in excited schizophrenics of the agitated fearful type and in hebephrenics, in each case where the onset has been acute. Psychogenic schizophrenic disturbances in schizoid psychopaths are particularly amenable to this method. Little success is obtained with paranoid schizophrenics and with katatonic stupor. In general, the more a psychotic illness follows a relapsing, recurring or periodic course, and the more acute the onset and the more exogenous the causation, the more likely is continuous narcosis to curtail the episode. These are essentially the more spontaneously recoverable types. Apart from curtailment of a psychotic illness of the more recent kind, continuous narcosis has an administrative value in that it fairly frequently has the effect of making chronic psychotic excitements more manageable. Occasional unexpected social recoveries are produced in chronic depressive (affective) psychoses and in chronic schizophrenics; while recently two observers have in a small series of cases recorded an unprecedentedly high recovery and discharge rate in a group of schizophrenics of over two years' duration.

The treatment is still entirely empirical, and its efficacy is very difficult to estimate in any precise fashion on account of the varying diagnostic criteria employed by different workers in different clinics (Gillespie, *Jour. Neurol. and Psychopathol.*, 1939, ii, 45).

Narco-analysis

This inelegant term has been used to describe the use of the intravenous injection of a narcotic drug to produce a state of mind in which the patient becomes more communicative and has less emotional control, in fact a temporary state of veritable intoxication. The drugs most used have been epival (or "evipan") in 10 per cent solution; nembutal 2½ per cent up to a limit of about 6 grains, as well as sodium amytal up to a limit of 7½ grains. The injection is made slowly, usually at the rate of about 1 c.c. of the solution per minute, the patient counting backwards meanwhile until drowsiness is produced, with, however, articulation still possible. Some declare that if the narcosis is pushed beyond this, "rapport" is lost and is not fully restored in the state of emergence from narcosis, but this is not our experience.

The value of the method has been overrated. Its chief usefulness is in the rapid recovery of memory in the case of psychogenic amnesia. It is more certain to work than

hypnosis and gives, therefore, more confidence to the doctor, but with sufficient patience and time, the same and probably better results can nearly always be obtained with persuasion, without either hypnosis or narcotisation. The method gives the patient something tangible that he understands more easily than the purely psychological method of approach, and it has in consequence considerable value as a vehicle of suggestion. It also provides some individuals with a welcome and apparently honourable excuse for divulging what they profess to have forgotten. It is doubtful whether it ever leads the patient to disclose what he still means to conceal. On the other hand, the productions are not necessarily factual—some patients produce fantasies in this state. The method is of value in promoting " abreaction", the patient giving his story with more emotion than he is able to do in the ordinary therapeutic setting. An attempt has been made to use the method to get over difficult situations where repression cannot be otherwise undone, but success here must be rare. The method is also helpful in differentiating a psychogenic amnesia from one due to brain injury ; even in the latter case, however, it may occasionally lead to the recovery of fragmentary memories. It should also be of use in differentiating an epileptic fugue with amnesia from an hysterical one.

In some psychotic conditions with extreme retardation and in some stupors it has been found by Bleckwenn and others that the patient is temporarily able to converse freely, and in some cases for a short time to come into virtually normal contact. Horsley has used the method in retarded depressions for psychotherapeutic purposes (J. S. Horsley, *Narcoanalysis*, London, 1943).

Some have claimed successes in removing signs and symptoms even of the " body complaint " type by means of suggestions conveyed in the narcotised state, but suggestion must not be limited to that period ; it is essential that treatment should be entered on in an atmosphere of optimism and faith in the method. It is extremely likely that what really is effective in this situation is the doctor's confidence in the treatment.

CHAPTER XIV

THE ORGANIC REACTION-TYPES

Two organic reaction-types can be differentiated, the acute and the chronic. There are also transitions between them.

The pathological difference lies in the fact that the acute organic reaction is usually the result of a temporary toxic process affecting the brain-substance, *e.g.* the delirium of acute fevers, or acute alcoholism, while the chronic organic reaction is the expression of a more severe tissue change, usually a progressive degeneration, as in general paralysis and the senile psychoses.

The organic reaction-type as a whole comprises the following changes :

(1) In the intellectual sphere there is impairment of comprehension, interference with elaboration of impressions, defects in orientation and retention, difficulty in activation of memories and marked fluctuation of the level of attention.

(2) Affective disorder in the form of emotional instability, the patient laughing or weeping without sufficient cause, and often in an explosive way.

(3) Character-change in the form of conduct foreign to the patient's natural disposition, *e.g.* indecent behaviour in a hitherto self-respecting individual.

All these disorders must be taken together as constituting the organic syndrome, although in a given case one set of symptoms is preponderant. The acute reaction consists usually of a delirium, *i.e.* disorientation with false perceptions (illusions) and hallucinations, and with a memory defect involving chiefly recent memory, but without the profound change in the personality seen in the chronic types. The chronic reaction, on the other hand, shows a defect chiefly in comprehension and memory, both recent and remote, and with marked changes in personality

and in emotional responsiveness. Further, the chronic reaction is usually progressive, and the changes occur in a state of relatively clear orientation.

Alcoholic Psychoses

The ætiological significance of alcohol has been discussed at length in a previous chapter, and we are now concerned only with the clinical manifestations associated with alcohol.

Symptoms of alcoholism complicate many psychoses, *e.g.* general paralysis, manic-depressive psychoses, schizophrenia. Alcoholism may even be a symptom of an anxiety state. There are, however, various types of disturbance which are peculiar to it.

Alcoholism as a complication of feeble-mindedness is of particular importance, owing to the antisocial reactions which it is specially apt to release in such circumstances; and partly in relation to this, alcohol is a factor which in a medico-legal case should always be as accurately determined as possible. Alcoholism *per se* is not, of course, a sufficient defence in law in questions of criminal responsibility.

The three main clinical types of alcoholic psychosis are delirium tremens, Korsakow's psychosis and chronic alcoholism. It has been usual also to describe an alcoholic hallucinosis, an alcoholic pseudoparesis, a pseudoparanoia and an alcoholic epilepsy. Alcoholic pseudoparesis was used to designate some obscure cases of organic disease, the causation of which was not sufficiently differentiated, and where probably alcohol was only one factor in many. Alcoholic hallucinosis and alcoholic paranoia are probably misnomers, alcohol being a symptom of an underlying instability which gives rise to the syndrome, rather than a cause of the latter. Kirby says in this connection that the alcoholic hallucinosis is not a specific toxic disorder, but belongs rather in the category of reaction-types dependent on constitution and on emotional situations. We have certainly known precisely similar hallucinoses to occur in the absence of alcoholism. According to Schneider, this constitutional basis is essentially the manic-depressive one; but in a small proportion of cases (15 per cent—Kirby) the alcoholism and the hallucinosis alike are episodes in the course of a schizophrenic illness. It is generally recognised that epileptiform episodes occur in alcoholism, but they do not constitute monosymptomatic disorders, and there is no reason why they should be placed in a separate group as " alcoholic epilepsy ".

It has recently been suggested that the polyneuritis and, by inference, the cerebral alteration in alcoholism, are due not to the direct effect of alcohol on the nervous tissues but to a " conditioned deficiency " resulting from faulty absorption of the vitamins from the chronically inflamed stomach, and also from the limited diet which the habitual alcoholic allows himself. On this theory large doses of vitamin B (as much as 3000 I.U.) by injection have been administered in delirium tremens, with, it is claimed, almost immediate subsidence of the delirium ; but these claims await confirmation. Even in alcoholic polyneuritis, the response to administration of vitamin B is apt to be disappointing.

Mania a potu is a state of pathological intoxication, consisting in extreme excitement, sometimes with homicidal attacks, and resulting from the ingestion of comparatively small amounts of alcohol in a susceptible individual. This condition has occasionally been advanced as a defence in murder trials. Such a case in 1925 concerned a man, thirty-eight years old, who in a fit of jealousy and after having taken a small quantity of liquor, murdered a man and a woman by shooting. When arrested he was found in bed, but whether asleep or not is unknown. Following his arrest, while in his cell, he fell into a deep sleep from which he was roused only with difficulty ; the profound nature of the sleep was considered to be a most significant feature. His history showed that there was a hereditary predisposition to insanity, while he himself had suffered from a head injury when fourteen years old, had had sunstroke in India, and during the War had been blown up and buried. The defence in this case was not sustained (*Trans. Med. Leg. Soc.*, vol. 22, 1928).

Dipsomania, a state of acute intoxication occurring at intervals, the intervening periods being free from any alcoholic indulgence, is sometimes symptomatic of recurrent attacks of a manic-depressive psychosis, and sometimes of epilepsy. In other cases the pathological basis has not been discovered.

Delirium Tremens.—The condition is rare before thirty years of age. It usually arises after a debauch, but may occur in a chronic alcoholic as the result of intercurrent disease or injury. The immediate withdrawal of alcohol from a chronic addict may lead to a delirium. This is the so-called " abstinence " delirium. Inquiry into some cases of " abstinence " delirium will show, however, that the patient had left off drinking some days previously because of feelings of nausea ; this suggests that an alcoholic illness was already developing, and that the distaste that

led to abstinence was a premonitory symptom. The question of the existence of an " abstinence delirium " is not yet settled.

The chief prodromal symptoms are great restlessness, sleeplessness and fear—the patient starting at the least sound —and profuse perspiration. If he does sleep he has vivid nightmares, and wakes up repeatedly in terror. Unless one can induce sleep at this stage, it rapidly passes into a typical delirium, during which hallucinations, visual, haptic and auditory, make their appearance. The visual hallucinations are the most common. Illusions are prominent and can be easily suggested, *e.g.* spots on the counterpane which the patient mistakes for animals and attempts to catch. Given a blank piece of paper and asked to " read " it, he will proceed to do so. The usual visual hallucinations are of snakes and rats. Haptic hallucinations (probably based on paræsthesiæ, and therefore more correctly called illusions) are usually of animals crawling over the skin. Sometimes the delirium is occupational in character—the busman drives his horses, and a stationmaster's wife constantly sees trains approaching, and crawls all over the bed to get away from them. In response to the hallucinations there may be impulsive conduct, the patient seeking to flee from his supposed persecutors, or attacking them, with the result that he may make suicidal or homicidal attempts. At the height of the delirium the patient is more or less completely disoriented, and the affect is nearly always one of great fear—of being taken away to be punished, for example, or of meeting some dreadful fate. Rarely the affective state is one of amusement or mild indifference to the hallucinations, or even euphoria. The talk is incoherent and shows distractibility, usually in response to the hallucinatory experiences. The delirious patient is very suggestible, and can be readily made to confabulate. Kraepelin and Aschaffenburg point out that external stimuli play an important rôle in the character of the delirious content, and that the tendency to rhyme and to form sound associations is well marked. Misidentification of persons is striking, total strangers being recognised as intimate friends. Retention of immediate impressions is almost non-existent; the patient's attention can be obtained momentarily, but it is impossible to hold it.

Physically, there is a generalised tremor, coarse in type, and affecting chiefly the fingers, facial muscles and tongue. The temperature is usually slightly raised, the pulse is quick and the patient perspires freely. The tongue is coated, the breath foul, there may be sordes on the lips and the patient has no appetite

whatever. Mild transitory albuminuria occurs in about 50 per cent of cases. Epileptiform convulsions may occur. The pupils are often widely dilated, and may be sluggish in their reaction. Occasionally the Argyll Robertson pupil has been described. The tendon reflexes are in some cases diminished or absent. The blood shows a leucocytosis.

Course and Prognosis.—The usual duration is from three to six days. Improvement and recovery occur when sleep has been obtained. It has also been frequently noted that when auditory hallucinations are present the duration of the illness is likely to be prolonged. In uncomplicated cases death is rare (3 or 4 per cent) but may occur from heart failure. In cases complicated with pneumonia and other infections the outlook is much more serious.

Morbid Anatomy.—Besides the changes belonging to chronic alcoholism, punctiform hæmorrhages in the brain substance and degeneration of nerve cells are described.

Korsakow's Psychosis.

This psychosis, first described by Korsakow, consists in deficient power of retention for recent events, with a tendency to confabulate, and disorientation for time, place and person. It is usually of toxic origin, and is often associated with a polyneuritis, but there are cases where no neuritis exists, as Korsakow himself recognised. The commonest toxin is alcohol, but other chemical poisons such as lead, and bacterial toxins, *e.g.* tubercle, typhoid and malaria, have been responsible. It has occurred also in the toxic vomiting of pregnancy. Korsakow's psychosis is commoner in females than in males, and is relatively rare before fifty years of age.

The retention defect, and confabulation compensatory for it, is shown for example by a patient who assures the physician morning after morning that he has just returned from London that day; or by another who peruses the same book again and again. The retention defect can be clearly brought out by giving them short stories to read. Memory for remote events is usually good. Disorientation for time is more completely affected than disorientation for place or person. Korsakow patients commonly are aware that they are in hospital, and they usually recognise doctor and nurses, although not by names. They suffer from both visual and auditory hallucinations. There is a mixture of euphoria and irritability—they are affable at one time, and at another querulously demand their release. Usually their conver-

sation is clear and intelligent, and they are extraordinarily plausible in their confabulations. Insight is completely lacking, and after recovery, although they recognise they have been ill, it is extremely difficult to persuade them that their condition has been due to alcohol.

Physically, the signs are those of alcoholic polyneuritis, with diminution or abolition of the tendon reflexes, tenderness over the nerve-trunks and, in pronounced cases, wrist- and foot-drop. Any of the peripheral nerves may be affected. Ocular palsies occur, and nystagmus is very common. There is marked tremor of the outstretched fingers, with crepitations in the tendons.

Course.—These cases run a prolonged course. Some begin to show an improvement during the first six weeks. The neuritis may disappear entirely, and usually the physical health improves to a greater degree than the mental. The memory sometimes does not entirely recover. There is also some residual emotional deterioration evidenced by an easy suggestibility, emotional facility, and lack of efficiency.

Morbid Anatomy.—There are the usual polyneuritic changes in the peripheral nerves. In the cerebrum there are degenerative changes with a central chromatolysis in the ganglion cells, especially of the large pyramids. There is a loss of tangential fibres. Severe cases may show a proliferation of the smaller intracerebral vessels. In the more chronic cases there is neuroglial proliferation. In the spinal cord there may be atrophy in the column of Goll, and degeneration of the anterior nerve cells.

Chronic Alcoholism.

Chronic alcoholism develops in a wide variety of persons—in some because of opportunity (barmen), in others because of the social environment, and in others it begins as a reaction to difficulties, or as the expression of a psychopathic disposition (manic-depressive, for example).

By the chronic alcoholic we mean to designate the habitual drinker in whom there develops insidiously a change in intellect and character. He is often able to carry on his ordinary work sufficiently well to make a fair appearance to the casual observer; but he never reaches a high pitch of energy or efficiency, and his history is one of gradual deterioration, moral and intellectual. To his companions he is usually pleasant, sociable and sympathetic, entering boisterously into his alcoholic enjoyments, and shedding a ready tear in commiseration of others' misfortunes. At home, on the other hand, he is irritable, and careless of his

family's welfare. "They are not mad enough to be regarded as dangerous, so they merely ruin the home in an undramatic way" (MacCurdy). Sometimes the chronic alcoholic goes so far as to sell his home and furniture, thrash his children and strike his wife. It is at this more advanced stage that sexual crimes and indecent assaults are especially frequent.

The affect is a very shallow and labile one, and is closely related to the disorders of conduct just described. Some chronic alcoholics become depressed, and suicide is not unknown. The alcoholic is very frequently jealous of his wife. There is usually also a generalised persecuted attitude—the patient is never to blame, he is always the worst-used man in the world, constantly bewailing his fate and saying that every man's hand is against him. He is very untruthful, and is always making promises to reform which he never fulfils. He is cunning, evading arrangements made for his guardianship and twisting facts to suit his own ends. "His heart is soft, and his head is full of deceit." The memory tends to be faulty, but orientation is for a long time unimpaired. The chronic alcoholic is apt to be litigious. There is no insight of any kind.

In the terminal state of alcoholic dementia the moral and intellectual deterioration reaches an extreme degree. Arteriosclerosis complicates the clinical picture.

The following is a typical example:

CASE 58.—R. P., a married man 50 years of age, was admitted to hospital in 1922. He had always been of unusual temperament, having a difficulty in mixing with other people, so that even his own relatives did not visit him. He was always restless, never being able to enjoy a holiday because he wanted to get back to work. He owned a wine and spirit business, and had at one time a dozen retail shops of his own. Five years before his admission into hospital his disposition began to change. He commenced to grumble about everything at home, became irritable at trifles, swore volubly at his wife and children—a thing he had never done before. For some indefinite time he had been drinking secretly. Three years after this he fell into the hands of the police while drunk, and lost some of his licences in consequence. His ordinary daily programme at that time consisted in going out after breakfast and returning drunk at midday, sleeping in the afternoon, going out again and returning drunk once more. He showed no care whatever for his family. His son, who was delicate, had sometimes to carry him home. While drunk he exposed himself to his family, including his daughter. During their convalescence from influenza he turned his children out of the house. He would send his wife on errands

and refuse to readmit her till she had obtained what he happened to want—usually more alcohol. He took no interest in anything, neglected his business and threatened suicide but made no real attempt at it. In hospital he was antagonistic and resentful, saying that he was unjustly detained, refusing food at times, doing his best to find fault with the ward arrangements. Occasionally, however, he was affable, making caustic jokes. He boasted of his athletic prowess (he was a puny unpleasant-looking little man). He showed no shame at his conduct, denied most of it and lied readily, often contradicting himself. A slight memory defect was revealed by the more difficult tests. He was persistently unco-operative and lacking in insight.

The physical signs result from the effect of alcohol on all the bodily systems. These are gastritis, nephritis, cirrhosis of the liver and generalised arteriosclerosis. Tremors, paræsthesiæ and impotence result from the poisoning of the nervous system.

Course and Prognosis.—The course is slowly but progressively downhill. Permanent arrest of a well-established chronic alcoholic deterioration must be extremely rare (outside of institutions).

Morbid Anatomy.—In the cerebrum there are thickening of the meninges, chronic nerve-cell degeneration, small hæmorrhages and arteriosclerotic changes.

Psychopathology.—It is doubtful whether general statements can be made about the psychopathology of chronic alcoholism. It is commonly stated that chronic alcoholics as a class are essentially homosexual, either consciously or unconsciously. Alcoholic habits lead to especial association with others of the same sex, and at the same time offer a refuge from other situations which, on account of the homosexuality, are unsatisfactory. Marital jealousy is explained on this basis, as a projection of the married alcoholic's unfaithful tendencies. It may equally be the psychological result of the impotence induced by the physical effects of alcohol. Support for the homosexual theory can be obtained from a study of the content of the delirium only with the aid of extravagant symbolic interpretation. The content of the auditory and haptic hallucinations in cases in which these are prominent lends more support, since it is sometimes clearly homosexual; genital paræsthesiæ, for example, being interpreted by the patient as evidence of actual homosexual assault. But these cases are in a very small minority, and it has already been remarked that in them usually the alcoholism and the hallucinosis alike are symptoms, and do not stand in the relationship of cause and effect. In general, homosexuality is only one of many possible factors.

The psychological understanding of a chronic alcoholic is an individual affair, and each case must be tackled as a special problem on its merits. The factors which have helped to precipitate a chronic alcoholic habit and to sustain it do not differ in any kind from those producing any other morbid mental reaction; and sufficient weight should be given to the influence of habit, to the influence of nagging friends and relatives in accentuating it and to the manner in which the alcoholism becomes a part of the ego-ideal, so that to keep on drinking becomes a point of honour.

Treatment of Alcoholism

There is no specific cure for alcoholism, but the symptoms in the acute varieties can be treated and cured, and the patient given a fresh start.

In delirium tremens the aims of treatment are (1) to maintain the patient's strength; (2) to alleviate the excitement; (3) to procure sleep; and (4) to promote free elimination.

Nurses should be provided in the first place, and should be specially trained; partly because a patient of this sort does much better with strangers, and partly to ensure that the amount of alcohol given is carefully controlled. Under these conditions such a patient can be satisfactorily treated in his own house or in a nursing home. Recovery is so likely to occur quickly that there is no justification for certification. No patient should be certified while he is under the influence of liquor.

When there is much gastritis, it is well to begin washing out the stomach. Food, in the beginning, should be liquid and in small quantities to obviate vomiting, and should consist of milk, eggs, Benger's food, etc., and, in cases where there is danger of collapse, small quantities of alcohol. A hypodermic of digitalis or strychnine may be used similarly in a crisis.

In order to produce sleep, which is essential, various drugs may have to be given in succession. Veronal, in a dose up to 15 grains, repeated at the end of four hours if necessary, is usually effective. It is best to give a large dose to begin with. Müller says that out of 100 cases treated with veronal he had only two deaths. One of these was from pneumonia, and the other was received in a very weak condition. In other cases, bromide and chloral may produce sleep. Paraldehyde often seems to increase the excitement, and is therefore preferably avoided. Several drugs have to be tried before success is attained,

the individual susceptibility to drugs varying so much. A warm bath just before drugs are administered is helpful in procuring sleep. In an emergency, hyoscine, in a single dose of 1/100 gr. to 1/50 gr., may be used, but only as a last resort. A similar or even more rapid result is claimed from the use of insulin in delirium tremens. Thirty minutes after the first injection of 5 units, a sleep of several hours has been obtained in some cases. The dosage varied from 5 to 20 units, one to three times daily. A similar sedative effect was obtained in cases of pathological intoxication, and in acute alcoholic hallucinosis. Even in cases of chronic alcoholism the bodily and mental state was improved (Kral (A.), Pollak (J.) and Schirmer (J.), Zur Insulinbehandlung der Alkoholpsychosen, *Nervenarzt*, 1937, x, 520-24). It has been claimed that Vitamin B intravenously has an almost specific effect is cutting short the delirium. Insulin and Vitamin B have been successfully used in combination.

For elimination, calomel and salts or jalap are chiefly used. As much fluid as possible should be given, *e.g.* barley water and imperial drink. The patient should be kept warm in blankets. Warm baths several times a day add to the patient's comfort, if his general condition is satisfactory.

Kirby recommends spinal drainage and alkalis by mouth to combat the acidosis which is supposed to be the immediate physico-chemical cause of the nervous symptoms.

Korsakow's Psychosis.—Many patients suffering from this disorder have to be certified, as the condition is prolonged, and difficult to manage at home. The patient should be treated in bed at first to prevent his injuring himself. Strychnine gr. 1/60 twice a day, with 1/200 gr. atropine, hypodermically, and massage and passive movements are advisable after the acute symptoms of neuritis have subsided.

Chronic Alcoholism.—The kind of treatment to be adopted, and the hope entertained for it, depends partly on the type of chronic alcoholic with whom one is dealing, and partly on the stage at which he comes (or is brought) for treatment. Careful investigation from a physical and a psychiatric view-point is an essential preliminary. Where alcohol is found to be a symptom of some disease, mental or physical, as general paralysis or a recurrent manic-depressive psychosis, the treatment is that of the underlying disease. When the alcoholic habit itself is in the forefront, the chief line of attack is a thorough investigation of the factors of the patient's life and personality. Usually the first step that should be insisted on is that the patient should

place himself in a nursing home or in a hospital where he can be adequately supervised. This, of course, is usually what the patient refuses to do, but with the exercise of tact and patience it is often possible in the early stages to get the patient's co-operation. In our experience, the psychological view-point is usually a revelation to the patient, and the physician who places it before him is at once at an advantage ; for always the patient has been taught by his friends that his condition is simply one of moral turpitude, and nearly always he has personally come to regard his alcoholism as mysterious and inevitable. The patient's goodwill having been gradually obtained in this way, it is usually possible to show him the factors, psychological and circumstantial, which have contributed to his illness ; and to show him how they can be more satisfactorily dealt with. Complete abstinence should be insisted on. The patient has usually to be taught that it is not unmanly to be abstinent. An avoidance of unnecessary opportunity for drinking is extremely important ; for example, it is nearly hopeless to send him back to work as a bar-tender or an exciseman. The cultivation of hobbies and social recreation of a healthy kind, to replace the discarded alcoholism, is also important. When the immediate treatment is finished with, and the patient returns to work, he should be encouraged to keep in touch with his medical adviser for a year or two. With the more advanced chronic alcoholic, in whom definite and probably irreversible moral and intellectual deterioration has set in, the case is different. The group movement known as "Alcoholics Anonymous," which has had considerable success, demands a surrender of pride and self-assertion alien to a religious conversion (H. M. Tiebout, *Amer. Jour. Psychiat.*, 1944, 100, 468).

Certification in ordinary cases is very difficult, on account of the patient's plausibility and good superficial appearance. In very advanced cases (of alcoholic dementia) institutional care is the only line of treatment. Thoroughly satisfactory ways of dealing with the ordinary chronic alcoholic are non-existent. Treatment on the "conditioned-reflex" principle has recently been revived (F. Lemerre *et al.*, *Quarterly Jour. Alc.*, 1940, 1, 501). Chemical remedies are simply general tonics and have no specific value. The "Stewart" treatment comprises a mixture of strychnine, atropine and quinine by mouth, and atropine (1 gr. to the ounce) and strychnine (4 gr. to the oz.) solution hypodermically. The hypodermic dose of strychnine begins at 2 minims and is increased by 1 minim every other day till

the maximum of 7 ℿ is reached. The dose of atropine begins at 1 ℿ and is increased on alternate days till 6 ℿ is reached as the maximum dose. These doses are then kept constant for a week and then gradually diminished. The mixture given by mouth is made up from solutions of strychnine and atropine of the above strengths and administered five times daily in doses containing one minim of each solution. The course lasts six weeks. The Towns-Lambert method consists in free purgation by blue pill and jalap, and in pushing belladonna by mouth to the point of intoxication.

Opium and Morphine Addiction

The effects of opium and its alkaloid morphine are so much alike that they may be described together.

It has already been stated that the percentage of certifiable psychoses attributable to opium and its derivatives is very small indeed. The continual use of opium, however, leads to a chronic change in personality, although this seldom goes to the extent of certifiable mental disorder.

It has been observed that morphine in sufficient dosage can produce necrosis and softenings in the brain. This is considered to be anoxæmic in origin from interference of the morphine with oxidation processes. Similar results occur with carbon monoxide and narcotics (Alfred Meyer). But in all these instances it can only be with very large and not with therapeutic doses that such irrevocable changes occur.

The habit begins in some cases accidentally, the drug having been prescribed for the alleviation of physical suffering; but the large number of opium habitués are people originally of a psychopathic make-up. In all cases a character-change, directly attributable to the use of the drug, sets in as soon as the habit is established for its own sake. The change consists in a gradual deterioration of the personality. There is a general falling off in efficiency, partly because the higher intellectual faculties become impaired, and partly because there is a lowering of aims, ambitions and energy. The whole life of the addict revolves round the procuring of an adequate supply. Ethical deterioration is a prominent feature; the sense of responsibility diminishes, and is lost; the addict becomes untrustworthy in all directions, and untruthful, especially regarding the drug habit itself. He is suspicious and furtive in his manner, perhaps on account of the social disapproval entailed by his addiction.

His suspiciousness may develop into actual ideas of persecution. The mood is very variable, the degree of well-being varying inversely with the time that has elapsed since the last dose, and irritability and restlessness appearing as the time for the next dose draws near. Memory, attention and grasp of current events all deteriorate, partly as the result of progressive restriction of interest to the problem of obtaining and using the drug. When delirium (an excited hallucinatory episode with fear) occurs, it is very often because the patient has been taking some other drug as well, such as alcohol or cocaine.

Sudden withdrawal or deprivation of the drug may lead to the occurrence of a delirium, with horrible hallucinations, and with more or less restlessness, amounting sometimes to mild psychomotor excitement. In other cases the delirium may be of a quiet, dreamy type, with disorientation.

Physical Symptoms.—The typical drug addict is a feeble, debilitated and emaciated creature, with sallow, greyish complexion, whose skin may show numerous marks of hypodermic injections which have been allowed to go mildly septic. Tremors and, in severe cases, slight disturbances of co-ordination affecting speech or even the eye-muscles, diminished general sensibility, small pupils, impotence and paræsthesias are the principal nervous symptoms. The tongue is dirty, the breath foul and the appetite lacking, and there is constipation, alternating with diarrhœa. There is some secondary anæmia. The skin and hair are dry.

The addict deprived of his drug, or obtaining it in insufficient doses, is miserable, restless, sleepless and full of malaise and aches and pains.

Prognosis.—The outlook is always very serious. Spontaneous abandonment of the habit is very rarely successfully maintained. Treatment, even when temporarily successful, is usually followed by relapse.

Treatment.—The patient must be removed to a hospital or to a nursing home, where all access to drugs can—theoretically at least—be definitely prevented. Gradual withdrawal, with the gradual substitution of other drugs, followed by their withdrawal in turn, is probably the best treatment. Sudden withdrawal is unnecessarily distressing, and may produce a collapse. The Towns-Lambert method (*v.* "Alcoholism") has been used for this purpose. The substituted drugs should be used for procuring sleep and for comfort, and should consist of codeine in doses of $\frac{1}{4}$ or $\frac{1}{2}$ gr. not oftener than at four-hour intervals, aspirin and

phenacetin in 5 or 10 gr. doses, and bromides. Barbiturates are also useful for this purpose. They should be given only in sufficient quantity to procure relief from the symptoms of gradual withdrawal, and should themselves be gradually diminished in quantity after all morphine has been discontinued. The nature of the individual dose should be concealed from the patient. After all morphine has been stopped he can be informed of the fact.

Warm baths are very useful in allaying discomfort, and also help to produce sleep. The nutrition must be sustained by diet appropriate to the state of the digestive system. Tonics may be used after withdrawal has been accomplished. The Stewart method may be used as already described for alcoholism.

When withdrawal has been accomplished, it is important to keep the patient under supervision, and endeavour to build up his *morale* as well as his physique. Psychotherapy in the sense of investigation into his history and make-up, and the discussion of the factors which have led to his addiction, with encouragement and general guidance, should be employed for as long a period as possible.

Cocainism

Cocaine is not so much indulged in as opium and its derivatives, but is chiefly used as an accompaniment or alternative to other drugs of addiction. It is, perhaps, the most rapidly pernicious of all forms of drug addiction.

The results of a dose of cocaine are slight dizziness and headache, quickly followed by a feeling of well-being, during which period the patient feels more active mentally. This increased mental activity is real, but does not endure. In this stage the addict is garrulous, witty, writes a great deal and has no sensations either of hunger or fatigue. Vivid illusions and hallucinations of a pleasant kind occur, and are often of diminutive objects ("Lilliputian" hallucinations). In this stage of intoxication the illusions and hallucinations and the phantasies generally are in the nature of wish-fulfilments. After the acute effects wear off, there is a general diminution in activity, with some inco-ordination, and the mood fluctuates from well-being to irritability, moroseness and suspicion.

The habitué becomes increasingly depraved morally, neglecting his family, his work and his social obligations. He tends to associate with other habitués and with prostitutes, and may indulge in sexual crimes and crimes of violence.

Impotence appears quickly in men, but in women libido is said to be increased, and to lead to perversions. Dilated pupils, dryness of the mucous membranes (leading to excessive drinking), anorexia, palpitation and emaciation are the common physical signs.

The end may come from cardiac failure, or paralysis of respiration, or intercurrent disease, to which his feeble physical condition makes the addict peculiarly susceptible.

Abstinence produces unpleasant paræsthesiæ, especially creeping sensations under the skin ("cocaine bug"), gastric disturbances, depression and fearful hallucinations.

Special types of mental disturbance have been noted by Bleuler in cocaine addicts. He describes a disorder resembling a Korsakow psychosis, but with irritability, flight of ideas and ineffective preoccupation with small tasks. Co-ordination disturbance (tremor, ataxia), sleeplessness, impotence and emaciation may appear, and the picture may resemble general paralysis.

Delusions of persecution, especially of jealousy, and with hallucinations of similar content, occur in a few patients. In this type, and in the Korsakow-like variety, orientation is not impaired; and the persecuted cocaine addict may be dangerous.

The *treatment* is the same as for opium addiction. There is said to be less danger of collapse from withdrawal.

The Mayor of New York's Committee on Drug Addiction recently reported on 318 treated male cases, of whom the great majority took heroin and the remainder took morphine. Very few took cocaine alone. 50 per cent were constitutional psychopaths and the majority of the remainder were criminals, vagrants and paranoid personalities, or homosexuals (presumably true inverts were referred to). The physique in general was poor. None of the nostrums advertised as specific remedies were found to have specific value. The same held with atropine, amytal and the like. Organised methods of treatment for large groups have so far failed to justify themselves, partly on account of the failure to provide means of social rehabilitation after discharge, and partly on account of the character and personality of the addicts themselves, especially their reactions to and with each other when treated in a group—their "code", not to give each other away and to regard addiction as a sign of manliness; and their suggestibility, so that older addicts influenced the others detrimentally, and the weaker take their code from the disgruntled (*American Journal of Psychiatry*, 1931, x, 433).

Marihuana Intoxication

The physiological effects resemble those of atropine. Euphoria, volubility and hyperactivity occur in 2–3 hours, followed by "delicious" lassitude and sleep, with some depression on waking. The effects of addiction are loss of energy and aches and pains, but it seldom leads to dependence, according to Allentuck and Bowman.

Bromide Intoxication

The bromide salts are prescribed so indiscriminately in nervous and mental disorders, both as regards dosage and duration of use, that signs of bromide intoxication frequently occur. This is particularly so in cases of epilepsy, and in cases of arterio-sclerotic brain disease and senility, that are difficult to manage.

At the time of admission of such cases to mental hospitals the symptoms of the underlying state are cloaked by a state of mental dullness with memory defect, or even delirium, due to the excessive use of bromide. The delirium produced by bromide does not differ in any way from that caused by other toxic agents ; there is a dull, confused, hallucinatory state, with fear reaction, and disorientation in all fields. The concentration of bromide necessary to produce delirium must vary with the patient's constitution. In 41 cases with more than 25 mg. bromide per 100 c.c. of serum, there was only one case of bromide intoxication (Board of Control Report, London, 1938). Some patients can tolerate a level of 200 mgm. per cent.

Physically the patient is usually in an enfeebled state, the skin of the face and back is covered with an acne-like eruption, the breath has a sweetish, fetid odour, the tongue is coated with a thick brown fur, the bowels are usually constipated and there may be retention of urine. In addition, it is noticed that the speech is thick and slurred ; tremor of the hands, tongue and facial muscles is a prominent symptom. There is ataxia and inco-ordination of the muscles generally, the tendon reflexes are usually exaggerated, the pupils are widely dilated and the light reflex is either greatly diminished or absent. The picture presented is often very similar to that of cases of general paralysis.

Treatment by immediate stoppage of the drug, and by free elimination through the kidneys, the bowels and the skin, results in a rapid clearing up of the toxic symptoms.[1]

[1] For the method of estimation of the bromide content of the serum, see O. Wuth, *Jour. Amer. Med. Assoc.*, 1927, lxxxviii, 2013.

Coal-Gas Poisoning

The mental effects of coal-gas poisoning have some psychiatric importance because not only does accidental coal-gas intoxication occur, but coal-gas poisoning is a popular method of suicide. Where death does not occur in the acute stages (in which there are profound mental symptoms) a chronic organic reaction may ensue in any case in which the exposure has been considerable. Carbon monoxide is a principal constituent of coal-gas. A typical formula for coal-gas is as follows :

CO 23·6 per cent, CH_4 20·5 per cent, H_2 35·5 per cent, illuminating gas 11·1 per cent, N_2 5·2 per cent, and O_2 0·7 per cent.

The lethal effect has been attributed to the carbon monoxide combining very stably with hæmoglobin, and so producing an anoxæmia. Nerve cells do not survive anoxæmia longer than sixty minutes at the most (spinal cord), and the small pyramids of the cortex not longer than eight minutes (Macleod). Hence immersion in a coal-gas atmosphere for more than a short time leads in theory to death of at least some cells. The time of exposure necessary for disaster is said to depend on the concentration of CO. Mott stated that " when a man has been exposed some hours to an atmosphere containing more than 0·02 per cent CO, symptoms of poisoning will occur ". His work pointed to a combination of factors : (*a*) the heart, owing to anoxæmia, has to beat faster and do more work with less oxygen, and consequently it may undergo fatty degeneration ; and (*b*) fatty degenerative changes occur in the cerebral capillaries. In a case reported by Stewart, it was the large pyramids that were affected, cells which are less susceptible to oxygen want than the small and medium pyramids, and which have a more generous blood-supply than the latter. These conditions suggest not an anoxæmia but a toxæmia. It therefore seems likely either that carbon monoxide has a specific toxic action, or that the other constituents of coal-gas are the culprits. Jelliffe and White point out that the gases in artificial illuminant gases contain the same chemical radicles as alcohol, and assert that their toxic action is identical with the action of the latter. But it is doubtful whether the toxæmia theory is valid, since it is possible to grow young tissues in an atmosphere of carbon monoxide ; but other constituents of coal-gas may be toxic.

The immediate effects are headache and vomiting. The

headache has been attributed to a rise in intracranial pressure, from congestion of the brain, followed by œdema (Forbes, Cobb and Smith). In severe cases there ensues an acute organic reaction—delirium or coma, followed by death within a week, or a dreamy mental state and recovery, or a chronic reaction.

Acute excitement has been reported in the first twenty-four hours (Scott). Kraepelin emphasises that after the initial symptoms have disappeared there may be a stage of apparent complete recovery for a few days or even weeks, followed by the appearance of severe symptoms (of the chronic type).

In the chronic stage there are both nervous and mental symptoms, and one or other of these may preponderate. The nervous symptoms are paralyses, speech disturbances, tremors and analgesia. The mental symptoms are best illustrated by a record of an actual case.

CASE 59.—A married man, aged 40, lost his position as a ledger clerk in August 1912, and was subsequently restless, depressed and tearful, and drank a good deal. On November 20 he attempted suicide by inhaling illuminating gas, and became unconscious. On the 21st he recovered consciousness. He subsequently complained of abdominal pains, and had a temperature of 101°, with hyperæsthesia in the right iliac region. There was no leucocytosis, and the Widal reaction was negative. The pyrexia quickly subsided and he became delirious, with occasional clear periods. Following this he remained apathetic, lazy and unkempt, disoriented for time and having a recent and remote memory defect, with much variable confabulation. He had some insight into his condition, which he declared was one of loss of memory and bewilderment. He had no recollection of having taken gas, and attributed his illness to a supposed attack of enteric fever. His grasp of general information was poor. At times he played childish tricks. The pupils reacted sluggishly to light, there was a fine tremor of the tongue, which was protruded to the left, and the knee and ankle-joints were exaggerated. All serological tests for syphilis were negative. The C.S.F. globulin was slightly increased. He remained in this condition for five years, when he was lost sight of.

Patients with the after-effects of coal-gas poisoning are not common, however, in psychiatric practice. The above was the only instance in 5000 consecutive admissions.

Pathology.—Besides the CO-spectrum in the blood and the degenerative changes mentioned above (Mott), the cerebral alteration is described by Jelliffe and White as a polio-encephalitis. Stewart observed in one case dying on the twenty-fourth day

an intense and universal myelin degeneration, a bilateral softening of the basal ganglia and widespread cortical softening confined to the deeper layers of the grey matter.

The *prognosis* is very poor, once chronic mental symptoms have appeared. The prognosis, after recovery from the acute stages, has to be made with the reservation pointed out by Kraepelin (*supra*).

The *treatment* in the acute stages is as usual for acute mental conditions, together with fresh air or oxygen and blood-transfusion (Haldane), and hypertonic saline (to reduce the cerebral œdema). In the chronic stages it is custodial, hygienic and occupational.

Lead Poisoning

The effect of the long-continued absorption of lead in producing peripheral paralysis, alimentary disturbances and anæmia is well known. Mental effects in the form of the so-called lead encephalopathy have also been described but are rare, and have usually resulted from swallowing lead. These mental effects have, however, occurred more frequently in the United States as the result of the industrial use of a volatile lead-compound in the form of tetra-ethyl lead. The sequence of symptoms described by Yandell Henderson (*Brit. Med. Journ.*, January 9, 1926) was insomnia, visual hallucinations and violent excitement, soon leading to death. This condition was the result of inhalation of the volatile compound. Inhalation of lead dust leads to the slower and more usual forms of poisoning.

Infection-Exhaustion Psychoses

By the infection-exhaustion psychoses we mean to designate conditions accompanying or following on infective illness, poisoning by some exogenous toxin, severe physical strain, such as hæmorrhage and prolonged parturition, and any other severe stress of a physical kind. The infection-exhaustion psychoses belong principally to the organic reaction-type, but in any infective-exhaustive state a latent reaction-type of another kind (for example, manic-depressive psychosis, schizophrenia) may be unmasked. There is no unitary correspondence between variety of toxin or infection and type of clinical syndrome. All sorts of different toxic agents may produce closely similar or identical clinical pictures, and the same toxin can lead to the outbreak of very different psychoses, depending on the make-up of the individual attacked.

Of the infections, those which seem most commonly to produce psychoses, both in the acute stages of the infection and in the convalescence afterwards, are malaria, influenza, pneumonia, smallpox, acute rheumatism, scarlet fever, typhoid and typhus.

Mental symptoms may appear in the prefebrile, the febrile, or the post-febrile stage. The symptomatology in all three stages is closely similar, and attempts to differentiate between the mental symptoms of the various stages have not been very satisfactory. The main clinical forms at any stage are delirium, epileptiform, dazed and stuporous conditions, hallucinoses, hallucinatory katatonic and incoherent confusional states (Bonhoeffer).

In the later (post-febrile) states one may see considerable intellectual enfeeblement, amnesia, sometimes of the Korsakow type, apathy, or other emotional change such as depression, and defects of attention. Children may suffer an arrest of mental development which may or may not be made up later.

The commonest syndrome is a delirium, usually ushered in by complaints of physical exhaustion, restlessness, sleeplessness, irritability, headaches and giddiness, terrifying dreams and a feeling of being mixed up in the head. Aphasia and agraphia rarely occur. The prodromal period of the delirium may last for several days. Disorientation for time and place follows, with illusions and hallucinations of sight and hearing, and considerable fear. The illusory manifestations are of a fearful kind, and involve sights and sounds in the environment. Suicidal attempts are very common, often as a reaction to hallucinatory experiences. Wild excitement, closely resembling an acute manic excitement, is sometimes the first symptom. These are the characteristics of delirium at the height of the fever. In very severe infections the symptoms begin to indicate a still greater impairment of mental and psychomotor activity. Speech becomes still more incoherent, low and mumbling. The drowsiness now amounts to coma, often with open eyes (coma vigil), which nevertheless give no comprehension of the surroundings. Jactitation, *subsultus tendinum* and involuntary passage of urine and fæces occur. Cases of this type usually end in death. Less severe cases continue in the delirious state till the fever begins to subside. " Lucid intervals " of brief duration — *i.e.* variations in the level of consciousness in the direction of clearness—may occur in the course of the delirium.

The post-febrile stage is essentially one of invalidism, with

depression or apathy, disinclination for exertion and easy fatiguability, mental or physical, and memory defects. This condition may appear immediately; but sometimes it does not appear for some considerable time afterwards. Convalescence is remarkably slow. After influenza depression is especially common, and there is the risk of suicide.

It is in the post-febrile period that reaction-types of a constitutional kind—manic-depressive and schizophrenic—are especially apt to appear.

A "collapse delirium" is described, which is essentially a delirium arising *de novo* in the post-febrile period, and is characterised especially by motor phenomena, paræsthesias and hallucinations.

Morbid Anatomy.—The morbid changes in the brain are not well known. Œdema of the pia arachnoid has been seen in some cases. Some vascular congestion of the brain substance has been described. The nerve changes are such as would naturally accompany a pyrexia. There is a peripheral chromatolysis, especially of the large nerve cells of the cortex. The blood in the acute stages shows an acidæmia.

Prognosis.—The great majority of infective-exhaustive psychoses get well. Upwards of 70 per cent make a complete recovery. Death occurs, of course, in conditions of very acute or prolonged physical illness. A small number suffer a lasting impairment of intellect, especially of memory. This applies especially in the case of children. It is said that psychoses appearing during pregnancy, or in the early days of the puerperium, have a more favourable outlook than psychoses developing later in the puerperium. But the prognosis of mental illness occurring in pregnancy and the puerperium depends on a great complexity of factors—the type of illness developed, the constitution of the patient, the domestic circumstances, the question whether the child is wanted and whether the pregnancy is dreaded for physical reasons, etc. All these factors have to be considered, as in any other circumstances, and no general rules can be laid down.

It may be said that the prognosis of a schizophrenic reaction occurring in a delirious setting is, on the whole, more favourable than a similar reaction occurring in a setting of clear consciousness.

Diagnosis.—In the great majority of cases the diagnosis is clear, because the temporal relation between the mental symptoms and the onset of the fever is usually obvious. The differentiation of manic, schizophrenic and other reactions can only be

made by following the progress of the case. Wherever delirium, often in its main manifestation more loosely called "confusion", is present, it is a good working rule to search for a physical, especially a toxic or septic, basis. Here, if anywhere, when no clear cause of a psychosis of the acute organic reaction-type presents itself, is the legitimate application of the focal infection theory. In such instances it sometimes happens that a hitherto unsuspected sinus infection, for example, usually of the "closed" type, is the principal or at least a contributory agent. Psychogenic deliria (hysterical) having their origin in a wish-fulfilment can usually be differentiated by their much greater internal consistency, and sometimes by the grotesque absurdity of their content and their relation to recent emotional stress. The post-febrile stage of invalidism, described above, includes the "hyperæsthetic emotional state" of German authors, and has to be differentiated from "neurasthenia" of psychological origin by the history, the previous personality, and a proper evaluation of the individual symptoms.

Treatment is for the concomitant physical condition. Otherwise it is symptomatic, and on the same lines as the treatment of delirium tremens. Fluids, by mouth or rectum, should be freely given. The lower bowel may be washed out with normal saline or weak soda-bicarbonate solution, and the same solution then given as an enema to be retained and absorbed.

Puerperal Psychoses

Jacobs (*Jour. of Ment. Sci.*, April 1943) has shown that a septic puerperium in itself is relatively unimportant unless it is complicated by the presence of other predisposing and precipitating factors. She makes it clear that in manic-depressives the likelihood of a psychosis following childbirth is considerably greater than in other groups. The particular precipitating factors stressed by her are (1) aversion towards childbirth, (2) a neurotic attitude towards motherhood based on experiences in the parental home, (3) an unsatisfactory married life. The importance of the husband's attitude towards the pregnancy and birth is not enough appreciated as regards its effect on the woman. It may be very pathological indeed; for example, in one of Jacobs' cases the husband identified himself with his wife in the puerperium, suffered from hyperemesis and thus illustrated a reversion to the rite of the couvade in the manner to which E. Jones has called attention.

In cases of pregnancy the psychological condition of the woman should receive considerable care. The physician should not only inculcate a healthy attitude towards childbirth, but should also attempt to deal with any psychological conflicts arising out of the marital situation.

Recurrent psychoses arising in relation to childbirth are apt to lead to considerable mental deterioration, and when such a tendency exists, the possibility of termination and sterilization should be considered.

Wernicke's Encephalopathy

In 1881 Wernicke described a series of cases of acute superior hæmorrhagic polio-encephalitis which were regarded as dependent on chronic alcoholism. Since then Neuburger, and Campbell and Biggart have pointed out that the same condition may occur as a complication of other conditions in non-alcoholics. The pathological lesions consist of foci of vascular stasis and parenchymatous degeneration occurring symmetrically in the corpora mammillaria, and in other parts of the hypothalamus, the fornix, the juxtaventricular zone of the thalamus, the peri-aqueductal grey matter of the mid-brain, the posterior colliculi and the floor of the fourth ventricle. Lesions may also be found in the corpus striatum, the substantia nigra, the anterior colliculi, the optic nerves and, rarely, in the cerebral cortex.

Campbell and Ritchie Russell (*Quarterly Journal of Medicine*, New Series No. 37), in an analysis of 21 cases, point out that Wernicke's encephalopathy is not an uncommon condition, that it occurs as a complication of a wide range of other diseases, and that it can be diagnosed clinically. Eight of the cases were associated with alcoholism, but following Neuburger's suggestion regarding its occurrence in cases of gastric carcinoma and chronic gastritis, Campbell and Russell carefully investigated a series of cases of fatal gastro-intestinal disease associated particularly with a history of disturbance of memory or consciousness before death. In addition to alcoholism their case material comprises cases of gastric carcinoma, pyloric stenosis, chronic dyspepsia, macrocytic anæmia, chronic septic peritonitis, hyperemesis gravidarum, pernicious anæmia, pregnancy with vomiting, bronchiectasis, chronic pyosalpinx, miningo-vascular syphilis and a child of $3\frac{1}{2}$ years dying from (?) whooping-cough. Their investigations indicate that the association of Wernicke's disease with alimentary disturbance and polyneuritis suggests a vitamin deficiency.

The clinical symptoms are described as falling into two groups : (1) disturbances of consciousness and of higher cerebral functions ; (2) focal neurological signs and symptoms.

The first group of symptoms was a constant feature. The picture was of drowsiness, delirium and Korsakow features, *e.g.* disorientation, amnesia, hallucinations and confabulation. Their experience confirms that of Krant, who stated that he had never seen a case of fatal Korsakow's psychosis without Wernicke lesions ; this refers both to alcoholic and non-alcoholic cases. Epileptiform convulsions are an occasional accompaniment. Optic nerve lesions are said to be a significant part of the Wernicke syndrome.

Oculomotor disturbances were present in 10 cases and constitute the most frequent and most important group of focal neurological signs and symptoms. Unequal and irregular pupils, the Argyll Robertson phenomenon, paralysis of conjugate eye movements, diplopia, strabismus, and nystagmus were all noted.

There may be respiratory paralysis of central origin and pyramidal tract involvement, while polyneuritis was present in 9 cases.

These cases, however, need not prove fatal, and we have seen one case at least where recovery took place while under treatment with vitamin B_1 and nicotinic acid.

Campbell and Russell stress the important ætiological factor as a deficient vitamin intake of some part or parts of the B complex. A large series of cases was reported by Jolliffe, Bowman, Rosenbloom and Fein (*J. Amer. Med. Assoc.*, 114, 307) as nicotinic acid deficiency encephalopathy. It may be, therefore, that Wernicke's syndrome is due to a combined deficiency of vitamin B_1 and nicotinic acid.

Psychoses associated with Syphilis

Syphilitic diseases of the nervous system consist of the two main types, mesoblastic or interstitial, and the parenchymatous. Clinically, pathologically and serologically, it is often impossible to draw a hard and fast line between these two types. Owing, however, to the more favourable results of treatment in the interstitial as compared with the parenchymatous, it is well to discuss them separately. We shall therefore describe three groups :

(*a*) General paralysis of the insane or dementia paralytica,
(*b*) Tabes with psychosis, and
(*c*) Cerebral syphilis.

Dementia paralytica and cerebral syphilis are examples of the organic reaction-types. The former usually shows the chronic type of organic reaction, and the latter usually conforms to the acute type.

Dementia Paralytica

In 1798 Haslam, the apothecary at Bethlem Hospital, published the clinical report of a case, but did not recognise the nature of the disease. Not long afterwards, in the early part of the nineteenth century, a group of French investigators—Esquirol, Georget, Bayle, Calmeil—helped to elucidate it, and correlated the clinical symptoms with the pathological findings.

In 1805 Esquirol made the observation that " paralysis was a common complication in cases of mental disorder, and added considerably to the gravity of the prognosis ".

Georget confirmed the above observation, and termed the condition " chronic muscular paralysis ".

In 1822 Bayle presented a thesis for the Doctorate of the Faculty of Paris, in which he expressed the opinion that general and incomplete paralysis developing in association with mental disorder was due to chronic meningitis.

In 1826 Calmeil showed that the morbid process was really due to a chronic encephalitis involving both the surface of the brain and meninges. (Robertson, *B.M.J.*, December 9, 1922, and Campbell, " Focal Symptoms in General Paralysis ", *Amer. Jour. Insan.*, 1912.)

During the past century this disease has been investigated from many different aspects, and its identity has been well established on clinical, pathological and serological grounds. For many years it has been recognised that many of those who ultimately suffered from this disease had at one time contracted a syphilitic infection, but there were many competent observers who stated that the condition could occur quite independently of any syphilitic infection—for instance, from head injury, alcoholism or an erratic mode of life.

The theory of the syphilitic causation of this disease was at first based entirely on statistics, but after Krafft-Ebing had had the temerity to inoculate general paralytics with syphilitic virus without infecting them, the conception of the syphilitic origin of the disease was greatly strengthened. This theory soon received further support from a series of researches on the cerebro-spinal fluid, originated by Widal and Sicard, and

carried on by many others, until Wassermann demonstrated anti-bodies in the cerebro-spinal fluid and blood serum of those known to be suffering from syphilitic disease affecting the nervous system.

In 1913 Noguchi and Moore announced that in 14 out of 70 cases of general paralysis they had been able to demonstrate the treponema pallidum in the brain cortex. These findings have been confirmed by many other observers. It can thus be definitely stated "No syphilis, no paresis". While this is so, it does not necessarily mean that syphilis invariably leads to an affection of the nervous system; it has been estimated that approximately only 2 per cent of syphilitics ever develop general paralysis. Why it develops in one case and not in another has been constantly discussed, but we still do not know whether it is a matter of a special strain of the organism or of a specially susceptible nervous system. There are many cases on record where a number of individuals have been infected from the same source, and in consequence it has been thought that the type of organism was the important factor in determining infection. But there are many arguments which are in favour of an individual susceptibility. This latter idea has received a certain amount of confirmation from Pirquet's conception of "allergie" which McIntosh and Fildes have used to explain more exactly the incidence of parasyphilitic infections. Pirquet showed that infections caused a change in the tissues *in* either of two directions; the tissues might respond less and less, until they failed to respond altogether and became anergic, or a reaction might appear more quickly and with greater violence to a smaller dose of the poison. This latter condition is what was described by Richet under the name of "anaphylaxis".

Fildes and McIntosh believe that all tertiary or parasyphilitic manifestations are expressions of the reaction of hypersensitised tissues. During the early stages of infection the tissues have been so altered that they react more violently to a smaller dose of the spirochæte or its toxins. For instance, meningitis with gummatous inflammation is simply the reaction of hypersensitised connective tissues and blood-vessels, while in general paralysis the hypersensitisation has occurred in the nerve elements and neuroglia. In consequence, the nerve cells and fibres are destroyed, and there is increase and proliferation of the neuroglia. This hypersensitised state of the nervous system was produced, in all probability, by the passage of the spirochætes or their toxins up the nerves from the skin and mucous membranes

during the secondary period. (White and Jelliffe; McIntosh and Fildes, *Brain*, 1913, vol. 36, part 1.)

Dementia paralytica may be defined as an organic disease of the brain, of an inflammatory and degenerative nature, manifesting itself in progressive mental deterioration, and accompanied by certain definite physical signs and serological findings.

The disease is world-wide, although it is less common in tropical countries. Its social significance is appalling. It attacks people in the prime of life, and entails misery to the individual and his family. Moreover syphilis transmitted to the offspring may give rise to juvenile general paralysis. Nicol has found important changes in the C.S.F. in an unexpectedly high proportion of the children of general paralytic patients. The results point to the need for examining the C.S.F. of even the apparently normal members of the families of general paralytics, as an important measure of prophylaxis.

It is estimated that from 5 to 15 per cent of the admissions to mental hospitals are cases of general paralysis. Furbush (*Archives of Neurology and Psychiatry*, February 1924) has made an investigation of the first admissions to certain mental hospitals in the United States, and out of 16,297 male admissions there were 2474 general paralytics, while among 12,702 female admissions there were 553 cases. "If the cases of cerebral syphilis are added to the above group, then it is seen that one out of every six individuals who develop mental disease does so because of syphilis." Salmon (*Amer. Jour. Insanity*, July 1914) has estimated that out of 6909 insane men who died between the ages of 40 and 60, 1 in 9 did so because of general paralysis, while in 5299 women the proportion worked out at 1 in 30.

Time of Onset.—It is often most difficult to obtain an accurate history of the date of the primary syphilitic infection, or even to get a history of an infection ever having taken place at all. Dementia paralytica usually manifests itself at any time from five to twenty years after infection, the usual period being from ten to fifteen years. A few cases have, however, been recorded where the disease has shown itself even thirty or more years after infection. It seems possible that syphilitics who have suffered from a mild type of primary infection are more likely to develop general paralysis, but whether this can be correlated with inadequate treatment is not easy to say. It may simply mean that the organism has been particularly virulent so far as the nervous system is concerned, without necessarily implicating

the mucous surfaces. On the other hand, there are numerous cases in which rigorous treatment has been given, and yet general paralysis has developed.

The average age at which the disease develops varies between 30 and 50 years, but cases below 30 and above 50 are relatively infrequent.

Males are more often affected than females, in the proportion of four to one, but this variation does not occur in cases of juvenile general paralysis, where the sexes seem to be equally affected.

Symptomatology.—It is usual to think of general paralysis as showing three stages: (1) prodromal, (2) fully developed, (3) terminal; and three main types: (1) exalted, (2) depressed, (3) demented. The stages are not clearly differentiated, and although in the average case there is a steady, progressive decline, there is no settled uninterrupted course. Remissions may occur at any time during the course of the disease, which may come even to an apparent standstill. Arrest occurs particularly in tabo-paresis.

The disease is commonly insidious in its development, and is characterised by episodes of strange behaviour, not at all in harmony with the previous character of the individual. For instance, a man who attained a position of great trust, and who had previously been of irreproachable character, got into serious difficulty by trying to steal golf-balls from a club-house in which he was a guest. The man who has been an indulgent husband and father begins to lose interest in his wife and children, seems to lack ordinary thoughtfulness and courtesy, is irritable and cantankerous without due cause, shows a maudlin emotionalism and becomes careless in regard to his dress and appearance. Previously temperate, he begins to take liquor to excess, becomes unfaithful to his wife and even exposes himself to children or assaults them.

The first signs of the disease therefore involve changes in character and mood—changes that the victim is nearly always completely unable to recognise. Even at the earliest period of the illness there may be a pronounced dulling of comprehension, so that simple questions have to be repeated, and if the patient is asked to carry out some simple act, it is often not accomplished at all, or is done badly. All the æsthetic feelings become lost. The relatives and friends cannot understand the alteration in the patient's personality, but feel that he is utterly different from what he formerly was. This deterioration of the personality forms a clear contrast to what occurs in many other cases of

organic brain disease. Its fundamental characteristics have been well summarised by Campbell (*Psychiatric Bulletin*, July 1916) when he says, "The change in the personality, which at a later stage becomes obliterated by the grosser disorders, is first shown in a loss of that special responsiveness which distinguishes the individual as a social unit. The responsiveness to ethical, æsthetic, intellectual and certain conventional standards is involved; the patient no longer shows the same judgment, the same sense of value, a function different from that of mere intellectual activity, and one upon which depends the attitude of the whole individual in the face of actual situations."

A few patients, however, are aware of a change in themselves. They have some realisation that they are not quite so clear-headed and so competent as they used to be; that they cannot apply themselves to their work, seem to lack attention and concentration and are easily fatigued mentally and bodily. They know that they are forgetful, and that they make mistakes in the simplest things.

In another group the condition is ushered in by a convulsive attack, or by a series of such attacks, but convulsions do not as a rule develop until the disease is well established.

During the progress of the disease the memory is progressively impaired, not only for recent events, but more remote ones. Important engagements are not kept, letters remain unanswered, and there is an inability to correlate important dates, *e.g.* present age, date of birth, when married, etc. Sometimes the main facts of the patient's life are mentioned connectedly, but usually there are gaps involving often a period of several years. The memory defect may be so great that knowledge acquired in school, including the ability to do simple calculations, becomes greatly disordered, particularly when these calculations involve continual attention, as, for instance, in subtracting seven serially from one hundred. There is disorientation, particularly for time. An outstanding feature is the inability of the person affected to realise how serious his defects are. When they are pointed out to him he either becomes irritable and refuses to discuss the matter further, or attempts to explain them away on some trivial basis. It is the general experience that a state of contented dementia of the type described is the most common variety of general paralysis. Grandiose delusions, which are in this disease of a bizarre type, are not so common as has been generally supposed. Indeed, in some cases, instead of a feeling of well-being and euphoria, a state of intense depression is

present, even amounting to stupor with mutism. The feature of the depression is the frequency with which absurd nihilistic ideas are expressed. Patients claim that they are dead, that their blood has ceased to circulate, that they have no pulse, that their bodies are utterly destroyed. The ideas in the depressive type are as fantastic and grotesque as those of the grandiose variety. During such periods of depression attempts at self-mutilation and suicide are not uncommon. As the disease progresses the memory becomes more and more disordered, but it should be remembered that there are certain atypical cases (Lissauer type) where a particularly severe focal involvement may occur, and where the memory may be wonderfully well preserved. Gradually a more profound mental involvement occurs, so that in the course of time the patient leads a purely vegetative existence, having to be cared for and nursed in every way. He has to be fed, his bladder and bowels have to be attended to and he is as helpless as a newly born child. Rarely throughout the course of the disease does the patient develop a true realisation of his illness, and to the end he remains, as a general rule, happy and contented.

The above description holds for the majority of patients, but it should be remembered that any type of mental picture may appear—cases, for instance, in which hallucinations are prominent, cases showing alternating elation and depression and cases in whom persecutory delusions are in the forefront. These points are mentioned in order to emphasise that although the mental symptoms are in many respects characteristic, yet they are only pathognomonic when taken in conjunction with certain physical signs and serological findings. This description holds for institutional cases, but in general practice one occasionally encounters cases showing physical and serological signs of general paralysis, in whom discernible mental changes do not develop.

Physical Signs.—It has been stated above that the first evidence of a general paralytic process may be the occurrence of a convulsive seizure, but more usually these seizures occur during the course of the disease. There are cases where seizures never develop at all, but practically every patient has such attacks sooner or later. The convulsive seizures may be epileptiform in type, either in the form of grand mal or petit mal, or they may be apoplectiform. The epileptiform seizures do not differ from the seizures associated with idiopathic epilepsy, except that they tend to last longer than the epileptic seizure, and the stages are perhaps not so clearly differentiated. Even

after consciousness is gained, muscular twitchings may occur for many hours or even days. The apoplectiform attacks are characterised by the occurrence of focal symptoms, hemiplegia, monoplegia, hemianæsthesia, hemianopia, dysarthria, but these focal symptoms are usually transitory in nature, and pass away in the course of a few hours or a day or two. Such attacks, it must be understood, may occur quite independently of any vascular lesion or gummatous lesion, and may be due simply to a more severe parenchymatous involvement of certain specialised parts (Lissauer's type). On the other hand, there are cases where a hæmorrhage occurs, leaving permanent residuals, and not infrequently leading to the death of the patient.

The facies has something distinctive ; there is a smoothing out of the features, so that the patient often looks considerably younger than his years, and has rather a vacant expression. It is comparatively seldom that any of the cranial nerves are involved, but changes in the pupil of the eye are often very characteristic. These consist of inequality of the pupils, irregularity of outline and, most striking of all, sluggishness, or total absence of the light reflex. It is often stated that the consensual light reflex is lost before the direct response disappears. This is dubious, but of the absence of the light response and the preservation of the accommodation response (the Argyll Robertson phenomenon) in from 50 to 60 per cent of cases there is no doubt at all. Many observers put the percentage much higher. In other cases the light response may be described merely as sluggish, and the amount of the excursion is often noted to be smaller than normal. When the accommodation response is absent as well as the light response (internal total ophthalmoplegia) then the general paralytic process is usually associated with locomotor ataxia. Primary optic atrophy does occasionally occur, but more particularly in these cases where there is an associated locomotor ataxia. The speech shows a characteristic disorder. In the early stages it is noticed that the patient slurs his words, rendering the speech like that of a drunken man, but as the disease progresses words become more difficult to pronounce ; often they are distorted beyond recognition. The speech difficulty can be demonstrated by asking the patient to repeat such words as "hippopotamus", "particular popularity", "Methodist Episcopal", "British Constitution". When testing a patient for speech disorder it is best to get the patient to repeat the test word three consecutive times. Ultimately the speech becomes so tremulous and difficult that only a word here and there can be

recognised. Great effort is required to enunciate, and the effort is accompanied by great facial tremor.

The writing shows changes similar to those described as affecting the speech. There is tremor, the missing out of syllables or words and the transposition of syllables, so that the words are distorted. Generalised tremors are seen, which affect particularly the outstretched hands, the tongue and the facial muscles. The tremor of the tongue is coarse, and is often of the trombone type, while the tremor and instability of the facial muscles is often well seen during casual conversation, or more especially when the patient is asked to show his teeth.

We recognise two main types of physical involvement—the cerebral and tabetic. In the cerebral type the tendon reflexes are usually exaggerated equally on the two sides, but where focal symptoms have been present they may be more exaggerated on one side than on the other.

In the tabetic type the tendon reflexes are absent or diminished. It is only in the cases with focal lesions that ankle-clonus and a positive sign of Babinski can be obtained.

Loss of control of the organic reflexes occurs throughout the course of the disease, so that at any time there may be retention or incontinence of urine and fæces. We would particularly emphasise the importance of constant watchfulness for an overflow from a full bladder. When general paralytics are confined to bed, there should be a regular daily examination of the bladder. As the patient becomes weaker he tends to become ataxic in his gait, and owing to the danger of injury he has to be put to bed, where contractures often develop.

Occasionally general paralytics show a rise of temperature without any very definite cause. This rise of temperature is occasionally the precursor of a convulsive attack.

Serological Findings.—Widal, Sicard and Ravaut in 1900 pointed out that an increase of cells in cerebro-spinal fluid was of great importance in helping in the diagnosis of various types of nervous and mental disease. Since that time new cytological, chemical and serological methods have been devised which are of great additional help in coming to a diagnosis of general paralysis. The operation of lumbar puncture is now a routine procedure, and does not need any detailed description. We would simply draw attention to the fact that no more cerebro-spinal fluid should be drawn off than is necessary for examination purposes. In cases in which the clinical signs point conclusively to some syphilitic involvement of the nervous system, 10 c.c. of

cerebro-spinal fluid may be withdrawn, but in other cases where there is some doubt in regard to the diagnosis it is not wise—in the first instance in any case—to draw off more than 5 c.c. The reason for this is that while positive cases exhibit few after-effects, the cases with negative findings in the cerebro-spinal fluid are apt to suffer from severe after-effects, such as headache, nausea and vomiting. This is so decidedly the case that some writers have gone so far as to say that the presence of after-effects strongly contradicts the possibility of general paralysis.

We recommend counting the cells by means of the Fuchs and Rosenthal counting-chamber method, as this does away with the necessity of centrifuging, and on that account the form of the cells is preserved. The Fuchs-Rosenthal slide has a depth of 0·2 mm. and the rulings are 4 mm. on a side. The pipette is the same as that used for counting leucocytes. As a help for recognising the cell types, Fuchs and Rosenthal recommend the following stain :

Methyl violet	0·10
Aqua dest.	50·0
Ac. acet. glac.	2·0

As soon after the puncture as possible, the stain is drawn up to the mark 1 on the pipette, and then the cerebro-spinal fluid is drawn up to the mark 11. The fluid is thoroughly mixed with the stain by shaking for from three to five minutes ; the first two or three drops are discarded, the next drop is put on the slide and the number of leucocytes per c.mm. estimated. The whole sixteen sets of sixteen squares must be counted, and to get the number per c.mm. the total number has to be multiplied by 11 and divided by 32, *e.g.* (X = 11 a/32—approximately a/3). It is advisable to count from two to three slides so as to get an average. With this method less than 5 cells per c.mm. may be considered negative, from 5 to 10 cells per c.mm. doubtful, above 10 cells per c.mm. a positive cell count.

In 1907 Alzheimer perfected a method for differential cell estimation of the cerebro-spinal fluid which has not met with sufficient recognition. The technique of this method is as follows : It consists of centrifuging 3 or 4 c.c. of cerebro-spinal fluid with double the quantity of alcohol, 96 per cent, for from one half to one hour, depending on the speed of the centrifuge. By this means the protein is coagulated into a hardened plug. This plug is further dehydrated and hardened by adding absolute alcohol, then absolute alcohol and ether, and finally ether, each

for a variable number of hours, depending upon the thickness of the plug. The plug is next loosened in the side of the tube by a fine platinum needle, embedded in celloidin, and cut in sections of from 1-5 μ in thickness. The cut sections may be stained with Pappenheim's pyronin-methyl green or with Unna's polychrome methylene blue. Henderson and Muirhead, using a modification of the above method, showed that in general paralysis a greater variation in cell types was seen than in any other psychosis. A picture similar to that of general paralysis was obtained in cases of tuberculous meningitis; such cases, however, do not complicate the diagnosis of general paralysis.

Plasma cells and gitter cells seem to be characteristic features of general paralysis, and were found to be constantly present. In cerebral syphilis these two types of cells have been found by other observers, but apparently not in such large numbers or so constantly as in general paralysis. In general paralysis the cell count is almost uniformly positive, and may vary from 10 to 200 cells per c.mm.

Protein Reactions.—Protein is present in small amounts in normal cerebro-spinal fluid, but it is increased in inflammatory conditions affecting the meninges, and it has been estimated that in cases of general paralysis the amount is commonly four times greater than normal.

The two tests which are in common use are the Ross-Jones test and the Nonne-Apelt test. Ross and Jones modified the Nonne-Apelt test by performing it as Heller's nitric acid test is performed with urine. Two c.c. of the saturated solution of ammonium sulphate are placed at the bottom of a test-tube, and 1 c.c. of cerebro-spinal fluid is allowed to gently flow on top. The formation of a ring at the junction of the two fluids constitutes a positive reaction. The ring is described as "clear cut, thin, greyish white, and has the thickness of a thin piece of paper. It should form within three minutes, and within half an hour it may be observed that the surface of the ring shows a delicate mesh appearance resembling a cobweb."

The Nonne-Apelt test can be performed by shaking the two solutions together, and a case is said to be positive when a cloudiness arises within three minutes.

Wassermann Reaction.—In 1906 Wassermann, Neisser and Bruck applied the Bordet-Gengou phenomenon of complement fixation as a test for the diagnosis of syphilis. This reaction is known as the Wassermann reaction. The Wassermann reaction

is positive in the blood almost invariably but not always, while with the cerebro-spinal fluid it is positive in 95 per cent.[1]

Other serological tests especially of the flocculation type have been introduced, but it seems doubtful whether any of them surpass a technically perfected Wassermann test in delicacy or accuracy.

In addition, a more recent test has been the introduction of the colloidal gold test. This test is due to the work of Lange, who first used it in 1908, and is a physico-chemical reaction which can be read by the coloration in the tube.

Lange's Gold Colloid Reaction in the Spinal Fluid.—*Preparation of the Gold Sol.*

(1) 1 per cent solution of Gold Chloride ($Au\ Cl_3\ 2H\ Cl$) . 1 c.c.
(2) 2 per cent solution of Potassium Carbonate (Analytical Reagent) . . . . . 0·6 c.c.
(3) 1 per cent Formaldehyde (Analytical Reagent) . 1 c.c.

The above reagents are added to 100 c.c. of double distilled water in a chemically clean pyrex flask, in the order given, and the mixture is rapidly brought to the boiling point. A colour change commences just before the boiling point is reached, and gradually deepens until a clear cherry-red colour is obtained just as the large bubbles are commencing to break on the surface. There should be no trace of blue at any time during change of colour.

The reagent is examined as to its suitability as follows: 5 c.c. of the reagent should be completely precipitated in one hour by 1·7 c.c. of 1 per cent sodium chloride.

It should give a typical paretic curve with a known paretic fluid. With a normal fluid no more than a No. 1 reaction should be obtained.

Technique of Test.—All glassware must be chemically clean, and all water used in the solutions re-distilled within the previous twenty-four hours.

Eleven small test-tubes are set out in a stand, and into the first is placed 0·9 c.c. of 0·4 per cent sodium chloride ; into each of the other ten 0·5 c.c. is added. 0·1 c.c. of the cerebro-spinal fluid to be examined is added to the first tube, and 0·5 c.c. of this mixture is taken and transferred to the second tube. In like manner 0·5 c.c. of the mixture in the second tube is transferred

[1] For the methods recommended for use in mental hospitals in Great Britain and Ireland, see "The Standardisation of the Wassermann Reaction for the use of Mental Hospital Laboratories", *Jour. Ment. Sci.*, 1931, lxxvii, 468.

to the third tube. This is continued along the series until the tenth tube is reached, where 0·5 c.c. of the mixture is thrown out. In this way a series of dilutions of the cerebro-spinal fluid is obtained, commencing at 1-10 and ending at 1-5120. The eleventh tube contains only the saline solution, and is used as a control of the colour.

To each of the eleven tubes is now added 2·5 c.c. of the colloidal gold reagent, and the series of tubes is set aside for twenty-four hours, when the reading is made.

The reaction observed in the tubes is a colour change due to an alteration in the dispersion of the gold colloid. The colour changes consist of a series of shades passing from red through blue to a clear fluid. The shades selected as standard for reading the results are red, reddish blue, blue or purple, blue, grey-blue and colourless. These shades are given the numbers from 0 to 5 respectively, and the results may be given in the form of a curve or, as is more usual, in a series of figures, always beginning with the figure for the 1 in 10 dilution.

Three types of curves are recognised :

(1) *The paretic curve.*—This zone comprises the first three to six tubes in which the reaction is characteristically of the " 5 " type, *i.e.* there is a clear, colourless fluid with a deposit of blue granules in each of the first three to six tubes, and a typical curve would read 5.5.5.5.5.4.2.1.0.0

or 3.4.5.5.4.3.2.1.0.0.

The paretic curve is obtained in general paralysis of the insane, and in some cases of tabes. It has also been described as occurring in a few cases of disseminated sclerosis and also in one or two cases of brain tumour.

(2) *The luetic curve.*—This zone also occurs in the first six tubes, but the reaction is not nearly so complete. The maximum point is in the third, fourth or fifth tube, and the reduction never exceeds a " 3 ". Such a curve should be represented by

1.1.2.3.2.1.0.0.0.0

or 2.2.3.3.2.1.0.0.0.0.

The curve is seen in cerebro-spinal syphilis, in secondary syphilis and in some cases of tabes. It has also been described in the late stages of tuberculous meningitis.

(3) *The meningitic curve.*—Here the reacting zone is in the higher dilutions giving the more intense colour changes in the sixth to the ninth tubes, and showing no reduction in the first three or four tubes. This curve should give a reading of

0.0.0.1.2.3.4.4.3.2.

This curve occurs inconstantly in meningitis, apart from syphilitic, and most frequently in purulent cases. The presence of blood in the cerebro-spinal fluid also tends to cause a reduction of the gold in the higher dilutions (Whitelaw).

Before discussing the course, diagnosis and treatment of this condition, we wish to demonstrate the wide *variety of clinical picture* which occurs by giving a few brief abstracts.

Case 60.—A case in which an unconscious seizure was the first symptom.

A married man, 51 years old, one year previous to admission, and while still actively employed, had an unconscious spell which lasted for half an hour, followed by a transitory right-sided hemiplegia with dysarthria. Five months later he had a second transitory right-sided weakness, without loss of consciousness. No mental symptoms were noted until fourteen days previous to admission, when one night he suddenly got out of bed and started to wash everything he could lay his hands on. He became very excited, said that he felt fine and expressed many grandiose ideas: he was going to open a shop, buy lots of houses and was about to become King of England. A detailed examination showed that his memory defect was well marked, and that he had no realisation of his condition. His physical signs were characteristic. The case was confirmed by a post-mortem examination as one of general paralysis.

Case 61.—A case of tabo-paresis in which the tabes developed first, and nine years later symptoms suggestive of general paralysis arose.

A married man, 58 years old, had been diagnosed as a case of locomotor ataxia in 1894. In 1903 he began to exhibit failure of memory and great irritability. In 1907 he failed in business: he was even more irritable and more difficult to live with. He seemed dull, wandered away from home on several occasions, and then in 1909 he became excited and euphoric, and was certified. He said, "I have very promising business prospects. I shall be a very rich man in ten years, and I own a little property now." He said that the month was December (April), that the year was 1904 (1909), and numerous discrepancies occurred in his dates. He said that he had been born in 1852, that he was now fifty-two years old, that he had been married when he was seventeen or eighteen years old and was now twenty years married. He showed Argyll Robertson pupils, slurring speech, tremor of tongue and hands. His tendon jerks were absent, his gait was ataxic, and his right metatarso-phalangeal joints showed a Charcot condition.

Case 62.—Onset with convulsive seizure, followed at intervals by transitory paralytic attacks. Rapidly varying emotional state.

A single man, 39 years old, a salesman, four years previous to admission while at his work suddenly fell down and became

unconscious. He was unconscious for one and a half days. He was taken to a general hospital, where he remained for a period of three weeks. For three days he did not appear to recognise any one, and seemed to be unable to speak for one week. After a hospital residence of from nine to ten weeks he was discharged, and seemed much better. He was able to resume work, but in the latter part of 1907 he had his second unconscious spell, which lasted for about fifteen to twenty minutes. After it had passed off he seemed quite well again. Following this he had several other short unconscious periods, and towards the end of 1908, following one such attack, it was noticed that his right arm and right leg were paralysed, and that his tongue was protruded to one side. This paralysis lasted for two or three days, and then cleared up and left no residual except a slight dragging of the right foot. In May 1909 he started to laugh a great deal, seemed very happy, was glad to see everybody. He was restless and excited at night-time. He talked in a grandiose way about his jewels and his money.

On admission to hospital in May 1910 he was quiet, appeared dazed and dull. He often failed to answer questions, or if he did reply he spoke in a low voice and only after urging. His usual answer was " No " or " I don't know ". He was resistive when passive movements were attempted, he had to be fed and he did not react to painful stimuli, *e.g.* pin-pricks.

The day following admission the above state had entirely passed off. He was now elated, laughed and smiled continuously. His replies to questions were rambling and irrelevant; he said he felt happy, and denied that he was sick in any way. His memory and calculation were poor, and he was disoriented for time and place.

Physically, he presented unequal, irregular, Argyll Robertson pupils; his speech was thick and slurring; his writing was almost illegible, his tendon reflexes were exaggerated on both sides; his gait was unsteady; he tended to drag his right foot in walking; there was a well-marked tremor of his hands, tongue and facial muscles.

This patient's condition was remarkable in that for a month it varied considerably from day to day, one day dull, confused, stupid-looking, answering in a low voice, resistive and so on; the next day elated, excited and restless.

There is no note of the cerebro-spinal fluid examinations, or of the autopsy.

Case 63.—A good example of deterioration in character.

A married man, 37 years old, two years previous to his admission, began to show a change in his disposition. He had always been a placid man, but now he became argumentative, and would screech and shout on the slightest provocation. In January 1908, fifteen months previous to admission, he broke

down entirely. He became excited and resistive, and was unsteady on his legs. His speech was broken, his hands shook and his facial muscles were tremulous. He sat up all night writing poetry which he copied, and which he would send in an unstamped envelope to his daughter. He hunted through ash-boxes in the street, and brought into the house rags, rotten fruit, etc. A day before he was sent to hospital he was laughing and talking to himself all day, and stood naked before his children. His condition was typical in every way, mentally, physically and serologically.

Case 64.—A case complicated by a severe head injury.

The case of a book-keeper, 44 years old, married, was of particular interest, owing to an associated head injury. This man had been a tea-taster, but when 21 years old he was thrown from his horse while hunting, was rendered unconscious and remained so for a period of twenty days. His right side was paralysed for two or three months, he lost his sense of taste and smell completely and he has been practically deaf in his right ear ever since. In consequence of this accident he had to give up his position. Eventually he became a book-keeper, and retained his position for twenty consecutive years, earning a good salary. His wife always found him to be a violent-tempered man, liable to peculiar outbursts and eccentric actions. Sometimes he refused to speak to her for days, and he would put letters on her plate telling her to learn verses from the Bible, and to ask God's forgiveness.

In 1896, that is to say approximately twenty years after his head injury, he began to have general epileptiform convulsions, and there were also minor attacks. During these periods he would laugh in a foolish manner, appeared drunk, his mouth worked, he changed colour and tended to fall. For about half an hour he would talk in an incoherent, disconnected way, and then seemed well again. In July 1908 he lost his position, owing, it is said, to a misunderstanding. It was found however that his memory was not good. He made foolish mistakes in keeping his wife's books, and his speech was imperfect. He himself realised some of his difficulty, because he said, "My trouble is my want of memory. At times I am incapable of doing mental work, and lose all consciousness of existence." His pupils were irregular, and they reacted briskly to light and on accommodation. His speech was thick and slurring, but there was no distortion. His writing showed the omission of letters ; there was a slight tremor of his tongue and outstretched hands. A lumbar puncture revealed a very large increase of cells.

The case was considered to be one of general paralysis, and this was confirmed by the post-mortem examination. It appeared, therefore, that while the trauma which caused him to

lose his sense of smell and taste permanently was responsible for a definite change in his disposition, general paralysis had subsequently developed, the diagnosis of which was made fairly certain during life; for although a lymphocytosis does occur in traumatic cases, it persists as a rule only for a short time after the injury.

Case 65.—A case associated with a primary double optic atrophy.

A married man, 46 years old, in May 1908 complained of failure of vision in his right eye, and it was found that he had an optic atrophy. Six or seven months later his vision failed in his left eye. Despite his condition he remained hopeful about his recovery. His speech was tremulous, and then one week before his admission, on October 2, 1909, he suddenly refused to eat, and refused to answer questions. He became suspicious, and thought people were stealing from him, he seemed very forgetful and had difficulty in remembering the names of things and persons.

On admission he was in a dull, confused state. He appeared unable to walk; he said "I don't know" to most questions, and often he refused to answer at all. He had incontinence of urine and fæces.

Physically, he was totally blind, his speech was tremulous and slurring and test words were greatly distorted. His knee and Achilles jerks were found to be quite active, but he would not either stand or walk. He had a very marked tremor of his tongue, of his facial muscles and of his hands.

A few days after admission his condition suddenly changed again; he became extraordinarily happy and elated. He denied having money, but said that he had diamond rings, a boat with an engine and about twenty of a crew. He said that his mind was not affected at all, that his memory was good. Then later he developed vivid auditory and visual hallucinations, imagined people were shooting at him, saw people stealing his hats (he used to be a hatter) and also said that he saw bees, squirrels and birds.

His eyes showed a primary double optic atrophy. The other physical signs were characteristic of general paralysis, and the double optic atrophy was the only sign of the kind usually associated with locomotor ataxia.

Case 66.—The following case is one in which the general paralytic process and the tabetic process seemed to develop simultaneously.

The patient was a single man, 33 years old, who twelve years previously gave a history of primary sore, followed by a skin rash. He was under treatment for a period of three years. Two years previous to admission he lost his speech for a period of two days, and he never recovered free articulation. He seemed also duller, and was unable to concentrate, but he was

able to continue work up until November 1909, when he started to complain of severe pains through his body. His memory was noticed to be bad, and eventually in April 1910 he was admitted to a general hospital, where the diagnosis of general paralysis was made. While under observation he was quiet, pleasant and euphoric. He said that he felt in very good spirits, and talked about his own attainments and about his wealthy relatives. His memory was found to be defective, and numerous discrepancies occurred in his dates. He made many mistakes in doing simple calculations, and he had no real insight into his condition. His right pupil was larger than his left, but they both reacted well to light and on accommodation. His speech was extremely slurred, with distortion of words, and his writing also showed many defects. His knee and Achilles jerks were absent : there was a general diminution of pain sense, and slight tremor of his tongue and fingers. Lumbar puncture showed an abundant lymphocytosis and a positive butyric acid test.

Case 67.—In the following case the onset was characterised by an apoplectiform disturbance.

The patient was a wood-carver, 42 years old, who had contracted syphilis at the age of 19, and had been treated for three years with mercurial injections. In December 1907, after a severe business disappointment, he appeared nervous, and the same night, at midnight, he had an apoplectiform attack. He said that his left hand was asleep, that the whole left side of his body felt dead, that he could not see with his left eye. The following morning, when seen by a doctor, he spoke thickly, and he had incontinence of bladder and bowels. He remained in bed for a period of twelve weeks. His speech gradually improved. At first he was very talkative, rather excited, made the children laugh, wanted to buy a new house, thought that he could get a good job, talked about his son being an engineer and having a carriage. He improved, and was able to return to work, and in March 1908, while at his work, he fell down on two separate occasions. Gradually he became weaker, and then again in 1909 he showed a slight improvement, but he now began to take more drink than was good for him. He was difficult to deal with, he refused to eat his wife's simple cookery and threw up his job. On one occasion he is said to have tried to throttle his wife, and on another to set her skirt on fire.

During his stay in hospital he was affable and pleasant, answered questions relevantly and said that he was quite well. He boasted of his abilities, and complained of the treatment he had received from his wife. Glaring discrepancies occurred in his dates, and he had no insight into his condition.

Physically, he showed a slight left-sided weakness, with increase of deep reflexes on left side without sensory disturbance, but there was no hemianopia, and no sign of Babinski. His

pupils were Argyll Robertson in type. His speech and writing did not show any particular defect.

The case was one which gave rise to a certain amount of discussion, owing to the difficulty of differentiating between a general paralytic involvement and a cerebro-spinal syphilis. At autopsy, however, the diagnosis of general paralysis was confirmed.

Case 68.—The following case of a man, 32 years old, is interesting, from its association with a manic-depressive state.

He had always been an efficient man, who had been considerably alcoholic. In 1902, three years before his admission to hospital, he suddenly started to talk in a foolish manner about philosophy, geography, the sun and the moon, and at times would sing loudly. He was excitable, dogmatic in his statements; at times he would lie on the floor "listening for Indians", and would whoop like an Indian. He was rather suspicious of his wife. He continued to work off and on until December 1904, six months previous to admission, when he suddenly left home without telling his wife, wandered through a neighbouring town and was arrested as a vagrant. In the summer of 1905 he became very noisy, auctioned clothes from a window and shouted out to boys on the street to form a regiment. He could not sleep, had the gas lit day and night, had the hot water running all the time and could not give any explanation for his strange conduct. He bound together all his books and papers, and talked about putting his wife in a coffin and then going to Germany. He lit a fire in the middle of the room for pastime, and nearly flooded the house by continually opening the faucet. He finally whitewashed the house, including the windows and floors, and then he was taken to hospital.

During his hospital admission he showed an elated, smiling, laughing state, answered questions in a flippant, irrelevant way and was natural and easy in his manner. He said that he was in first-class condition; but he did not express any particularly grandiose ideas. His memory was fairly good, but discrepancies were elicited. His speech showed slurring, his pupils were unequal, and reacted somewhat sluggishly to light. His tendon reflexes were exaggerated.

During the course of his hospital residence he showed at times a typical flight of ideas, with occasional sound association. A short example of his spontaneous talk is as follows:

"Red, white and black flame for the Hamburg people, tingle tangle for Uncle Heinrich—Adrian—tingle, tangle, for the red, white and black—George Ferdinand—the name—the American Flag, another son of Adrian's, whole of the world", and then again at another time, "The leaves make a sound like the rain. It is raining now. Rain, March, Marching through Georgia—Annie Laurie—I played all these things on my flute—all the

German songs—Ich bin auch ein deutscher Bube." At times he would sing, frequently hum tunes, frequently threw his head back and laughed in a jolly way. These periods of excitement were followed by periods of depression, which did not resemble so closely the depression of the manic-depressive as the excitement resembled its relative phase. He denied feeling sad, but his activity was greatly reduced, and he would sit idly about the ward, never speaking unless addressed.

Physically, his left pupil was more dilated than his right. Both reacted satisfactorily. His speech showed slight slurring, and his writing exhibited additions and transpositions. There was tremor of the tongue and facial muscles, and there was an increase of cells in his spinal fluid.

Apart from the types described, which are the result of syphilis acquired by the patient, juvenile general paralysis, the result of inherited syphilis, was described by Clouston in 1877. Since that date cases of this sort have been reported by many other observers. Mott, in particular, in the *Archives of Neurology and Psychiatry*, has reported a series of 22 cases of juvenile general paralysis, 16 of which were confirmed at autopsy. The disease does not differ essentially from the adult form. Mott emphasised that infectious illnesses may act as an exciting factor, and also that the cases which begin young seem as a rule to live longer, while those which begin at twenty, or after the age of twenty years, frequently assume a galloping form. In many instances the patient is mentally and physically enfeebled from birth, but there are other cases where the patient has done well in school, and has even been satisfactory at some type of employment. In all, however, the course of the disease is progressive both mentally and physically. The usual time of development of definite symptoms is at the end of the first decade.

Case 69.—Summary: Juvenile general paralysis. Rapid deterioration in personality in soldier aged 21; minor delinquencies exhibiting a complete lack of judgment; over-activity, rambling talkativeness, defective memory, untidy habits, insomnia; increasing euphoria and more and more extravagantly grandiose ideas; irregular Argyll Robertson pupils, muscular tremors, increased tendon-jerks, speech disturbances, and positive Wassermann in blood and C.S.F.

During the war years a private in the Engineers, 21 years old, was sentenced to nine months' hard labour for stealing money, the property of a comrade. But it was noticed that he was not well mentally, and the sentence was not proceeded with. His Army record stated that his manner and facial expression had completely changed during the last two months, and that his handwriting had deteriorated. From

being one of the smartest and keenest workers in the unit, he had become slack and listless. He wrote extraordinary letters to Horatio Bottomley, Admiral Beatty and others. He had the delusion that he had been recommended for the D.C.M., which was untrue. On one occasion he stole a watch, and on the next day he tried to sell it to its rightful owner.

On September 11, 1916, at No. 2 General Hospital, Havre, he was described as noisy, restless and excited; he talked in a rambling, inconsequential way, failed to appreciate his position and surroundings and his memory was defective. He tore blankets to shreds, was untidy and disorderly in his habits, did not sleep and said that he had fabulous sums of money. His pupils did not react to light.

After his admission to hospital in England, he was in a very restless state, wandered about the ward naked and was utterly shameless in his habits. He was able to give his name correctly, but he made many foolish statements. He said that he felt perfectly well, that he had never been better in his life. He stated that he had married on his twenty-first birthday, in August 1915, but this was untrue. He said that he had done extraordinarily well in France, that he had been awarded the V.C., the D.S.O., the M.C., the D.C.M. and, in addition, an Italian medal. He had obtained the Italian medal by working in the Alps laying mines. He also said that he had eighteen good conduct bars, that he had drawn £12,000 from the canteen last night and that the Boys' Brigade had made a collection for him on account of his distinguished gallantry, and had given him a cheque for £2,000,000. He expected to be a general, and stated that when the King had been in France he (the patient) had acted as his batman.

His memory defect is well shown by his statement that he enlisted on April 4, 1915, and had had already eight years' service. He did some simple calculations correctly, but he made many gross mistakes in taking 7 from 100 serially—100 – 7 = 93, 95, 92, 96.

Physically, he was of youthful appearance, with smoothed-out features. His teeth were notched. His right pupil was greatly dilated, his left moderately so; both were irregular in outline, did not react to light, but reacted on accommodation. His tendon reflexes were equally exaggerated on the two sides. He showed marked tremor of the tongue and facial muscles and hands. His speech showed distortion of test words. His blood and his cerebro-spinal fluid gave a positive Wassermann reaction.

Pathology.—The main pathological changes on which diagnosis can be based are principally microscopic, but there are certain gross features which are of importance. The brain membranes are thickened, and areas of hæmorrhagic pachymeningitis occur. The thickening of the membranes affects not only the dura, but

also the pia-arachnoid; so much so that the frontal tips are adherent, and the temporal tips are frequently tacked down to the under surface of the brain. When attempts are made to strip the pia-arachnoid, decortication often occurs, due to the abnormal adherence to the brain substance. There is usually an increase of the Pacchionian granulations. As a general rule, the brain looks smaller than usual, and the brain weight is diminished. One can readily see that certain of the convolutions, particularly in the frontal and parietal areas, are atrophied, and that in consequence there is a widening of the sulci. The ependyma of the lateral ventricles and of the fourth ventricle has a frosted appearance from the presence of granulations.

The histological changes have been specially described by Alzheimer. He particularly draws attention to the changes in the blood-vessels, where there is a proliferation of the endothelial cells of the vessels, with a tendency to the new formation of vessels through sprouting and vascularisation of the proliferated intima. There is also an increase of the elastica, and proliferation of the adventitia. There is a widening and infiltration of the lymph-spaces which exist in the adventitia. Among the infiltrating cells plasma-cells are the most numerous. They are never absent in a case of general paralysis, even in the most acute.

Lymphocytes and mast-cells are also found in the infiltrate. In advanced cases regressive changes are seen in the vessel walls. Long or short rod-shaped cells are also found in the cortex. These are histiocytes with their normally oval nuclei enlarged and elongated. The nerve-cells also show a great variety of degenerative forms. In many cases the nerve-cells seem to disappear altogether; in others the Nissl granules disappear, while the arrangement of the cells is disturbed, so that the layering cannot be made out. The axis-cylinder processes are also degenerated. In addition, there is a marked increase of the neuroglia. This proliferation may be so great that a dense mass of thick glia-fibres may be formed. The most marked increase is usually along the vessel sheaths.

One of the most characteristic signs of general paralysis is the large amount of free iron deposited in the cortex which stains readily with Prussian blue. The core is intracellular—in histiocytes and flagocytes.

These are the main changes, but, in addition, one may get areas of focal softening, and in the great majority of cases the treponema pallidum can be found in the brain substance. Dunlap believes that these are present in all cases, that they are most

commonly found in the anterior part of the frontal lobe, and usually in the middle and deeper layers. Sometimes they occur in swarms or colonies, and are found most readily in those cases which run a tempestuous course, with convulsions and sudden paralytic attacks.

Course and Prognosis.—The successful application of malaria therapy has rendered a revaluation necessary. Formerly, it was the rule for untreated cases to progress rapidly, and to terminate fatally in from two to five years. We recognised that spontaneous remissions occasionally occurred, so that some patients might resume their former employment while others might continue to live under institutional conditions for a long number of years. We have observed a female tabo-paralytic, whose condition remained stationary for thirty years. Schmidt-Kraepelin has reported that one-fifteenth of all his cases have lasted over a period of six years, and that one survived as long as thirty-two years.

Malaria therapy has altered all this. Remissions are now much more frequent, the course of the disease has been ameliorated and lengthened, while a return to home and employment is now possible, although still in a minority of cases. We still hesitate to speak in terms of recovery, because treated cases that have been discharged should be followed and supervised carefully until we accumulate more information regarding the possibility of recrudescence. The surmise that treated cases live longer may be a factor having a bearing on the problem of accommodation in mental hospitals; but the proportion of such cases may become less the earlier treatment is instituted. The manic types are the most favourable, while in women the results are not so good as in men.

The prognosis in juvenile general paralysis has not so far been influenced. Nabarro has, however, described a successful outcome in a juvenile treated by a combination of malaria and metallic salts.

Diagnosis.—The diagnosis of such a condition as general paralysis is so serious a matter, not only for the patient, but also for his family, that no such diagnosis should be even suggested to the patient or his relatives until the mental, physical and serological examinations have been completed. It is only on the basis of a combination of mental, physical and serological findings that the diagnosis of general paralysis can be considered. When all these are positive, then the diagnosis is absolutely certain, and there is no known condition with which it can be confounded. There are, of course, cases of general

paralysis which are complicated by cerebro-spinal syphilis, or by arteriosclerosis. It is often very difficult, and sometimes even impossible, to differentiate accurately these conditions. The main facts that we would emphasise are that cerebro-spinal syphilis is an acute inflammatory disorder which comes on usually within the first five years of infection, that it is characterised by severe headache, delirium, and paralysis of the cranial nerves, and that when convulsions do occur the results are usually permanent. The speech, the writing and the personality are never quite so disordered as they are in general paralysis.

Arteriosclerotic brain disease is usually differentiated by means of cerebro-spinal fluid examinations, which in arteriosclerotic brain disease are negative, except for a slight increase in the protein content. Furthermore, the arteriosclerotic brain disease is usually ushered in by apoplectiform attacks, followed by the disorder of memory, the irritability and the emotional instability which are so typical, but the deterioration of personality so characteristic of general paralysis does not occur.

An alcoholic pseudoparesis, and other organic brain diseases not syphilitic in origin, are distinguished principally by the negative serological findings.

Treatment.—During recent years the treatment of general paralysis has been undertaken with great vigour, largely with the use of arsenobenzol compounds and malaria. New remedies often raise hopes which further experience does not bear out, so that great caution must be exercised not only in the use of salvarsan and malaria, but also in the interpretation of the results. It is a truism to state that once degeneration of the nerve elements has occurred, there is unlikely to be much, if any, regeneration; our main hope must be to arrest further progress of the disease, and to modify the inflammatory reaction occurring in the mesoblastic tissue. That this is possible is evidenced by a report of Ferraro (*Archiv. Neur. and Psych.*, January 1929) on a series of 29 malaria treated cases which have come to autopsy. Greenfield (*Proc. Roy. Soc. Med.*, April 1929) has noted a very acute inflammatory reaction in the brain-substance as a result of malarial treatment—an enormous excess of small-celled infiltration, in which lymphocytes far exceed the plasma-cells; and a rapid disappearance of spirochaetes. There is a constantly reiterated cry that if cases of general paralysis were recognised in the earliest possible stage treatment would have a greater chance. There is only an element of truth in such a statement, as histopathologists have repeatedly demonstrated

that there is no accurate correlation between the early clinical development of the disease and the post-mortem findings.

Drug therapy.—For many years mercury in association with potassium iodide was the classical means of treatment, but the results obtained were disappointing. When salvarsan was introduced, it was hoped that this more powerful agent would exercise a greater effect, but, again, the hope entertained has not been fulfilled. Many who used salvarsan exclusively for a time began to think that better results were obtained if it was combined with a course of mercury.

The usual methods of giving salvarsan were either intravenous or intramuscular, but Swift and Ellis strongly advocated the use of salvarsanised serum, which was introduced directly into the cerebro-spinal fluid. Following this, in rapid succession, a number of further modifications were introduced, such as the injection of salvarsanised or mercurised serum into the thecal canal, into the lateral ventricles or into the cisterna magna.

An arsenobenzol compound called tryparsamide has proved more effective. It is less toxic and more diffusible than the other arsenical preparations. Three gms. of tryparsamide are dissolved in 10 c.c. of sterile water which has been freshly distilled, and the whole is injected intravenously once a week for a period of eight weeks. Mercury salicylate gr. 1 is given intramuscularly three days before the tryparsamide is injected. Of 542 tryparsamide treated cases collected from the literature by Bunker, full remission of symptoms was claimed in 35 per cent. Most workers report at least 30 per cent of fairly complete remissions. Some 30 injections usually produce the maximum of improvement attainable in a given case, but more than 100 may be necessary to modify the Wassermann reaction in the C.S.F. The successes reported of tryparsamide must be attributed to its greatly superior power over other arsenicals in penetrating the barrier of the choroid plexus.

Pyrexial methods.—It had been noted that mental symptoms seemed greatly relieved if the patient chanced to suffer from a febrile attack of any kind. It was thought that pyrexial treatment might offer a line of approach, and various substances were used, *e.g.* tuberculin, sodium nucleinate, phlogetan, to produce an artificial pyrexia. The improvement which resulted was transitory.

In 1917 Wagner Jauregg of Vienna inoculated 9 cases of general paralysis with malaria, 6 of whom were benefited.

Three were at work four years afterwards, and showed no signs of the disease. This method of treatment has been more widely used than any other, and has transformed the outlook for many cases. In some cases intravenous injections of salvarsan or intracisternal injections of salvarsanised serum are combined with the malaria, but others rely upon the malaria entirely. Gerstmann emphasises the importance of selecting very carefully a pure strain of tertian plasmodium, the use of other strains being attended sometimes with dangerous results. The general health must be improved as much as possible before the inoculation. Certain chronic diseases, *e.g.* poorly compensated cardiac diseases, are contra-indications.

Infection is brought about either by allowing an infected mosquito to bite the patient, or by inoculation of blood from a malaria-infected individual. The latter method is the more certain, and may be either subcutaneous or intravenous. The quantity of malarial blood used is from 2–4 cm., and the blood is taken directly from the cubital veins of the donor and injected immediately into the recipient interscapularly. In about 5 per cent of cases inoculated subcutaneously a second or a third attempt at inoculation is required (Gerstmann). The inoculation period varies from three days to four weeks by this subcutaneous method, and from two to twenty days by the intravenous route.

The bouts of pyrexia reach 104° or even higher. The usual number permitted to occur varies from 8 to 12, according to the subject's capacity to stand them. If the patient can tolerate only a few bouts of pyrexia, the infection may be stopped and another inoculation given later. The attacks of fever are stopped with striking success by quinine sulphate 15 gr. a day in two or three days, and half that amount for the succeeding four days. In quinine-sensitive patients an arsenical salt, *e.g.* neoarsphenamine may be injected instead. This ensures freedom from subsequent relapses. In emergencies, the infection may be rapidly terminated by giving quinine and urea hydrochloride subcutaneously. Improvement in the paralytic symptoms sets in immediately, or even after some months. The mental and physical symptoms usually improve together, but the changes in the blood and cerebro-spinal fluid do not run at all parallel with the symptomatic changes.

The general nursing care is as in any acute fever, but during the pyrexial bouts the temperature is taken very frequently and suitable measures instigated if hyperpyrexia, signs of collapse or other serious complications appear.

About the subsequent use of arsenical preparations, opinions differ, some saying not only that it is unnecessary but actually does harm. The best combination is not necessarily malaria followed by tryparsamide, since the latter is not so efficacious for tertiary (meningovascular) lesions as other arsenical preparations. Wagner Jauregg advises a second course of malarial treatment a year after the first. The mortality in general paralysis treated by malarial inoculation is 10 per cent (Kirby), which compares well with the average annual death-rate of 30 per cent for all cases untreated by malaria in institutions. Cases showing an incomplete remission (residual mental defect) were largely, in Gerstmann's series, those in whom the general paralysis had run a protracted course before treatment (six years and upwards). Gerstmann's figures may be taken as an index of the results obtained by others. He reports that out of 400 cases treated in Wagner Jauregg's clinic in Vienna between 1917 and 1922, 33 per cent showed a complete remission, and 14·25 per cent a partial remission. The longest remission, so far, had lasted for seven years.

Of 1597 patients malaria-treated in mental hospitals in England and Wales in the five years ending June 30, 1927, 34 per cent are dead, 41 per cent remain in hospital, and 25 per cent have been discharged (Meagher). Of the 25 per cent discharged, about three-quarters, or 20 per cent of the total, have resumed their former employment, and some are now known to have remained in fair health for at least ten years after treatment (Nicole and Fitzgerald, *Brit. Med. Jour.*, 1934).

The Wassermann reaction is modified in the C.S.F. in the majority of cases, but only after a considerable time. There is no uniform relationship between clinical and serological improvement after either malaria or tryparsamide therapy: there may be a maximal clinical effect with a minimal serological one, or vice versa.

Success has been claimed with other methods of inducing pyrexia, *e.g.* by the intramuscular injection of sulfosin, by the use of repeated hot baths, of which the temperature is gradually raised to 104°, and by diathermy (C. A. Neymann and S. L. Osborne, *Jour. Amer. Medical Assoc.*, 1931, vol. 96, pp. 7-11).

The total evidence shows that it is fever that is the effective agent in destroying the spirochaete.

The Inductotherm Fever Cabinet combines the principles of electromagnetic induction for the elevation of temperature with an air-conditioned cabinet for maintaining the temperature.

The thermostat automatically regulates the air temperature to any degree from 80° to 110° F. During the treatment it is necessary to keep a careful record of pulse rate, respiration rate, temperature and blood-pressure. Batchelor, Thomson and Huggan in a recent report (*Brit. Jour. Ven. Dis.*, June 1943) suggest that the best results in the treatment of neurosyphilis are obtained by the use of 12 treatments by fever, each of 3 hours at 105·8° F. In every case it is important to take such factors as age, physical condition, stage of disease and occupation of patient into consideration. In their series of 22 cases they consider their results most encouraging. All the patients were in hospital for the first four to six treatments and afterwards they were allowed to attend as out-patients provided that their mental state was satisfactory. On those days on which pyrexial treatment was not given tryparsamide and bismuth were given, but on account of the frequent occurrence of toxic hepatitis tryparsamide was discontinued and now only bismuth is used—0·2 gramme twice weekly throughout the treatment. Immediately after treatment, tryparsamide and bismuth are given in maximum doses for 6–18 months. Where there is optic nerve involvement 914 is substituted for tryparsamide, or bismuth is used alone.

The use of the Kettering Hypertherm is advocated by Bennett as the most efficient and the safest of the methods of inducing hyperpyrexia.

The mechanism by which fever is induced consists of a simple air heater within the chamber and an equally simple means of humidifying the air to any desired degree. The heated and humidified air is then circulated around the patient at the rate of about 12 times a minute (A. E. Bennett, *Practitioner's Library Supplement*, ch. 68, pp. 657-80, 1937).

In addition to these specific methods of treatment, great care has to be exercised in the nursing and general supervision of patients suffering from this disease. Very frequently such patients bolt their food, and therefore when the slightest difficulty in swallowing becomes apparent they should be fed with soft food. The bladder and bowels must be carefully attended to, special attention being paid to the possibility of an overflow from a full bladder. Furthermore, an overloaded bowel is not infrequently concomitant with a convulsive attack. Bed-sores are almost certain to develop unless the greatest care is taken to change the patient's position in bed, and to see that the bed is kept dry. The possibility of the development of contractures has also to be kept in mind.

Cerebral Syphilis

This term is used to indicate syphilis affecting the interstitial tissues of the central nervous system, and accompanied by mental symptoms. In a certain number of cases it tends to progress, and it is difficult and often impossible to differentiate such cases from cases of general paralysis. On the other hand, interstitial syphilis is much more hopeful than parenchymatous syphilis as regards treatment, and, apart from the vascular types, the recovery is complete.

In this variety of syphilis symptoms indicating involvement of the central nervous system appear usually during the first five years after primary infection, and a large number of cases have been described as occurring within the first six months after infection. Naunyn reported that in 325 cases syphilitic disease of the nervous system appeared most commonly during the first year after infection, that this frequently decreased from year to year and that cases of cerebral syphilis rarely occurred more than ten years after primary infection. In 22 cases reported by Erb, 59 per cent appeared during the first three years after infection, and 82 per cent during the first six years. Mott has reported cases which developed four months after infection, and he quoted Kahler, who described a case which had occurred while the primary sore was still unhealed. In a series which we have personally examined, the average interval elapsing has been six years, the shortest period being five months and the longest twenty-two years. The case which occurred twenty-two years after infection was confirmed by autopsy. In a percentage (stated variously at 3 to 80 per cent) of persons infected with syphilis a positive Wassermann reaction in the C.S.F. appears in the first year.

Morbid Anatomy.—Three main types of cerebral syphilis are differentiated—meningitis, endarteritis and gumma, but in an individual case there may be a combination of two or all three of these. The endarteritic type is further subdivided into two main forms :

(1) Syphilitic endarteritis of the large cerebral blood-vessels, described by Heubner in 1874 in a classical monograph.
(2) The small- or terminal-vessel form of endarteritis, described especially by Nissl and Alzheimer.

The latter form is much less well known than that described

by Heubner, but a number of important instances have now been recorded.

Just as certain cases are difficult to differentiate clinically from cases of general paralysis or from arteriosclerotic brain disease, so others are not infrequently met with in which it is histologically almost impossible to come to an absolute diagnosis. Dunlap has stated that cerebral syphilis and general paralysis can come so closely together that no one can be positive about which is actually present. The point which he specially emphasises in differentiation is that whatever is found in the cortex of cases of cerebral syphilis can be fairly definitely shown to be an extension of the process from the pia inward, whereas in general paralysis the primary change is a cortical one.

The difficulty of clearly distinguishing between syphilitic endarteritis and arteriosclerotic brain disease was emphasised many years ago by Gowers. He pointed out that in the syphilitic type the disease was usually recent, and consisted in a thickening of the wall, which was more limited than in atheroma and less opaque. He further pointed out that when such cases had been treated by a course of potassium iodide, the thickening was less and the opacity greater, so that the condition resembled ordinary atheroma still more closely, for which it might readily be mistaken.

There are other cases in which a combination occurs of a syphilitic involvement of the meninges and a parenchymatous process. For instance, a man, 38 years old, developed a right-sided hemiplegia ten months after a syphilitic infection. He made a good recovery and was able to resume his employment, working efficiently for a period of five years, when he again came under observation on account of the development of depressive symptoms. He again recovered well, but a few months after leaving hospital he had a convulsive seizure, and, following this, he expressed grandiose ideas. Spinal fluid examination showed 10 cells per c.c., positive globulin tests and a positive Wassermann reaction both with his blood serum and with his cerebro-spinal fluid. He died one year after admission, following a series of general convulsions. Autopsy showed that in addition to a syphilitic meningitis and endarteritis, he had a focal general paralytic process affecting the left temporal, supra-marginal, and angular gyri regions.

Symptomatology.—The mental symptoms in the fully developed disease are of the acute organic type of reaction, and consist in delirium, with a memory defect for recent events. In the early stages of his illness the patient may complain of a

certain nervous uneasiness, may feel dull, changed, mixed up in the head and complain of difficulty in thinking. The emotional condition is variable ; at one time the patient is excited, irritable and resistive, while at another time he may be depressed, anxious and easily frightened. Sometimes there is a mild euphoria. In cases in which there is evidence of increased intracranial pressure, a dull, stuporose state is common, and is usually accompanied by a loss of control of the sphincters ; but when roused these patients are able to respond to a degree that their appearance does not suggest.

The delirium which sets in is of the usual kind. It is a hallucinatory state with fear, and with great difficulty in comprehension and in attention. The patient is imperfectly oriented for time and place. A memory defect for recent events is one of the most important features.

In cases of cerebral syphilis of long standing the memory tends to become diffusely affected, the defect being then similar to that occurring in cases of general paralysis.

The judgment of the patient suffering from cerebral syphilis is in the non-delirious phases usually well preserved. He has a good realisation of, and insight into, his condition, and it is usual to describe his personality as well retained. The term " retention of personality " is used in the sense that the patient takes pride in his personal appearance, behaves in a natural way like a patient in a general hospital, and realises that he is ill.

It is not unusual for cases of cerebral syphilis to express grandiose ideas and to be euphoric. Such cases have been reported by Matthews, Head, MacBride and Walshe. Several of the cases observed by us have presented the same features. One patient in particular describes himself as King of the Universe, the Supreme Being and a millionaire.

A confabulatory state similar to that seen in Korsakow's psychosis is occasionally seen.

The clinical pictures associated with the affections of the small blood-vessels described by Nissl and Alzheimer deserve emphasis. Nissl has described a case, Alzheimer has described 9, and Sagel and Ilberg have each described 1 case. The clinical features vary considerably and are difficult to recognise. In the last series of 6 cases reported by Alzheimer, 1 had been diagnosed as an epilepsy, 1 as katatonia, 1 as general paralysis, 2 as " stationary paralysis " and only 1 as cerebral syphilis. The possibility of such a condition should be kept in

mind when a condition is considered clinically syphilitic in origin, but when evidence of meningitis, gumma, or a large vascular lesion is wanting. The diagnosis is by exclusion.

The usual *subjective symptoms* which are complained of are headache and dizziness. It was held that headache of a syphilitic nature tended to show nocturnal exacerbations, but this observation has not been fully confirmed. The pain, however, is frequently paroxysmal in nature, and it may precede all other symptoms by months or years. In consequence of the pain the patient may have a strained, anxious appearance. Sleeplessness, as a direct result of the headache, is seldom absent. A history of dizziness and fainting, without any loss of consciousness, is very common. These attacks are probably more common in the vascular types than they are in the others. Fournier described this condition as the habitual subvertiginous state. A history of vomiting is commonly associated with the history of headache and dizziness. This vomiting is not usually accompanied by a feeling of nausea, and is of the type common in cases of intracranial pressure.

In regard to *physical signs*, practically any of the cranial nerves may be involved ; for instance, out of a series of 17 cases, a disorder of the sense of smell was present in 47 per cent.

Eye symptoms of all kinds and degrees are among the earliest and most characteristic symptoms. A blurring and dimness of vision, diplopia, squint, the drooping of an eyelid, may be spontaneously complained of. They are often transitory in nature. It is the peculiar coming and going of symptoms that is so characteristic. It is estimated that in the absence of head injury, upwards of 90 per cent of all cases of ocular palsy in adults are caused by syphilis or by brain tumour. By far the most frequent causes are cerebral syphilis and locomotor ataxia. The pupils are frequently unequal, or irregular in outline. The Argyll Robertson phenomenon, which is so common in general paralysis, is relatively rare in cases of cerebral syphilis. Out of a series of 26 cases we were able to demonstrate the presence of Argyll Robertson pupil on only two occasions. Simerling, in an analysis of 1639 cases showing Argyll Robertson pupils, found only 1 per cent to be due to cerebro-spinal syphilis. Mott, Clarke, Purves-Stewart and Matthews have all emphasised this point. In our series of cases of general paralysis 36, or 66·2 per cent, showed the Argyll Robertson phenomenon.

Optic neuritis is also a common symptom, and in this type of case usually precedes an optic atrophy. Primary optic

atrophy points to a more chronic process. Of all the cranial nerves the third seems to be the one most frequently affected. In 75 per cent of all cases of third nerve palsy partial or complete paralysis is syphilitic in origin. The fourth and the sixth nerves are frequently involved also. Oppenheim, in a series of 100 cases, found the third nerve affected forty-four times, the sixth nerve sixteen times and the fourth nerve five times. Of the other cranial nerves, the seventh and the auditory are more commonly affected than the others. Speech and writing are intact, while tremor is not so marked as it is in cases of general paralysis.

Convulsive attacks occur particularly in cases of endarteritis, but they are by no means infrequent in cases of meningitis and in gumma. The convulsion may be slight, so that it may be limited to a special group of muscles, or it may be epileptoid or apoplectiform in nature. The convulsion, however, is usually focal and tends to leave permanent residuals. Occasionally in these cases one gets pseudobulbar paralysis, due to the occurrence of bilateral softening, or multiple small softenings in the region of the basal nuclei. The usual history in such cases is of several hemiplegic attacks involving one side, followed by involvement of the other side.

Cerebro-Spinal Fluid.—The cerebro-spinal fluid findings do not differ very materially from those obtained in cases of general paralysis, with the exception that the gold test shows a curve in the luetic rather than in the paretic zone. The cell count and the globulin reaction are practically identical in the two conditions, but the Wassermann reaction in the spinal fluid is less frequently positive than it is in cases of general paralysis.

Differential Diagnosis.—This condition is apt to be confused with cases of general paralysis, but the main points of difference have already been mentioned in the description of the latter condition. The acute onset occurring a few years after syphilitic infection, and accompanied by a history of headache and cranial nerve palsies, practically always means some acute syphilitic process affecting the meninges rather than a parenchymatous disease.

Apart from general paralysis the only condition which may complicate the diagnosis is arteriosclerotic brain disease. This, however, is a disease of later life, affects individuals usually over the age of fifty, and the cerebro-spinal fluid examination should make the diagnosis clear.

The **prognosis** depends on four main factors :

(1) The early recognition of the disease.
(2) The age of the individual.
(3) The pathological type.
(4) The amount of treatment.

Those cases have the most hopeful prognosis which occur within the first few months or years after primary infection, but we have seen good results occur in cases even ten years after primary infection.

The prognosis should always be considered slightly less favourable when a patient is over forty years of age, owing to the fact that arteriosclerotic vascular changes have set in, and consequently the recuperative power of the individual is somewhat impaired.

The meningitic and gummatous types are by far the most amenable to treatment. The most one can hope for in vascular disorders (especially those which have given rise to areas of softening) is to arrest the further progress of the disease. Fournier, out of 90 cases, gives his percentage of recoveries at 33·3; Rumpf, on a basis of 34 cases, at 35·2. Mickle has stated that one-fourth recover, another fourth improve considerably and a half die, or survive with grave disease. A recent report by Krower shows that out of a series of 59 cases 35 showed a complete recovery, 11 showed considerable improvement, 4 a moderate improvement and 5 died. Out of our series of 26 cases, 6 recovered, 4 showed a considerable improvement, 6 remained unimproved and 10 died.

Treatment.—This is the usual treatment of tertiary syphilis, but a course of mercury and potassium iodide by mouth in full doses should always precede intravenous arsenical medication, as beginning with the latter may produce sudden local reactions with increase in cerebral symptoms (presumably of a thrombotic nature).

Tabes with Psychosis

A certain number of patients with tabes dorsalis develop general paralysis at a later date; but mental symptoms of other kinds may also develop in tabetics who show neither the physical nor the mental symptoms of general paralysis. The commonest non-paralytic syndromes appearing in tabetics are, according to Otto Meyer, chronic hallucinatory paranoid states, depressive psychoses, circular psychoses, acute hallucinatory confusion, hallucinatory anxious states and various types of dementia.

Kraepelin believes that there is a psychosis which is commoner than any other in tabes, and which has a course, symptomatology and outcome distinct from general paralysis. This psychosis consists in an acute hallucinatory excitement. The patient suddenly becomes fearful, agitated, hears distinct voices and is accused of numerous crimes. The onset is sudden, and later in life and often at a later stage in the course of tabes than general paralysis is accustomed to appear. Memory, retention and orientation remain intact, and speech and writing do not present the specific disturbances seen in cases of general paralysis. The symptoms may subside in a few months, or remain indefinitely.

Juvenile tabes is a rare disease, which more frequently ends with general paralysis than the adult form does.

Pathology.—In tabes with psychoses not clinically of the general paralytic type the histopathological signs of general paralysis are usually lacking, there being no involvement of the brain substance. But in certain cases of tabes with mental confusion, but without the symptoms characteristic of general paralysis, Alzheimer found typical paretic changes in the brain. In other instances there have been, besides the tabetic lesions, syphilitic meningomyelitis of the cord, and Heubner's end-arteritis in the pial blood-vessels (Jakob). Schroeder believes that many so-called tabetic psychoses are not so at all, but are psychoses with spinal syphilis.

It is probable that depression when it occurs in tabes, and some of the other mental symptoms as well, are to be considered as reactions to the knowledge and handicap of the disease. Some of the hallucinatory experiences are probably based on sensory disturbances, especially paræsthesiæ.

Disseminated Sclerosis with Psychosis

The most frequent mental symptom in disseminated sclerosis is a mild elation (euphoria). It is present in the great majority of cases, and, according to Cottrill and Wilson, is more frequent than any other single symptom, not excluding the physical ones. Coupled with the euphoria, and probably, in fact, dependent upon it, there is a lack of insight for the seriousness of the illness. There has also been described a feeling of physical well-being ("eutonia"—Cottrill and Wilson) which is said to be only less frequent than the euphoria, but it is hard to differentiate the two. Disseminated sclerosis is often mistaken in the early stages for hysteria. The characteristic mental attitude in the

latter is the " belle indifférence ", which contrasts to some extent with the positive euphoria of disseminated sclerosis.

In a smaller proportion of patients there is mild depression. In most cases the mood varies readily, but a few are dull and apathetic, and some are irritable and cantankerous. Outbursts of laughing and crying, of an uncontrollable character, and not necessarily accompanied by an appropriate change in mood, are not infrequent. As would be expected in an organic condition, the memory is affected in a proportion of cases. That it is not more often affected depends presumably on the limitation of the sclerotic process to lower levels of the nervous system. The intellectual defect is sometimes very great. In one patient there was complete amnesia for important dates in his life. His knowledge of current events was very poor. His school knowledge was largely lost, and his power of immediate retention was very slight. Orientation also suffers in such a case. A Korsakow syndrome appears rarely. Judgment may be very poor, partly as the result of such defects as these, and partly in consequence of the mood disturbance.

Persecutory and grandiose delusions, sometimes of a bizarre type, occur in some cases. Hallucinations, auditory and visual, have been reported.

Epileptiform convulsions sometimes occur. Wilson and MacBride report 15 cases, 7 of which were personally observed. One of our patients used to call out for her mother and brother in general tonic-clonic attacks from which it was impossible to rouse her. She died recently, and the diagnosis of disseminated sclerosis was confirmed by autopsy.

Epidemic Encephalitis

Epidemic encephalitis has come to occupy an important place in psychological medicine, although its existence was first definitely recognised only within recent years. There were 3350 fresh cases notified in England and Wales from 1st January 1919 to 31st December 1922, and about 250 cases are calculated to have occurred before notification was introduced. But up to the end of 1922 only 30 cases, or 0·8 per cent, had been certified as insane (Hall). At February 1925 there were 140 patients in mental hospitals in England and Wales suffering from the after-effects of encephalitis, of whom 43 were under 20 years of age, and a further 60 were in mental deficiency institutions. The majority of cases, however, show mental symptoms of greater

or less degree, but by far the greater proportion of them have escaped admission to mental hospitals. The prolonged mental effects of the disease have created a special problem in administration, partly because there has been a natural reluctance to place such patients in mental hospitals, and partly because in the case of children the resulting symptoms have been of a type peculiarly difficult to manage. The curious effects of the illness on the conduct, especially of children and adolescents, have not only created a social problem, but sometimes a medico-legal one as well. The Mental Deficiency (England) Act of 1927 makes it possible to certify a mentally defective person in whom the defect has arisen as late as 18 years of age. This was arranged with the special purpose of including adolescents suffering from chronic epidemic encephalitis.

The greatest incidence of the disease is between the ages of 15 and 50 (J. D. Rolleston), but cases have been recorded in infancy as early as three months (Patterson and Spence).

Symptoms.—Only the mental symptoms will be described here.

They are best considered in two stages, the acute and the chronic; but the two varieties of symptoms merge into one another both in type and in time. The symptoms in both stages belong chiefly to the organic reaction-type, as might be expected, but there are some symptoms not ordinarily associated with the organic reaction-type which occur in some cases of epidemic encephalitis, and give it its striking and exceptional mental colouring.

Acute Stage.—Delirium, stupor and psychomotor excitement have all been reported. It was from the frequency of stupor in the cases recognised in the early epidemics that the name "lethargic encephalitis" was derived. The stupor is of an unusual type, in that the patient can be roused for brief intervals, and can be got to respond clearly to questions. An exceptional symptom which we have seen in the acute febrile stage in a youth is "pressure of talk"—the patient talking rapidly and incessantly, but with complete coherence and *rapport* with his environment, and without mood alteration. Psychoneurotic symptoms have also been noted at this stage, *e.g.* anxiety (Bonhoeffer), which may not have been a specific effect but a reaction to physical malaise (as it certainly can be in the chronic stage).

Sleep disturbances of all kinds are present, and the insomnia is much commoner than the usual descriptions of "lethargic" encephalitis would lead one to believe. It is not unusual for several nights of complete insomnia to precede the onset of

lethargy. Complaints of headache are common. The mental symptoms of the acute stage may overshadow the neurological signs, and in a few cases have been the only symptoms detected during life. Delater and Rouquier report a case in which autopsy confirmed the diagnosis of epidemic encephalitis from mental symptoms only, neurological signs being absent. The lesions were confined to the cortex and meninges. In rare instances, behaviour disorders (which are common in children in a setting of clear consciousness in the chronic stage) have occurred in the early part of the illness.

The absence of mental symptoms in the early stages, or at least of a history of mental symptoms, does not make it impossible for them to appear in the chronic stage. The disease is so protean, even in its forms of onset, and the history given is often so vague, that the diagnosis of encephalitis has not infrequently to be made from the signs and symptoms of the later stages, both neurological and psychological.

A subacute form is described by Truelle and Petit. In this form they report mood and character disturbances, with polymorphous delusional ideas and psychomotor excitement, especially at night. These are succeeded by somnolence and stupor, and the results are death in from two to six months, or a chronic condition.

Chronic Stage.—There are very considerable clinical differences between the symptoms seen in most adults and in most children affected by the disease. The symptoms common in adults will be described first. It is impossible to make positive statements as to the relative incidence of certain symptoms, as in small groups there is always an error of sampling. Thus in a series of 8 long-standing cases, we observed apathy (emotional indifference) as a leading symptom in 7, but in another series of 23 chronic patients apathy was present only in 3.

The behaviour of adult post-encephalitic patients is usually in consonance with their affective condition. Thus the apathetic patient is usually inactive—a patient in whom consciousness is perfectly clear often lies motionless in bed, or sits staring out of the window for hours on end, with only a casual type of mental content, *i.e.* the inactivity does not depend on preoccupation. In the Parkinsonian syndrome, however (and it is mostly, but not at all exclusively, in association with this syndrome that mental symptoms occur), there is a definite physical handicap to the patient's activity. His ordinary voluntary movements are slow (" bradykinesis ") although he can sometimes perform

movements of rapid phase with apparent ease, *e.g.* he can play tennis with facility when it is laborious for him to walk (" paradoxical movements " of Souques). He has to devote a good deal of conscious attention to his movements, and this has a mental effect—it means a sense of unusual effort and a restriction of interest when movements normally automatic require much voluntary reinforcement. The restriction of interest can in itself be depressing, in addition to the discouraging effect of the knowledge of the presence of a chronic disabling disease. The patient may become irritable and bitter, in part because of his clear realisation of his infirmities (Naville). In our experience the infirmities more commonly produce depression. Corresponding to the physical slowing and lack of spontaneity (" bradykinesis "), there is a psychic viscosity (" bradyphrenia "). Naville describes this post-encephalitic bradyphrenia, which is confined to Parkinsonian types, as consisting in a diminution of voluntary attention, of spontaneous interest, of initiative and of capacity for effort and work, together with objective and subjective fatiguability and slight memory impairment. Extreme cases of this sort lead a purely vegetative existence, like the patients mentioned above who remain motionless for hours. Wimmer has recently observed atypical psychoses with a history of " Spanish influenza " and consisting in fatigue, anxiety, sleep disturbance, depression, hypnagogic hallucinations, slight fever and myoclonic jerkings.

Psychomotor excitement occurs sometimes. We have known " pressure of talk " to persist for three years after the onset, accompanied by mild euphoria and lack of insight.

Emotional Reactions.—There is no affect which can be regarded as having a specific relation to encephalitis, unless it be the remarkable apathy found in some cases. The apathy cannot be related directly to the Parkinsonian type of after-effects of encephalitis, since it occurs also in non-Parkinsonian cases, and Parkinsonian cases may not show it ; nor is it a feature of true Parkinsonism (paralysis agitans). Many other types of emotional reaction can occur. In a series of 23 cases we observed depression in 14 (with a suicidal attempt in 1 case), euphoria in 5, anxiety in 4 and emotional instability in 1. Depression is not to be regarded as specific. It is certainly in many cases a reaction to the physical disabilities, and can sometimes be removed by psychotherapy. Recently a post-encephalitic patient of Parkinsonian type of three years' standing, who was extremely depressed and anxious, and had had to leave

work, became confident, happy and efficient again after three months' simple psychotherapy. He had hyoscine also, but his physical improvement was slight. Euphoria is more difficult to explain, in the face of physical disability. It may be a specific effect of the toxin, akin to what occurs in phthisis. Wimmer remarks that this type of emotional disorder is " essentially different " from that in manic-depressive psychoses, and, with the reservation that we do not see why epidemic encephalitis should not sometimes unmask a latent manic-depressive predisposition, we are inclined to agree.

Volitional Disorders. — "The subjective (and objective) phenomena of the chronic stage seem sufficient, even after allowing for physical impediments, to indicate a profound mental change in the volitional sphere, with which emotional deterioration is closely connected." This applies especially to adult patients with apathy, and to children in whom aggressive behaviour disorder is the prominent feature.

Trend Reactions (delusions, hallucinations, ideas of reference).—These are not very common in the chronic stage (6 out of 31 patients in our series). They are consistent with the prevailing mood. Thus a woman with marked euphoria had an obvious wish-fulfilling delirium for several months—she was exalted and believed herself pregnant, and had hallucinations and illusions confirming her delusional belief. True hypochondriasis (excessive preoccupation with bodily functions in the absence of physical disease) is not common. Very frequently, however, the motor difficulties give a persistent direction of attention to the bodily functions, which readily becomes in excess of what is necessary and justified.

Organic reactions, such as disorientation, with or without hallucinations, memory defect and weakness of attention, are absent in the majority of chronic cases. They were present in 6 patients out of our series of 23. A Korsakow syndrome may rarely occur (Wimmer).

Intellectual Functions (comprehension, apperception, calculation, reasoning).—Impairment of these, as such, is probably rare in adults, but lack of interest may give an impression of intellectual impoverishment. There is evidence that in children the intellectual level is lowered in the chronic stages and in some instances a progressive deterioration occurs (Dawson and Conn, *Medical Research Council Special Reports*, 162, 1931). Naville and Claparède found that simple intellectual operations were not impaired in quality or rapidity ; but wherever a certain amount

of reflection and concentration was necessary the intellectual operations experimentally demanded were slower. This slowing seems to be independent of the physical motor " viscosity ".

Sleep.—All disturbances are possible—insomnia, hypersomnia, inverted rhythm, etc. Hypnotics are of very little use. We have noticed that these patients do not seem to feel the lack of sleep to the extent that a normal person does.

In children the chronic stage is noteworthy for the preponderance of behaviour disorders of a restless and aggressive kind. This is in obvious contrast to what is the rule (with some exceptions) in adults.

The characteristic change—it can be called characteristic since there is no other physical disease affecting children which leaves after-effects of this kind and degree and in such a large proportion of cases—is the appearance in a child hitherto of normal decorum of impulsive, unruly, shameless activity. Very rarely a reverse change has been noted. Grossman recorded the case of a very unruly child who became docile after epidemic encephalitis. The psychic disturbances in children are said by Wimmer to set in late and slowly, and are given by him as follows: restlessness, garrulity, meddlesomeness, excessive curiosity, erratic but active attention, foolish mirthfulness, irritability, temper-tantrums, scolding, mischievousness, destructiveness, abusive language, smearing with fæces and urine, micturition on surrounding persons, violence, attempts at murder and arson, cruelty to children and to animals, truancy, vagrancy, begging, dishonesty, pilfering and precocious erotism (sometimes with precocious puberty) with obscene language and conduct, including attempts on adults and small girls. The children seem to be very literally transformed into " little devils ". Punishment has no effect whatever. Asked why he does these things, the child will answer that he does not know, or that " something in me makes me want to do it ", as one expressed it. There is, in some cases, no evidence of shame, or of a sense of responsibility for their actions ; others express apparently genuine regret.

Inverted sleep rhythm is very frequent, and the nocturnal wakefulness is accompanied by great psychomotor excitement. In some cases there is psychomotor excitement in the daytime as well as at night.

Intellectually, there arises a secondary intellectual deficiency from lack of concentration and interest, and fatiguability with consequent unreliable perception and imperfect retention,

so that at school these children appear backward. There are, in addition, evidences of a temporary arrest of intellectual development, such as may result from any prolonged severe debilitating illness in children. This may sometimes prove permanent.

Tics, in the sense of habitual more or less complex co-ordinated movements occurring without reference to any apparent external need, are more common in children than in adults. Many of these encephalitic and post-encephalitic tics are more complex than those that have usually been considered "functional"—*i.e.* not dependent on organic change. Hohman gives a list which includes spitting, nose-picking, forced respiratory movements (sniffing, snorting, coughing), touching the shoe and putting the hand in the mouth, wetting the finger and rubbing the cheek and ear with it, shaking the hand, making the sign of the cross and stretching the arms laterally in rhythms of some multiple of three.

There is no evidence that behaviour disturbances are commoner in children of psychopathic inheritance or make-up than in children without this handicap. The prognosis of behaviour disorders in children is variable. Some go on to develop Parkinsonism, often with recession of the behaviour disturbance, others improve considerably but often with some form of instability remaining (Gibbs). Much depends on the early institution of training in a skilled environment, and on the age of the patient, those under twelve having a better chance (Bond).

Cerebro-spinal Fluid.—The changes in the cerebro-spinal fluid are never great. In the acute stages there have been reported lymphocytosis, increased globulin, and precipitation in the "luetic zone" in the colloidal gold test. The Wassermann is only occasionally positive in the absence of a complicating syphilis. In the chronic stages the changes are slight or absent. Neel reported 55 per cent with increased lymphocytes, but his standard for a normal count was very low. In 27 per cent he reported an increase in albumin. The most complete studies show no change in the spinal fluid sugar either in the acute or in the chronic stage (Shrewsbury and Williamson, Halliday).

Histopathology.—The macroscopic post-mortem findings are frequently insignificant, but there may be congestion of the pial blood-vessels, œdema of the brain and superficial hæmorrhages. The most constant histopathological lesion is a perivascular

infiltration, so that in sections the blood-vessels in the affected region appear congested, with their walls packed with lymphocytes, plasma-cells, adventitial cells, and in very acute stages polymorphs ("cuffing"). These infiltrations persist even in chronic cases. The parts chiefly affected are the basal ganglia and the region of the Sylvian aqueduct (especially the subthalamic region). Less frequently the grey and white matter of the cortex, and the medulla and spinal cord, are involved. Whether true parenchymatous infiltration occurs is not yet definitely decided: but extensive nerve-cell degeneration does occur, and is very important. McAlpine has drawn attention to the narrowing of the zone occupied by the *substantia nigra* and its paleness of colour; microscopically he found a marked decrease of cells. Whether calcification of blood-vessels belongs to the histopathological picture, or is an accident, is undecided (Da Fano).

Psychopathology.—We have already pointed out that in apathetic or depressed cases the volitional disturbance and the apparent intellectual impairment can be considered to depend on the emotional alteration, and that while the latter may often be partly explained as a reaction to the physical disabilities, it appears in some instances at least to be a primary effect of the disease process.

The greater instability in affect and behaviour found in children as compared with adults has to be related to the stage of development of their psychophysical organisation.

Prognosis.—The prognosis of the mental symptoms is intimately connected with that of the physical signs, but is not inseparably bound up with the latter. Death in the acute stages has been estimated variously as occurring in 10 to 50 per cent of the cases. The course of the mental symptoms is very changeable, so that in a single case there may be a sequence of *e.g.* delirium, stupor, exaltation and psychomotor excitement, with (later) hallucinations and delusions, a lethargic phase and finally recovery or (in another case) initial psychomotor excitement followed by apathy and depression with retardation, inactivity and flexibilitas cerea. The delirium of the acute stage usually subsides after a few weeks, or may be followed by complete recovery, or by other mental symptoms.

The initial sleep disturbance may continue or disappear, or may show as heterogeneous a succession as the other mental symptoms, *e.g.* hypersomnia, followed by hyposomnia, or by inverted sleep rhythm with sometimes a return later to hypersomnia.

It is impossible to make a prognosis in an individual case, even in the acute stage, and very difficult in the chronic stage. We have known a patient recover symptomatically and return to his work, only to have Parkinsonian signs and affective changes appear nearly five years after the onset.

The adult patients coming under the notice of the psychiatrist in the chronic stage have usually a more or less extensive Parkinsonian syndrome. Parkinsonian cases are prognostically very unfavourable from the physical point of view, but when the affective symptoms are depressive or anxious, the mental prognosis is not necessarily bad. We have known anxiety and depression to disappear, and a return to work be possible. When euphoria accompanies the Parkinsonism useful occupation is possible. The euphoria, like the other affective changes, may persist indefinitely. Apathy accompanying Parkinsonism we have not known to disappear. In children, Wimmer records that of 25 acute cases, 11 died, 2 were untraced and 12 displayed psychic sequelæ (chiefly behaviour disorders). We have not seen complete recovery occur from the behaviour disorder. The onset of Parkinsonism, however, is sometimes, but not invariably, associated with a cessation of impulsive conduct. Hohman records marked improvement or recovery in 6 out of 11 juvenile cases. Gradual deterioration and death can also happen.

Differential Diagnosis.—The apathy and lack of spontaneous movement in certain patients have led to an erroneous diagnosis of " dementia præcox " in them, and as such some of them were classified in mental hospitals. But closer investigation of such cases shows a normal grasp of the immediate environment without distortions, and no disorder of talk or of thought or other evidence of " splitting " of the personality. There is rarely any doubt of the true condition. Of course, epidemic encephalitis, like any other stress, may precipitate a schizophrenic reaction.

Treatment.—Specific treatment in the acute stages is lacking. Urotropine—4-8 gm. intravenously for four or five injections, and then internally (Economo)—has been used with doubtful effect. We have seen an acute case improve rapidly within forty-eight hours of the injection of the serum of a convalescent patient, but we regard this as a coincidence. Intravenous iodine is preferred on the Continent. Hydrotherapy (baths or packs) for excited patients is sometimes the only helpful measure. The usual hypnotic drugs are not very successful as a rule in producing

sleep, either in the acute or chronic stages. In the chronic stage of Parkinsonian cases, hyoscine is the most useful drug, in doses by mouth up to 1/50 gr. four times a day. Hypodermic injection is no more effective. A small dose is often as effective as a large one. The indication for the administration of hyoscine is Parkinsonian rigidity; the mental attitude is affected indirectly by the diminution of the rigidity so produced. Tincture of stramonium in doses of from 60 to 90 minims three times daily or oftener is effective in lessening rigidity and in increasing the ability to perform fine movements. It may be necessary to begin with a smaller dose and increase gradually, to avoid discomfort. Bulbocapnine in doses of 0·1 to 0·2 gm. three times a day by mouth or hypodermically has been used to control the impulsive behaviour of chronic encephalitic children (Hill). Simple occupation is useful both in adults and children. The juvenile cases, if at all severe, get on much better if segregated in a hospital ward specially designed for their reception, when a sympathetic but firm régime and occupation can be helpful. Psychotherapy in adults undoubtedly has its uses in certain cases, and in the anxious, depressed group especially sympathy and understanding produce an improvement both in mental and physical performance.

The Psychoses of Senility

The senile period which, arbitrarily, may be stated to occur from sixty-five years onwards, is, unfortunately but not unnaturally, a time when mental illness is by no means infrequent. The machine is becoming worn out both physically and mentally, the individual's general resistance is lowered, and he is unable to keep pace with changing conditions and events. The situation varies with the individual case. There are those who despite the passage of years retain their physical vigour and mental faculties to a surprising degree, while others, at a much younger age, become old both in body and mind. Heredity, congenital equipment and stress, physical and psychical, are factors in determining the earlier or later occurrences of marked senile degeneration; in congenital mental deficiency senility arrives early.

A senile psychosis is characterised by a primary tissue change affecting the brain itself, which may or may not be accompanied by a vascular change of an arterio-sclerotic nature. Men are as a rule more commonly affected than women, owing to the

greater stress and strain of everyday existence, and to their greater involvement with syphilis, alcohol and other toxic agents. It was thought that the destructive organic lesions which occurred were sufficient explanation of the symptoms, but Rothschild has shown that such lesions produce merely negative effects or loss of function, whereas the positive symptoms are due to the activity of the undamaged brain tissue, and represent attempts at adaptation to the altered conditions. The suspicion, the irritability, the delusions are compensatory phenomena for what has been destroyed.

Simple senile deterioration is the name given to the simpler form of senile change, and is within the limits of the normal. There is a progressive narrowing of interest. The power of comprehension becomes less elastic, and thought becomes sluggish. The individual sticks to an idea obstinately, and dislikes departure from the beaten track of his daily routine (the " misoneism " characteristic of the aged). When anything new is suggested, he resents it with the protest that the old ways are the best. There is not so much a change in personality as a caricature of it. Failure of memory is a very prominent feature. The failure affects especially recent events. Articles are laid aside and their place forgotten. The same story is told again and again. Reminiscences are much indulged in, partly as a result of the dulling of interest in contemporary things. The memory defect gradually becomes more diffuse, reaching further and further back, and gaps are filled in by fabrications. Patches of amnesia increase till there is a complete and continuous loss of memory extending into childhood. The inability to retain events of the immediate past is so marked that deaths even of near relatives are promptly forgotten. Often only a fragment even of personal memory is left, till perhaps the old senile patient informs his questioner that he is one day old. It is partly on the basis of memory defect that suspicions and ideas of persecution develop. The senile individual forgets where he has placed his clothes, and, not fully recognising his own memory defect, blames some one for stealing them. Hoarding is common—the pockets are filled with articles, often of little or no value, and an unnecessary volume of clothes is worn. Occasionally one sees a senile patient with delusions of grandeur or of wealth. Hallucinations, especially of hearing, develop in later stages. Orientation is disturbed as the result of the retention defect, at first at night and after waking in the morning, and later constantly. The disorientation involves not only time and place, but also

person. Attention is poorly sustained. There is a certain amount of fluctuation in the intensity of all the symptoms.

The emotional change is in the direction of apathy and irritability. But the characteristic change is one of loss of interest in others, even in wife or children; only the immediate personal wants are attended to. Sometimes there is mild depression. A transitory increase in sex desire leads to sexual acts such as indecent exposure, especially to children, and other perversions.

Restlessness is a troublesome symptom to manage. The patient wanders away from home and easily gets lost.

This is the basic picture of senile deterioration. Engrafted on these may be complicating symptoms, physical or mental.

Senile delirium has an acute onset, and shows much clouding of consciousness and hallucinations. It is frequently precipitated by head injury, by any toxic process, or after operative interference, *e.g.* prostatectomy, excision of a cataract. The delirious state may be episodic, or may be very prolonged with occasional remission to clear consciousness. Insomnia is extreme, and very difficult to control. The patient is restless, resistive, wanders about all day and all night, and may accuse those around him of trying to poison him. The chief danger is from exhaustion.

It has been customary to describe separately **senile depressive and senile paranoid** states. But when paranoid or depressive conditions occur in the senile period, apart from evidence of organic change, they do not differ in any special way from similar states at any other period, except that when delusional ideas are expressed they are apt to be absurdly fantastic on account of the general failure of judgment.

Physically, there are the usual changes associated with age—a general loss in weight, wrinkling of the skin, etc. The gait becomes shuffling (" marche à petits pas "). Tremor affects the hands and head. Speech is slowed, and increasingly difficult, and the handwriting is tremulous and shaky. There are headache, dizziness and apoplectiform attacks, and transitory or permanent aphasia, paralytic and sensory (paræsthetic) disorders. In the later stages there is a loss of bladder and bowel control. Sometimes the patient is filthy in his habits, smearing fæces over himself and over the walls of his room.

Morbid Anatomy.—In the brain there are both macroscopic and microscopic changes. The brain weight diminishes, often by as much as 200 gms. There is thickening of the skull and

of the membranes, which may be adherent at the temporal tips and the frontal lobes. Internal hæmorrhagic pachymeningitis is fairly frequent. There is an increase in the Pacchionian bodies. The convolutions are shrunken, and often this shrinking is most pronounced in the frontal area. The sulci are widened, and the ventricles dilated. The cerebro-spinal fluid is increased, compensating for the shrinkage of the brain. There is usually a certain amount of sclerosis of the blood-vessels, but not to the extent of producing lesions of the arteriosclerotic type.

Microscopically, the changes are essentially parenchymatous. The increase in lipoid substance in the nerve cells is very striking. There is a diminution in the number of nerve cells, with some disturbance of the layer-arrangement of the cortex. The remaining cells have undergone atrophy to some degree. There is an increase of neuroglia, which itself is apt to undergo a degeneration. The tangential fibres atrophy and diminish in numbers. Fischer's " plaques " occur in practically every senile brain, but are particularly common in psychotic cases. These " plaques " appear to consist of neural and glial elements rolled together into a conglomerate mass. They vary greatly in size, and occur in many regions, including the optic thalamus, but especially in the superficial cortical layers (Barrett). Achucarro holds that basket-like formations of fibrils may occur round nerve cells in senile dementia, resembling closely the formations described by Alzheimer as typical of Alzheimer's disease. Bonfiglio says that these are especially frequent in the frontal lobe and in the cornu ammonis.

Treatment.—Senile patients should be treated under home conditions as long as possible. Those who show a simple senile deterioration, without great restlessness or delusions, can be cared for at home without great difficulty. Patients showing acute episodic deliria can often be looked after at home when the delirium has subsided. When special attendants cannot be provided, and especially when ideas of persecution are entertained against relatives, removal to hospital is the necessary course. Under home conditions such patients are apt to be dangerous, setting fire to themselves or furniture, or actually in a frenzy making murderous attacks. Close supervision is necessary to prevent falling, and consequent injury, such as fracture of the neck of the femur, and to prevent wandering away from home. It is important to have the patient warmly clothed, and to see that he is warm at night. Regulation of the bowels and evacuation of the bladder have to be attended to. Catheter-

isation is occasionally necessary. Food should be simple, easily masticated and in small amounts. The principal meal should be in the middle of the day. In depressive states suicide has to be guarded against.

The majority suffer from sleeplessness, which can often be combated by simple methods, such as hot milk or a small dose of whisky. Bromides gr. xx. or xxx. and veronal gr. v., trional gr. x. or paraldehyde 1 dr. in 1 oz. of water will often be sufficient. For restlessness and sleeplessness a little opium—tinct. opii. ℥ v., or nepenthe ℥ x.-xv.—is useful in these patients.

A great deal more interest is being directed towards the treatment of senile states and attention is being focused on the accompanying states of denutrition. The ascorbic acid content of the organs tends with increasing age to diminish and in consequence treatment by means of vitamin C is strongly advocated in the form of ascorbic acid tablets, four per day. There is also considerable evidence pointing to a vitamin B deficiency as well. We are satisfied that in certain cases at least considerable benefit results from the use of these vitamins. Senile confusion sometimes yields to nicotinic acid, either by mouth (1000 mgm. daily) or intravenously.

Pre-Senile Psychoses

Two types are differentiated:

A. Alzheimer's Disease.
B. Pick's Disease.

A. Alzheimer's Disease.

This condition may be defined as an organic disease of the brain, with focal manifestations, due to a primary tissue change, occurring between the ages of forty and sixty years; there is evidence, however, to show that certain persons may be affected in youth or early manhood. For instance, Malamud and Lowenberg have reported the case of a youth, fifteen years old, who, at the age of seven years, after scarlet fever, exhibited a lack of physical and mental development; the histopathological investigation of his brain revealed miliary plaques and nerve-cell changes similar to those described as pathognomonic of Alzheimer's disease. Biggart has quoted Hallevorden as reporting typical Alzheimer "tangles" in the substantia nigra and tegmentum of the pons in ten cases of post-encephalitic Parkinsonism; the ages of those patients ranged from ten to fifty years.

From the above observations it may be gathered that Alzheimer's disease is not so sharply delimited as, at one time, was thought, and that there may be a variety of etiological factors. Indeed, it is probable that cases showing the histopathological characteristics of Alzheimer's disease are much more frequent than has been generally recognised. Even, however, with the exceptions above-mentioned, it is true to say that the vast majority of cases occur at or about the pre-senile period of life ; Grünthal considers that all cases reported as occurring under the age of 40 years deserve the most careful scrutiny. Women are more frequently affected than men.

Alzheimer's original description, in 1906, concerned a woman, fifty-one years old, who, in addition to delusions of persecution and jealousy, showed a marked failure of memory so that she was unable to find her way about her own home. She was perplexed, disoriented for time and place, and experienced delirious phases during which she was hallucinated. She showed a marked impairment in speech and understanding ; there was paraphasia and perseveration. This illness persisted for four and a half years, and at the time of death her limbs showed contractures. The post-mortem examination demonstrated the histopathological changes so characteristic of the disease : " In an otherwise normal cell there appear at first one or more fibrils which on account of increased thickness and increased stainability stand out prominently. In the further course of the alteration many neighbouring fibrils are similarly affected. These then form thick bundles which, gradually, come to the surface of the cell. Finally the nucleus and cell disintegrate, and only a tangled bundle of fibrils remains to indicate the site of a former ganglion cell." In addition, throughout the entire cortex, especially in the outer layers, many miliary foci or plaques occur. Such plaques had been described previously by Blocq and Marinesco and Redlich, and while they occur in greater quantity in all cases of senile psychoses, yet they are present in many cases of normal senility.

The clinical and histopathological features of Alzheimer's disease may now be described in greater detail :

The symptoms are frequently so insidious in onset that it is only much later that their real significance is realised. A person who was known previously as active, conscientious, sensitive and hard-working, shows a gradual loss of interest, tiredness, difficulty in attention and concentration, accompanied by mental dullness, difficulty in comprehension and irritability. The full significance

of these changes is not at first recognised. Later, however, ideas of reference, suspicion, and delusions of persecution may develop ; these, of course, are usually of a fleeting, transitory nature and never become systematised. As the illness progresses, forgetfulness becomes a notable feature, names are forgotten, articles are mislaid, a certain amount of paraphasia may occur, and, gradually, the memory failure involves both recent and remote events. Eventually there is complete disorientation for time, place and person, and the intellectual and emotional faculties deteriorate to such an extent that regression occurs to an infantile level. During the progress of the disease it should be noted that the phase of irritability, originally present, is replaced by a childish euphoria.

Stengel has been particularly impressed by the great motor restlessness and by the utterance of stereotyped phrases very similar to the restricted utterances of cases of involutional melancholia who are tending to deteriorate. In this connection it is of interest that McMenemy, Worster-Drought, Flind and Williams have described a family in which four siblings suffered from Alzheimer's disease and one from involutional melancholia. This family is of additional interest because of the view previously prevalent that Alzheimer's disease was not a familiar disorder as Pick's disease is.

In addition to the above-mentioned changes, all manner of more specialised disturbances occur, depending on the association areas involved by the pathological lesion. We see diffuse aphasic states, combined with apraxia, agraphia and psychosensory disorders. A particularly noteworthy feature throughout the whole course of the illness is the occurrence of epileptiform seizures.

Grünthal in his analysis of a series of 14 cases divided the clinical course into three stages :

(1) A stage of gradual loss of memory and disturbance in perception, carelessness in work and appearance, place disorientation, weakness or epileptiform attacks, with some loss of words and slurring speech.
(2) Complete disorientation for time, place and person, dulling of comprehension, restlessness at night, inability to read, write, or do simple arithmetical sums.
(3) A stage of irritability, with paraphasia, uncleanliness, and stereotyped movements.

Physically.—There is a coincidental bodily decline associated

with inco-ordination and emaciation, so that the patient becomes bedridden and requires to be attended to in every way.

Morbid Anatomy.—Grossly, the brain shows a generalised atrophy, and, superficially, the appearance is similar to that seen in cases of senile dementia. The cerebral vessels do not usually show any atheromatous changes.

Histopathologically, the significant feature is the replacement of the nerve cells by neuro-fibrillary tangles arranged in the form of whorls or baskets. Senile plaques are usually present as well. Rothschild and Kasanin maintain that the histological changes are not the expression of one disease process, but are an indication of a special type of tissue reaction which may arise in response to a variety of endogenous and exogenous agents. They assert that they have found similar changes in familial spastic paralysis, schizophrenia, myxœdema, amyotrophic lateral sclerosis, multiple sclerosis and tabes. If these findings are confirmed, it is obvious that Alzheimer's disease will require to be reformulated.

Clinical Examples.—The following cases are illustrative :

CASE 70.—A single woman had been very well, active and interested, until it was noticed at age 39 that her memory was failing, and that she was getting restless and excitable ; for example, she would remake her bed in the middle of the night. Soon she developed an enormous appetite, eating bananas and sweets all day long, and gaining 2 st. in fifteen months, so that she weighed 11 st. 8 lb. when examined (her usual weight being 9 st. 7 lb.). She would steal food from the trays of other patients, and was even found chewing grass in the garden. Her sugar tolerance was much increased. There was no other evidence of endocrine disease, and an X-ray of the sella turcica showed nothing abnormal. There was no history of alcoholism. She was neat in her appearance, and pleasant in manner. She was mildly happy, but had no interest in her former pursuits, and no insight for the change in her condition. Unpalatable statements about her health and conduct she received with an empty smile and facile acceptance. Sometimes she giggled without apparent cause. There was no evidence of delusional trends or of hallucinations. Her recent memory was defective—she would repeat the same story over and over again, and she also confabulated slightly. Remote memory was intact. Comprehension was very poor except for simple facts, and she failed badly in the Ebbinghaus completion test.

A post-mortem examination showed a generalised brain atrophy, more pronounced in the frontal lobes, more particularly on the left side. The histological examination showed the presence of a band of vacuolation in the region above the layer of large pyramidal cells. This band seemed to be peculiar to

the frontal areas. In the occipital and other regions, areas of vacuolation less localised and encroaching sometimes on the white matter, were present. Abundant typical senile plaques were seen scattered throughout all the cortical areas examined. These plaques were most abundant in the hippocampal region and appeared to have preference for the second and third layers of the cortex. The nerve cells had undergone profound changes exemplifying the fibrillary degeneration of Alzheimer. All parts of the cortex were affected.

CASE 71.—A woman, 48 years old at the time of admission, showed a pronounced defect of memory. She could not give any account of her life, being unable to tell where she was born, when she left school, or when she married. She was irritable and emotionally unstable in every way, weeping without provocation. Vague persecutory ideas were expressed. Physically she was in fairly good condition. The blood-pressure was low, being only 90 mm. An aphasia examination revealed defects both in the receptive and emissive spheres. There was a certain amount of word amnesia, with paraphasia and perseveration. On the receptive side she was unable to execute fairly simple commands, such as, " Touch your nose with your right hand ". She could not compose words spelled to her, nor could she copy print in capital letters. This condition had been developing gradually for the two years preceding admission. The failure of memory had been the most prominent symptom. She had mislaid articles and reported to the police that they had been stolen. Her conduct towards her relatives was so unbearable that she had to be certified. Her condition has gradually become worse, so that now she has to be looked after in every way—she cannot dress herself, cannot find her way in the ward and a nurse has to show her to her place at table. Paraphasia has increased, and she has no conception of the use of the simplest articles.

A similar case has been described by Barrett in a woman of 33.

The post-mortem examination showed a general atrophy of the cerebral convolutions, especially of the frontal lobes. The histological examination revealed a band of vacuolation in the frontal gyrus and other areas of vacuolation were present throughout the cortex ; in Ammon's horn the vacuolation had taken the form of a band running along the plexiform layer of the gyrus. Senile plaques were present in great numbers and Alzheimer's cells could be seen in all parts of the cortex ; interspersed with the Alzheimer cells were cells showing the granulo-vacuolar degeneration described by Simchowicz. The basal ganglia showed noteworthy changes. The cells in the caudate nucleus, lenticular nucleus, globus pallidus and optic thalamus had undergone degenerative changes of the granulo-vacuolar type.

B. **Pick's Disease.**

In 1892 Arnold Pick of Prague described a comparatively rare form of organic brain disease due to a *circumscribed* atrophy of certain portions of the cerebral cortex, especially the frontal and temporal lobes. It affects people between the age of forty and sixty years, but Grünthal has reported cases as occurring earlier than forty years and later than sixty years. The duration of the illness is indefinite, but it may run a prolonged course, even up to fifteen or twenty years.

The ætiology of this disorder is obscure ; in most cases there is a family history of heredo-degenerative traits, and in support of this view Grünthal has reported its occurrence in two brothers, and in two generations of a family.

Clinical Symptoms.—The clinical picture presented is not very well defined, but notable contributions from Kahn and Thompson, and Grünthal, hold out a hope of greater descriptive exactitude. Kahn and Thompson distinguish two clinical types —one characterised by dementia and aphasia, and the other by dementia alone. It is doubtful whether such a distinction is valid. The onset may be acute or insidious, but more usually the latter. The symptoms correspond to those characteristic of organic brain disease, viz. a disorder of character, of intellectual function, and of affect. The early symptoms are very similar to those of Alzheimer's disease. The personality becomes changed, the hard-working efficient person becomes careless and casual, seems confused, is easily tired, lacks concentration and interest, and develops a facile, apathetic state with complete lack of spontaneousness and initiative. There is regression to a childish level, with fluctuation of emotion and attention. Even habits of personal cleanliness are neglected. A gross disturbance of memory both for recent and remote events occurs comparatively late. During the progress of the disease the emotional lability becomes more marked. There is then complete disorientation for time, place and person. The actions and utterances become more and more stereotyped, and eventually almost purely reflex and instinctive. Speech may disappear entirely. Epileptiform attacks are infrequent. Aphasic, alexic, agraphic and dyspraxic symptoms are present, depending upon the localised involvement of brain tissue. The terminal stage is one of great mental and bodily enfeeblement, so that the patient becomes bedridden and has loss of sphincter control.

Morbid Anatomy.—Macroscopically, the brain shows a circumscribed atrophic state, involving especially the frontal and

temporal lobes; there may also be a shrinkage of the corpus striatum. Grünthal states that atrophy of the occipital lobe has not as yet been observed with certainty. The above-mentioned pathological process is usually confined to one-half of the brain, usually the left, in contrast to the symmetrical involvement in Alzheimer's disease and senile states. It should also be noted that the motor cortex and cerebellum are not usually affected.

Microscopically, the nerve cells in the third layer of the cortex disappear first, and are replaced by neuroglial overgrowth; the cells in the three first cortical layers are more intensely involved than the others. Many of the ganglia become swollen, "ballooned", and show deep argentophilic staining. The chromatin substance of many of the nerve cells disappears, the nucleus becomes displaced to the periphery of the cell, is pale in colour and vacuolated. Occasionally, senile plaques and Alzheimer's tangles may be present, but in no case are they a conspicuous feature of this disease. The white matter may also show an early atrophy.

Differential Diagnosis.—It is extremely difficult, clinically, to differentiate cases of Pick's disease from Alzheimer's disease. The two conditions develop at the same time of life, they run an almost identical course and exhibit similar clinical symptoms. The main basis on which it seems reasonable to make a differentiation is that Pick's disease is determined on a heredo-degenerative basis. It has also been asserted that serious memory disturbance occurs later, and that epileptiform seizures are less frequent in Pick's disease. Stengel contrasts the motor restlessness of the Alzheimer cases with the peace of mind of Pick's disease, and suggests that this may be due to the massive destruction of white matter which occurs in the latter condition.

Pathologically, we would appear, however, to be dealing with two separate and distinct entities. It may be that with the development of encephalography we will be able to advance our knowledge of those obscure organic disorders considerably further.

Psychoses in Cerebral Arteriosclerosis

Arteriosclerotic brain disease occurs for the most part in people over the age of fifty years. In certain families there is a distinct tendency to early arterial degeneration. The factors contributing to produce the condition are alcohol, syphilis,

plumbism, hard mental work, worry, excessive food-intake and infective conditions, acute and chronic.

There are many cases of cerebral arteriosclerosis in whom mental symptoms never appear. The mental conditions commonly described as post-paralytic dementia and post-apoplectic dementia are arteriosclerotic in origin.

Mental Symptoms.—The commonest mode of onset is an apoplectic seizure of major or minor character. The mental symptoms often date from such an episode. Then follows the realisation on the patient's part that he is less efficient than formerly. He tires more readily, has less initiative and is duller in comprehension. Tasks which he formerly accomplished readily become increasingly difficult, and finally pass completely beyond his power. A failure of memory commences, first of all especially for names. The failure is a capricious one, the same name being recalled at one time, and forgotten at another. The memory defect becomes more general, and gradually extends from recent to remote events. Sometimes the gaps in memory are supplied by confabulations. Emotional instability is also an early symptom ; the patient's eyes readily fill with tears, and he laughs without sufficient cause. Irritability increases, with outbursts of morbid anger, often to the patient's distress. As the condition advances, suspicions arise which may develop into delusions of jealousy. Periods of clouding of consciousness are not infrequent, and in these partially disoriented states with their poorly connected thinking, episodes of violence, *e.g.* against the patient's wife, readily occur. Restlessness, both by day and by night, and sleeplessness are common. States of morbid apprehension may sometimes culminate in a panic, usually with clouding of consciousness, in which the patient believes himself about to meet some terrible fate. The personality is fairly well preserved, but with the increase in the mental symptoms there is a gradual deterioration in the patient's appearance—he becomes slovenly, allows his clothes to become stained, and has to be reminded to wash. Insight is usually good at first, the patient being distressed by his condition, but it gradually fades.

The final condition is one of more or less complete mental disorganisation, mental confusion being associated with the results of focal lesions (aphasia and apraxia, etc.) and with physical helplessness, so that the patient becomes bedridden.

Physically, headache, dizziness, tinnitus are the earliest symptoms. The gait becomes tottering, and the hands tremulous.

Paræsthesiæ, especially of the lower extremities, are often complained of. The pupils are small and sluggish in about 25 per cent of cases. The tendon jerks often show a generalised increase. In cases with permanent residual hemiplegia one finds an extensor plantar response and ankle clonus.

The patient is subject to apoplectiform and epileptiform attacks, with focal signs, especially hemiplegia, of a transitory nature. Apraxias and aphasias of all types can occur. Spontaneous bleeding from the nose is sometimes the first sign presented by the patient, and may precede other physical signs by years. Epileptiform attacks are sometimes the most prominent clinical feature for a time; but usually in the intervals it is possible to demonstrate other symptoms of arteriosclerotic brain disease. Kraepelin says that where epileptiform attacks are prominent there has usually been alcoholism.

Sclerosis of the vessels, *e.g.* of the fundi, may or may not be apparent. A cerebral arteriosclerosis may exist without marked peripheral involvement. Increased blood-pressure is a usual but not invariable concomitant, and there may be an accentuated second sound, cardiac enlargement, slight albuminuria and sometimes glycosuria. The cerebro-spinal fluid may show a slight increase in globulin and cells.

Morbid Anatomy.—Besides the sclerotic changes in the cerebral blood-vessels, there is more or less arteriosclerosis throughout the body, especially in the aorta and its branches, particularly the coronaries. There may be hypertrophy and dilatation of the heart, interstitial nephritis and infarctions of various organs.

The brain membranes are thickened, and there is some general brain-atrophy. Fresh hæmorrhages may be evident beneath the membranes. Cyst-formation and dilatation of the brain-ventricles commonly occur.

Microscopically, three types of degenerative arterial change can be recognised (Lambert) besides the mild sclerosis which is the normal physiological concomitant of age. The three types are: (1) atheroma, (2) colloid-calcareous arteriosclerosis, and (3) arteriocapillary fibrosis.

1. In ordinary *atheroma* a section through the affected vessel shows the "signet ring" appearance—the sclerotic change not affecting the whole circumference of the vessel uniformly. Degeneration occurs first in the elastica and media, the nuclei staining palely and the protoplasm becoming cloudy. The intima proliferates to compensate for the weakening of the wall at the part where weakening occurs, forming a plaque. The

proliferated intima is not furnished with new vessels, and so readily undergoes degeneration in its turn, especially in its deeper parts away from the central blood-stream.

This atheromatous type of arteriosclerosis leads to softening and hæmorrhage, and is responsible for the larger cerebral lesions, and therefore also for the grosser signs of focal defect (*e.g.* hemiplegia and hemianopia).

2. In this type the media is infiltrated with *colloid-calcareous* material which ultimately replaces the muscular coat. The vessel widens, and the intima proliferates. The infiltration continues centripetally and centrifugally, so that the vessel is finally obliterated, producing softenings in the surrounding tissues. Sometimes rupture occurs before obliteration is complete.

The lesions are small and multiple, and it is this type of degeneration which is often exemplified in the medullary affections (*v. infra*).

3. In *arteriocapillary fibrosis* the vessel walls are uniformly thickened, there being a few palely staining nuclei in a matrix of homogeneous and finely fibrillar connective tissue. These characters and the absence of inflammatory infiltrate, lymphoid and plasma cells, and comparative absence of local neuroglial reaction in the resulting foci of softening, distinguish it from syphilitic endarteritis. This type of arteriosclerosis affects chiefly vessels supplying the nerve cells. The resulting physical signs, if any, are irritative, and the mental disorder is diffuse, resembling senile dementia.

These are the types of pathological change in the vessels. Alzheimer, in 1902, described four main general types of change in the brain:

1. **Arteriosclerotic Brain atrophy.**—To this type there correspond two principal clinical varieties, one of them more severe than the other. The milder type shows pronounced mental fatigue, with headache and attacks of dizziness. Anatomically, in this type there is a severe sclerosis of the arteries, but gross changes in the brain are slight. Microscopically, there is an absence of marked focal disintegration of nervous tissue. The principal change is a pigment-atrophy of the ganglion cells, with scattered proliferation of the glial cells of the cortex, and increase of glia fibres about the vessels.

The more severe type is a severe sclerotic brain degeneration, which in its beginning may resemble the first form, but severe psychical phenomena soon develop, and there is a progressively deeper dementia. Incidentally there is a history of fainting

attacks, apoplectiform shocks, epileptiform convulsions, with more or less defined focal symptoms.

2. The **subcortical encephalitis** described by Binswanger is an atrophy of the deep white substance resulting from sclerosis of the long medullary arteries. The anatomical defects consist of small foci (lacunæ) of softening, rarefaction and atrophy, not only in the white matter underlying the cortex, but in the basal nuclei and in the brain-stem. The pia is a little hazy and the convolutions are narrowed. The usual subjective symptoms commonly precede the appearance of gross disturbance; but sometimes there develop suddenly or gradually, without prodromata, hemiparesis or articulatory disturbance. Apoplectiform and epileptiform attacks occur, and may be recovered from almost completely, but sooner or later marked permanent defects occur. Episodes of excitement and confusion are also common results of vascular crises.

It is commonly found that the medullary and cortical vessels are affected to a very different extent in the same case; so that in one patient the signs of medullary involvement, just described, preponderate; while in another the advanced degeneration of the cortical vessels gives rise to a considerably different syndrome, characterised chiefly by irritative symptoms —twitchings, choreiform movements, mild epileptiform or apoplectiform attacks.

3. **Perivascular gliosis** results from the progressive obliteration of small vessels, with atrophy of the nerve cells supplied by them, followed by proliferation of glia.

4. **Senile cortical devastation** is an arteriosclerotic brain disease occurring in the senile period and associated with senile brain atrophy. The arteriosclerotic degeneration affects chiefly the smaller vessels of the cortex with disintegration of the nervous elements, in peculiar wedge-shaped foci or streaks.

The precise physical *symptomatology* depends in all cases on the localisation of the lesions.

Prognosis as a rule is very poor. But it is surprising how often a patient will enter a mental hospital in an episode of excitement and confusion, but make a fair recovery, and be able to leave again with fairly good insight. For example, a man of 62 years, who had been actively engaged in his work, suddenly one morning had an apoplectiform attack, with inability to speak, and right-sided hemiplegia. He was so restless and difficult to manage, even in a nursing home under skilled care, that he had to be transferred to a mental hospital. After a short period of

emotional instability he began to show both a mental and physical improvement, and was discharged in the course of three months in a recovered condition, the hemiplegia and speech defect having cleared up. He acquired good insight, and although his memory was slightly impaired for recent events, his general efficiency was fair.

In addition to a post-apoplectic state such as that just described, we have seen extremely irritable and impulsive episodes accompanied by suspicion and delusions of persecution, and by assaults on a relative, clear up to a remarkable extent, so that the patient could resume work at home. These improvements are transitory, but they occur much more frequently than is generally believed.

The general course is downhill to dementia and physical helplessness.

Treatment.—Treatment is symptomatic, and has to be directed to general care and management, in a mental hospital if necessary. There are certain cases which can be managed under home conditions by the discriminating use of sedative drugs and the employment of a nurse or attendant.

Bromide gr. xx. t.i.d. or veronal gr. v.-x. at night-time is often useful.

Huntington's Chorea

Huntington's chorea is a familial disease, occurring usually between the ages of 30 and 50, characterised by general choreiform movements and by gradually increasing mental deterioration dependent upon organic disease of the brain. It is inherited directly from parent to child (see page 39). The one psychiatric condition in which a simple Mendelian transmission is held to be demonstrated is Huntington's chorea. It is a simple Mendelian dominant and every patient heterozygous for the disease has to expect an average of 50 per cent of affected offspring (Rudin). Antedating is said to be common (Davenport and Muncie, *Amer. Jour. Insan.*, July 1909). Cases have rarely been recorded without demonstrable inheritance. In a few instances it has occurred before the age of 30. The average length of life after the onset is about sixteen years (Hughes, *Amer. Jour. Psychiat.*, January 1925).

The physical and the mental *symptoms* are alike progressive, but arrest sometimes occurs. The mental changes may precede the physical signs by years. The early mental symptoms consist in deterioration of behaviour—slovenliness in dress, hoarding of

useless articles, carelessness of social conventions, *e.g.* the use of obscene language, expectoration on the floor, great irritability issuing in altercation or in actual assault. Usually the patient is depressed ; a few are euphoric. There is poverty of thought, a failure of memory, defective attention and defect of judgment. Delusions, persecutory or religious or jealous, and often absurd in their content, are frequent.

Physically, there are continuous movements of the head, trunk and limbs—stretching, jerking and grasping, reminiscent often of athetosis rather than of chorea. The movements begin usually in the lower limbs, and are often unilateral for a time. They cease during sleep, which is usually broken. The voluntary movements are irregular and inco-ordinate. Speech is hesitating and stumbling, and interrupted by clicking sounds, or so thick that it cannot be understood. Writing shows much irregularity. Swallowing may be impaired, and spasmodic jerking of the respiratory muscles may occur. The tendon reflexes are increased, but the sphincters are intact.

The usual termination is dementia and physical helplessness, so that the patient is bedridden. The constant jerking movements continue to the last, and produce irritation of the skin, resulting in bed-sores.

Morbid Anatomy.—Chronic meningitis, a generalised brain-atrophy with loss of nerve cells especially in the precentral convolution, diminution in the tangential and supraradial fibres, and increase of glia have all been described. Dunlap was impressed with the profound pigmentary change—the nerve cells contain a large amount of pigment diffused through the protoplasmic mass, instead of being collected into one place as in senile pigmentary degeneration. In 1911 Alzheimer emphasised the occurrence of degenerative changes in the cortex, but also demonstrated extensive changes in the corpus striatum which, he believed, were responsible for the motor phenomena. Dunlap (*Arch. Neur. and Psych.*, December 1927) has reported a diminution in size of the cerebral hemispheres, while the cerebellum was of normal size ; the average Huntington-chorea brain weighed 980 grm. as compared with 1153 grm. for the average control case. On section of the brain the most striking feature is a visible reduction in size of the corpus striatum, while its consistency is well preserved ; no foci of softening were found. The nerve cells in the putamen, especially in the middle and posterior parts, were enormously decreased. There was also a reduction of the cells in the caudate nucleus, but the nerve cell " outfit " of the

globus pallidus and ansa lenticularis was probably intact. In most cases there was extensive neuroglia proliferation. The white matter may be reduced in size, but this is due, possibly, to an enlargement of the lateral ventricles.

Treatment.—Symptomatic treatment is entirely unavailing, but provided suitable legislative measures were enacted so as to ensure the sterilisation of all those potentially liable to develop this disorder, it could be eradicated. The problem is by no means a small one. Stone and Falstein (*Jour. of Nervous and Mental Disorders*, 1939, lxxxix, 6) have given particulars regarding the spread of the condition, and state that as a social and eugenic problem it appears to be out of control.

Pellagra

The importance of pellagra in its relation to mental disease is increasingly recognised. Pellagra was described in the eighteenth century as occurring in Spain and in Italy, and in the nineteenth century cases were recognised in France, Rumania, Egypt, the United States and in the British Isles. In 1866 Howden of Montrose described the first case in the British Isles, but no further mention is made in British literature until in 1909 Brown and Cranston Low described a second case. Since that time numerous cases have been described by other observers. An idea of the prevalence of the disease may be gained from the fact that Lavinder, in 1912, estimated that 30,000 cases of pellagra had occurred in the United States of America during the five preceding years; in Italy a yearly estimate of from 50,000 to 60,000 cases is conservative; while in Rumania, with a population of a little over 5,000,000 individuals, there are 40,000 to 50,000 pellagrins. Since from 4 to 10 per cent of all pellagrins show mental symptoms, its psychiatric importance is considerable.

Ætiology.—At one time it was thought that this disease was caused by the excessive use of corn, or by corn that was diseased. But it affects persons who have never eaten corn or corn products, and, moreover, pellagra is occasionally absent from districts where corn preponderates in the diet. Moreover, it occurs in some mental hospitals, and in some individuals who have existed on a faulty diet (*e.g.* bread and tea). It can also occur as a " conditioned deficiency " in alcoholic addiction.

In recent years the experimental work carried out by Goldberger, Waring and others of the U.S. Public Health Service has

gone far to prove that pellagra is due neither to diseased maize nor to an infective agent, but is largely a matter of an ill-balanced diet. Goldberger's conclusion that the disease was dependent on some fault in the diet has been amply confirmed by recent work, which has demonstrated that pellagra can be promptly cured by administration of the appropriate vitamin, nicotinic acid, the pellagra-preventing (P-P) factor of vitamin B2. A suitable dose is 500 mgs. per day orally or 40 mgs. intramuscularly thrice daily, but it should be accompanied by a well-balanced, nourishing diet. Most protein foods are sources of nicotinic acid, especially yeast, fresh or canned salmon, and some liver extracts. The American National Research Council sponsor the name Niacin for nicotinic acid. Sydenstricker advises 100 mgs. of Niacin every hour for 10 hours during the first 2 days and believes that most patients improve within 48 hours after beginning the treatment.

Symptomatology.—Pellagra is characterised by a combination of cutaneous, digestive, nervous and mental symptoms, which show remissions and recurrences over a long period of years. Occasionally the disease may run an acute course, and proceed quickly to a fatal termination.

(*a*) The skin lesions consist of an erythema, followed by a dermatitis, and discoloration of the skin, resembling a severe sunburn. This condition involves the backs of the hands, extending as a band round the wrists, and in some cases involving the palms of the hands. The face, the neck, the elbows, the knees, the scrotum or vulva may show a similar condition.

(*b*) The mucous membranes of the mouth and tongue become inflamed, so that the mouth is painful, and the tongue has a glossy, red, raw appearance. Associated with this condition there may be gastric symptoms, and a history of alternating diarrhœa and constipation.

(*c*) The nervous symptoms are of a general nature, and consist mainly of paræsthesiæ occurring throughout the body, tremor, increased or diminished reflexes, and occasionally convulsions.

(*d*) The mental symptoms associated with pellagra are usually either in the nature of a depressive state, a chronic organic reaction (memory-loss, etc.), or a delirium. The last is the most frequent. The depression is largely based on the fact that the patient realises he is suffering from a sèvere physical illness, while the delirium is of the usual toxic type. Pellagra

may also occur during the course of any mental illness, and we have seen cases complicating both involutional melancholia and schizophrenia.

Morbid Anatomy.—The principal histopathological finding in cases of pellagra is a condition of axonal reaction affecting especially the Betz cells. This type of axonal reaction was described by Adolf Meyer and termed by him " central neuritis ". The probability is that his cases of central neuritis were really cases of pellagra. This axonal reaction consists of a swelling of the cell-body as a whole, while the centre of the cell exhibits a pale, more or less homogeneous appearance of the protoplasm, with a loss of stainable substance, which might or might not be well preserved at the periphery of the cell, and displacement of the nucleus towards the border of the cell body (Dunlap). This condition has been described by Dunlap in 3 cases, and Watson, in the eleventh *Report of the Board of Control* (*England*), has reported the same reaction in a group of 31 cases which came to autopsy. Neither Dunlap nor Watson finds evidence of peripheral neuritis, or involvement of the sympathetic nervous system.

Treatment.—We have already indicated that pellagra is a dietary disease due to faulty nutrition, and the best way to prevent its occurrence, or to cure it after it has manifested itself, is to give the patient an abundance of fresh milk, eggs, fresh lean meat, peas and beans. In mental hospitals special care should be taken to see that patients who are being tube-fed have a varied diet, and that patients who are less able to look after themselves are protected from those who are inclined to steal their food from them. It is largely as the result of insufficient diet from such causes that pellagra develops in mental hospitals. The necessary dosage of nicotinic acid has been indicated above.

Mental Disorder following Head Injury

Mental disorder may follow upon injury to any other part of the body as well as to the head, and in that event we are concerned usually with the psychological effects of the traumatic experience in precipitating either a psychosis or a psychoneurotic form of reaction, according to the nature of the pre-existing personality or to the special circumstances. The symptoms are not different from those of psychotic and psychoneurotic forms of reaction in general.

The traumatic psychoses and neuroses properly so called are,

however, a fairly distinctive group. The psychoses are few. Of 8985 head injuries in the German Army in the Franco-Prussian War, only 13 cases were followed by psychoses (A. Meyer). Some have put the incidence even lower than this ; Eager, for example, calculated that the incidence of insanity among soldiers with head injuries in the last War was not greater than among the ordinary population. Of 70,987 first admissions to mental hospitals in U.S.A., May calculates that 0·3 per cent were traumatic psychoses. The paucity of psychoses following head trauma is partly explained by the fact that as a rule in those cases of injury which develop a psychosis afterwards other ætiological factors are found. A. Meyer, in his classical paper on the subject, says, " Even in the four cases of primary traumatic disorders, *i.e.* those which followed the injury immediately, constitutional peculiarity exists in two and alcoholism in one ". Heredity, alcoholism, syphilis, psychopathic traits, contemporary worries and, in fact, one or other of most of the usual predisposing causes of mental disorder are found in the anamneses. It may be emphasised that the degree of damage to the skull is not commensurate with the degree of damage to the brain. Even the slightest injury, especially in a predisposed individual, may produce the most serious consequences. On the other hand, an abnormal mental state following a head injury may be due to the physical effect of the injury on the brain, or to the psychological effect of the experience on the personality, or to a combination of the two.

The results of the physical injury on the brain we can designate a traumatic neurosis or a traumatic psychosis, depending on the type of syndrome produced by the physical damage, using neurosis in the older traditional sense of a syndrome, depending on a disordered type of nervous tissue function without demonstrable physical lesion, in contrast with a traumatic psychoneurosis, which would indicate the other contingency, the psychological effect of the experience on the personality. The conception of a traumatic " neurosis " in this older sense is of special usefulness in the frequent minor " post-contusional " or " post-concussional " states.

Pathology.—The *physical effects* of brain injury are both focal and diffuse, immediate and delayed. The focal lesions consist at first in tissue destruction, hæmorrhages and œdema ; and later, in the occurrence of secondary degeneration and in the formation of scar tissue. Diffuse effects of the same kind are also produced. Scattered minute hæmorrhages, especially in the floor of the

fourth ventricle and round the aqueduct of Sylvius, and œdema are common, while swollen axis cylinders are found even in areas remote from any lacerated area. Diffuse destruction of nerve-tissue can also occur in parts not directly affected by the injury. Experimentally it has been demonstrated that diffuse fragmentation of myelin and alteration of nerve cells can result from cerebral commotion. The absence of other than local changes (in the contused area) renders it difficult to account for continued unconsciousness. But it has been found that the oxidase ferment usually present in ganglion cells cannot be demonstrated in a wide area of the concussed brain — *i.e.* diffuse physiological impairment has been produced. This effect, however, is found also in toxic conditions of the brain cells in which unconsciousness does not occur (J. H. Biggart, *Pathology of the Nervous System*, Edinburgh, 1936).

General effects of a " functional " kind, the physical basis of which is not clearly known, appear later, and consist chiefly in emotional and vasomotor instability. Hyaline arterial degeneration and arteriosclerosis have also been described as a sequel, perhaps as the result of the vasomotor instability which is sometimes so prominent after trauma. A certain amount of brain atrophy can be demonstrated by pneumoencephalogram even in cases where the clinical sequelæ although persistent are relatively mild. The E.E.G. will reveal the presence of damaged tissue and will give an objective record of its gradual recovery ; but it will not record the presence of tissue permanently destroyed.

There is seldom any relationship between the site of the brain injury and the nature of the ensuing mental symptoms. This is not surprising, in view of the difficulty in defining the extent of the injury itself, and of the failure so far to locate definitely anything but the simpler motor and sensory functions. Further, the remaining cortex may undertake to a surprising extent the function of a destroyed portion (cf. Lashley's animal experiments). It is true that an entire decortication in the dog converts the animal into an inert automaton, and that removal of the frontal lobes in monkeys is followed by a considerable falling off in spontaneity and general organisation of behaviour, according to Bianchi. In man, it has been customary to suppose that frontal lesions tend especially to be associated with deterioration in the personality, showing itself in loss of the finer feelings, in childishness and in intellectual and emotional decay. The famous " Crowbar " case is usually quoted. In 1848, in Vermont, U.S.A., a man named Gage had an iron bar driven through

the frontal region of his skull, but lived for twelve years afterwards. Autopsy showed that only the pre-frontal cortex was involved. He had been a most efficient workman, but after the accident his disposition was so changed in the ways already mentioned that he could not hold his former position.

Not all frontal injuries have such a result, however, and similar conditions may follow an injury ostensibly to other parts of the cortex (*e.g.* the parietal region). Lesions involving cortical areas associated with speech functions interfere more or less with the mental functions also, since the individual is so dependent on speech and allied functions, both receptive and remissive, for his contact with the environment, and on verbal symbols for his thinking. Syndromes resulting from such lesions hardly amount to what are clinically known as psychoses, but on superficial examination they may be mistaken for the latter. For example, Liepmann first differentiated the symptom known as apraxia on the basis of observations of an asylum patient whose apractic disabilities had hitherto caused him to be regarded as insane.

The best *clinical subdivision* of the mental after-effects of brain injury (omitting the syndromes of concussion, cerebral compression and cerebral irritation described fully in surgical text-books) is that of Adolf Meyer.

1. Direct post-traumatic deliria.
   - (*a*) Delirium accompanying febrile conditions.
   - (*b*) " Delirium nervosum " of Dupuytren, not differing from deliria after operations, etc.
   - (*c*) Delirium as a phase in the slow emergence from coma following trauma. The full sequence has been described as coma, stupor, delirium and confusion.
   - (*d*) Protracted deliria, usually with numerous confabulations. (These protracted deliria may last for weeks or months.)

Among the traumatic deliria, immediate or protracted, Meyer found " all possible degrees of dazed and dream-like states ", varying from mere feelings of haziness to complete dreamy misinterpretations of the environment, and fabrications, sometimes with automatic actions. The mood is sometimes euphoric. Among those protracted states of confusion the Karsakow syndrome is relatively common.

2. The post-traumatic constitution.
   - (*a*) Mere facilitation of reaction to alcohol, influenza, etc.

(*b*) " Vasomotor neurosis ", headaches (especially on stooping), dizziness, attacks of meningismus, increased fatiguability, irritability, intolerance to alcohol. This is the " vasomotor neurosis " described by Friedmann, and attributed by him entirely to vasomotor instability. It is more probable that it depends on cerebral damage. It is identical with the " post-concussional " or " post-contusional " syndrome described below.

(*c*) " Explosive diathesis " (Kaplan). Great irritability, especially after alcohol, sometimes leading to acts of violence often quite unmotivated, *i.e.* automatic, or even to an epileptic seizure.

(*d*) " Hysteroid " or " epileptoid " episodes (in the form of " absences ") with or without convulsions.

(*e*) Paranoiac developments.

3. Traumatic defect conditions.
   (*a*) Primary defects allied to aphasia.
   (*b*) Secondary deterioration in connection with epilepsy.
   (*c*) Terminal deterioration due to progressive alteration of the primarily injured parts, with or without arteriosclerosis.

4. Psychoses in which trauma is merely a contributing factor, *e.g.* general paralysis, manic-depressive, etc.

5. Traumatic psychoses and psychoneuroses from injury not directly affecting the head.

In the " post-traumatic constitution ", in addition to the symptoms mentioned above, many of which may appear in the same patient, there occurs a general change in the personality. Some cases complain that concentration and memory are very poor. Thinking is slow and easily fatigued, and the patient complains of this difficulty also. He is over-sensitive to noise, and headaches recur under any stress, physical or mental. His working capacity is reduced. He is usually depressed, and realises he is ill. Since the symptoms are mainly subjective, malingering is apt to be suspected. A distinguishing point is that the patient suffering in this way prefers to keep away from all forms of amusement as well as from work, since the one is nearly as great an effort to him as the other.

In some cases, especially adolescents, the patient becomes less conscientious, and, even apart from episodic attacks of violence, shows a diminished appreciation of moral responsibility.

The lack of insight is striking and there is often a loss of capacity for affection for family and friends.

"Post-concussional" or "Post-contusional" Syndrome

The following case illustrates well the typical physical complaints as well as the typical mental symptoms following minor head injury:

Case 72.—The patient's previous career suggests an instability which may be related to the subsequent symptoms, in accordance with Meyer's observation about the possibilities of the mental after-effects of head injury in general.

He fell 30-40 ft. from a glider and remembers the first part of the fall. He states he was unconscious for about half an hour, but his amnesia covers about an hour, except for two incidents which he remembers, asking for a cigarette and going into an ambulance. When he came to, he ached all over and had a headache, having received two scalp wounds. He discharged himself after 5 to 6 hours, stayed in bed at home for 4 days and then got up and walked about in plaster. Headaches, which had been slight when he was in bed, became worse when he commenced getting about. They have persisted more or less up to the present time, but have been more severe for the last 2 to 3 months and occur every day more or less continuously. The pain is situated across the frontal region, is worse when he stoops and is also accompanied by dizzy feelings. It is aggravated by drill and running, but unaffected by coughing or straining. It is relieved by aspirin.

He has also become more irritable, particularly with regard to noise. The least noise, such as that of a typewriter, irritates him. He has become moody, depressed and apathetic. On a few occasions he has felt that he could sit down and cry, for no reason at all. He has no inclination for any kind of games. He cannot concentrate well, and has tried to make himself study, but "just cannot be bothered". His memory, he thinks, is as good as ever. He has noticed an increased susceptibility to alcohol, and "cannot hold his beer so well". He used to be able to "hold quite a lot" but now gets "tight" on half the quantity.

He feels unable to cope with his work and does not feel like doing anything; but he has periods when he feels quite pleased with himself. He was euphoric at times during the interview and tended to treat the accident as a joke.

Personal History.—No neurotic traits are recorded. He never suffered from headaches before. School 5-14 Secondary. He was average at his work. He played the usual games and did much cycle racing. When he left school he seems to have lived a carefree existence, having had three to four jobs until he was 18,

and up until 4 years ago, when he married and settled down, he had about twenty changes in all. He changed either because he got " fed up " or because he wanted more money. His work for the last 4 years has been engineering. He describes his temperament as happy-go-lucky.

He has suffered from duodenal ulcer for the last 3 to 4 years, and a duodenal ulcer was diagnosed. He was told to go on a diet but did not bother to stick to it. He has had recurrences of pain after food, occurring at about 3-monthly intervals.

This is a post-contusional syndrome. It is often complicated by anxiety, and this complication is responsible for difficulty in diagnosis and prognosis, as well as for some of the confusion in terminology which has existed. When the above symptoms exist there is no difficulty in concluding that true cerebral damage has been sustained and persists; but when the patient complains only of lack of concentration and difficulty in memory, and of headache not influenced by posture or by some movement, as well as of dizziness of an ill-defined type, and when he is obviously anxious, the diagnosis is much more difficult. The mildness of the original injury is not conclusive. There may be little or no evidence of loss of consciousness after cerebral injury.

The previous personality is of importance. Symptoms are more likely to be due to persistent brain damage if they occur in a person of previous stable personality.

Many have emphasised that head injury is particularly apt to be followed by anxiety, since the individual attaches special importance to his head and brain; moreover, in those who have to earn their living by intellectual work, damage to the head is mentally disturbing. Schilder has pointed out another source of anxiety in the feeling of insecurity produced by repeated experience of dizziness (*Injuries of Brain and Spinal Cord*, edited by Brock, 1942).

Prognosis of Post-contusional Syndrome.—This is influenced by the length of the post-traumatic amnesia, estimated from the time when the patient can first give a clear and consecutive account. This is now more favoured than the duration of unconsciousness in estimating the outlook. The prognosis is also influenced by age, those over 40 being less successful in getting back to work, and by such factors as compensation. The fact that 83 per cent of the non-compensation group reported by Ritchie Russell were back at work in 6 months while 35 per cent of the compensation cases were still idle after 18 months does not necessarily mean that anxiety about compensation, or the hope

of it, kept the latter at home. It might only mean that many of the others were driven back to work too soon by economic pressure. Thus Ritchie Russell also records that of 120 patients whose symptoms persisted longer than 2 months, 66 per cent still had symptoms after 18 months, but in many cases work, even heavy manual labour, was not interfered with.

Anxiety about compensation hindered recovery. 35 per cent of Ritchie Russell's compensation cases had not reported fit for work after 18 months, while in the non-compensation group, only 9 per cent failed to do so (Ritchie Russell, *Edin. Med. Jour.*, 1934, xii, 129).

The outlook depends more on the previous personality than on any other factor; in fact, what is often spoken of as the prognosis of head injuries in the post-contusional group is more accurately the prognosis of willingness to return to work in spite of the persistence of such symptoms as headache. Nevertheless, headache is less frequent than has been supposed in the post-contusional syndrome. Guttman found only 20 per cent with a headache persisting at the time of discharge from hospital, and, more strikingly, only 46 per cent who complained of headache at any time (*Lancet*, 1943).

The time taken for full convalescence varies more or less directly with the length of the post-traumatic amnesia. Where the latter has been less than 2 hours the patients are usually back at work within 3 months. Where it has been less than 48 hours they are usually back inside 4 months, but if it has been over 48 hours the time taken to return to work varies from 3 to as much as 6 months, and in some cases longer, depending largely on personality and circumstances.

Questions of compensation favour psychoneurotic developments. It is interesting that psychoneurotic syndromes appear to be rare in head injuries sustained in a hunting field.

Mental tests of deterioration which depend on estimating the present level of intelligence measured by the capacity for acquiring new knowledge and by the speed of mental reactions, in comparison with the level of pre-existing knowledge as measured by vocabulary, are insufficiently refined to be of decisive use in the diagnosis of the minor after-effects of head injury. (See section on " Mental Tests," p. 563.)

It is a matter of balancing the various factors and observations, as well as of considering the symptom-picture, before coming to a conclusion.

The Korsakow or amnesic confusional syndromes have been

illumined by psychological tests which show that the reaction to stimuli is of the non-discriminative kind. The patient responds to the immediate aspects of the stimulus but seems to be incapable of abstracting from the situation and then responding. He has lost what Goldstein called his " categorial or abstract attitude ". The same holds for emotional stimuli. At the same time the capacity to form new associations is impaired, or even completely lost ; hence the anterograde amnesia of the Korsakow syndrome, for example. This state of affairs has been described as a " restriction of the field of consciousness " (C. A. Paterson, *Lancet*, 1942, cclxiii, 717). But in so far as many of our normal mental processes have an unconscious penumbra of association, it seems better to think in terms of a restriction of associations and of a failure of retentivity.

Of epilepsy as a late complication of closed injuries, Symonds (" Prognosis in Cerebral Contusion ", *Lancet*, 1936, ccxxxi. 854) says it is uncommon but is likeliest when in the early stages there are signs of focal injury, prolonged traumatic stupor, or fracture of the vault; and in the later stages, persistent headache and mental damage of the organic reaction type. The interval between injury and the first fit is usually about a year, but may be much longer.

In children, defects of memory (retention) and disorders of behaviour, indistinguishable from encephalitic sequelæ, may follow head-trauma, but they are very rare.

Treatment.—Where irritative phenomena are present (convulsions and other so-called " reflex-psychoses " generally) and where localisation of the injury is possible, operation is desirable, either to elevate a depressed fracture or to remove a clot. The sooner the operation is undertaken after the accident, the better the prognosis. Lumbar puncture should be employed both for diagnostic and therapeutic purposes. If the spinal fluid pressure is high, it can be reduced by drainage and concentrated magnesium sulphate per rectum (3 oz. in 6 oz. of water) or by hypertonic glucose solution intravenously. Evidence of persistently increased intracranial pressure calls for repeated lumbar puncture or decompression. Rest in bed is imperative at the beginning. How far it should be prolonged is a matter for judgment. It is better long than short, provided anxiety is not fostered. The importance of a prolonged convalescence should be insisted on, but it should be combined with gradually increasing exercise, and with simple psychotherapy, to minimise the possibility of the appearance of symptoms of anxiety.

Brain Tumour

Mental symptoms are stated to be present in upwards of 60 to 85 per cent of cases of brain tumour, but these symptoms are of a general and indeterminate character, and, with the possible exception of visual hallucinations, are of no special help for localisation purposes. Moersch reviewed 239 cases of brain tumour in the Mayo clinic. All of them at some time or another during the course of their illness showed mental changes, and in 73 these changes were specially obvious. The psychic phenomena were of a general nature, and consisted of listlessness, indifference, anxiety, dullness, mild apathy and stupor. Schuster reviewed 775 cases, and stated that 100 per cent of patients with corpus callosum tumour showed mental symptoms. The corresponding percentages were for frontal lobe tumours 79·3 per cent, and for temporal lobe tumours 66·6 per cent. Henschen described 12 cases in which visual hallucinations were produced by lesions irritating the occipital cortex. Cushing and Horrax were impressed by the frequent occurrence of visual hallucinations in temporal lobe tumours. Out of 72 cases with involvement of one or other temporal lobe, 17 suffered from visual hallucinations. In 12 cases the hallucinations were in the nature of figures, and in the other 5 the phenomena were not so elaborate and well defined. In 13 of the 17 cases the visual phenomena were associated with uncinate attacks (olfactory and gustatory aura with a dreamy state), during which figures, and sometimes the shadows of people, animals, or objects, appeared on one side or other of the visual field. These figures were sometimes grotesque in appearance ; often they were diminutive, more rarely enlarged. In 9 instances the hallucinations appeared either in the blind half of the field of vision, or, if no hemianopia was present, towards the side opposite the tumour.

In 11 cases of occipital lobe tumour no visual hallucinations were found by Horrax. In an analysis of 58 cases showing mental symptoms Minski found that in 84 per cent the tumour was in the cerebrum, and only in 9 per cent was subtentorial ; the left hemisphere predominated. Mental symptoms were not usually observed until the intracranial pressure had increased to the extent of producing somnolence and apathy.

Our experience with cases of brain tumour has been in accordance with the general impression. The mental symptoms are not in any way characteristic, and are simply those associated with any condition producing an increase of intracranial pressure.

The usual mental features, independent of the location of the tumour, are dullness, somnolence and irritability. Mild euphoria, and a tendency to pun and joke, the so-called "witzelsucht", are supposed to be associated particularly with frontal lobe tumours. In the majority of cases the dulling of comprehension is marked, and the attention is difficult to hold. There is frequently a memory disturbance, with poor retention, disorientation and sometimes confabulation, producing a Korsakow-like syndrome. Moersch remarks psychoneurotic manifestations as occasional precursors of more serious symptoms. In this connection we would instance the following case:

Case 73.—Summary: Attacks of vomiting associated with emotional perturbation over a long period; return of attacks following an acute disappointment, and accompanied by slight convulsions; emotional facility, lack of insight, Lilliputian hallucinations; headaches and vomiting; no sensorial or general intellectual defect; left optic neuritis; sudden death.

A single woman, 47 years old, had worked as a masseuse, and had been subject to "bilious attacks" with vomiting for a number of years, about seven or eight. These attacks were associated with family bereavement. In 1916, following the death of her fiancé in France, she had one such attack. In 1920 she had a similar illness. In August 1922 she became secretly engaged to one of her patients, only to discover that he was already married and had a wife and several children. This man had also obtained from her about £200. She was tremendously upset. She told her family everything, and resigned a position which she held in a hospital. Nervous symptoms appeared in the form of attacks of vomiting and what appeared to be slight convulsions, without complete loss of consciousness, and without paralytic phenomena. When seen in November 1922, she was able to talk quite freely and frankly about her illness. She laughed and smiled a good deal, and gave one the impression that she did not quite realise its gravity. She gave a history of headache, usually localised to the back of her head, and stated that this headache was occasionally accompanied by vomiting. When she closed her eyes it seemed to her as though she saw very little people, miniature men and women, dressed in black. The hallucinatory phenomena did not cause her any anxiety. Her general intelligence, her memory and her personality in general were all well maintained. The oculist's report stated that there was a certain degree of optic neuritis affecting the left eye, and that there was a slight amount of swelling of the left optic disc. She was taken to a nursing home for further investigation. There was an entire absence of localising symptoms. Two weeks after her entry into the nursing home she woke one morning from her sleep, complaining of

headache. The nurse tried to soothe her, but the patient suddenly died.

A post-mortem examination revealed a large circumscribed tumour on the orbital surface in the left frontal region.

Pernicious Anæmia (Addison's)

Weisenberg says that mental symptoms occur at one time or another in 4 per cent of patients with Addison's anæmia. Of 647 cases, Cabot found mental symptoms in 102 (15 per cent), delirium in 44, delusions in 14, hallucinations in 8, dementia in 9, "melancholia" in 3 and mania in 3. Of 1498 patients seen in the Mayo clinic since July 1917, 4 per cent presented an outspoken psychosis (Woltman). The incidence of pernicious anæmia among the insane generally is given by Barrett as 2·3 per cent for a series of 650 post-mortems.

The mental condition associated with Addison's anæmia varies with the stage of the disease. It has been pointed out that mental symptoms, like the signs of subacute combined degeneration of the cord, may be apparent before anæmia is observed. The early symptoms are such as might be expected in the early stage of severe toxæmia. There is disinclination for exertion, either mental or physical, with ready fatigue. The mood is apathetic or mildly depressed and anxious, partly on the basis of the physical sensations. In the end stages of the disease, but also as an episodic phenomenon associated with exacerbations of the blood-picture, delirium may appear. Paranoid states, characterised chiefly by irritability and suspicion, without disturbance of comprehension or orientation, may occur at any stage (Barrett).

Morbid Anatomy.—The structural changes in the brain are diffusely distributed, sometimes with foci of greater intensity, and consist of moderate fatty degeneration of the nerve cells with disintegration of the Nissl substance. The neuroglia shows a diffuse increase, with occasional abnormal types of cell. In the blood-vessels of the brain there is swelling of the intimal cells. Occasionally there are small hæmorrhages. Focal lesions of the cortex, corresponding closely to the lesions present in the cord, are found in some instances (Barrett).

Mental Disorders associated with Endocrine Disease

None of the mental symptoms occurring in endocrine diseases are peculiar to them: on the other hand, in the case of certain

types of glandular disease, especially in the thyroid hypofunction of myxœdema, the associated mental syndromes are more or less specific. But generally such specificity is wanting: associated with a given malfunction is a variety of mental syndromes, or more usually none at all; and in no case do the symptom-complexes correspond very closely to those of the two largest groups of mental disorder, schizophrenic and manic-depressive psychoses. Experimental overdosage with thyroid, for example, produces different types of mental disturbance in different persons, depending presumably on different kinds of mental make-up. Kretschmer found "dysplastic" types (mostly referable to one or other group of endocrine disorder) frequently among his schizophrenics, but rarely among his cyclothymics. He also mentions transitions between schizoid types of physique and types resulting from endocrine disease with corresponding transitions in temperament. These observations are suggestive, but it is not yet shown that schizophrenia is proportionately more frequent among recognisable endocrine dysplastics than among the general population; and even if it were so, other explanations would be more plausible. The physical basis of mood may fairly be said to have eluded investigation, experimental and clinical. The endocrine glands have been implicated here also, not only to account for differences between normal individuals (a revival of the mediæval doctrine of the humours), but also for the mood disorders which seem fundamental in the manic-depressive symptomatology. But manic-depressive patients seem to be as free from the stigmata of endocrine disease as they are of brain disease, and Kretschmer, being thus driven to exclude the better-known endocrines, postulates a disturbance of the glands of the intestinal system to account for the mood variations. The only positive evidence he adduces is the disturbances in body weight.

Thyroid Disease

Thyroid disease may express itself either as *hyperfunction* (*exophthalmic goitre and toxic adenoma*) or *hypofunction* (*myxœdema and cretinism*). The relation of **thyroid hyperfunction** to mental illness is complicated, both ætiologically and symptomatically; for it may be either the cause or the effect of mental abnormality, and whether as effect or cause the mental syndromes are of considerable diversity. In hyperfunction four principal types of syndrome are enumerated by Falta: (1) As initial symptoms in some cases there have appeared **a sense of unreality,**

irritability and vague persecutory delusions. (2) In the stage of the fully developed disease there are rapid changes of mood from depression and suspicion or irritability to gaiety, rapidity of speech and thought, terrifying dreams and attacks of laughing and crying. In the case recorded below anxiety was the prominent feature, and there can be little doubt that in it the anxiety was secondary to a toxic thyroid adenoma with paroxysmal auricular fibrillation. The anxiety disappeared with removal of the tumour and subsidence of the other signs and symptoms. The case, although not one of the diffuse hyperplasia of true exophthalmic goitre, is of interest in view of Stoddart's contention that exophthalmic goitre is invariably a type of anxiety neurosis, dependent on psychic factors and curable by psychotherapy; in the patient recorded here there was some emotional stress, but the anxiety attacks were dependent on paroxysms of auricular fibrillation, and disappearance of the anxiety resulted from surgery after psychological methods had failed.

Case 74.—Summary: Nervous uneasiness for some years; retrosternal oppression; sudden gastro-intestinal upset following domestic worry; anxiety; attacks of palpitation and diarrhœa brought on by exertion; tumour in neck; extreme anxious precautions; hyperthyroid signs; operation, and toxic adenoma removed; recovery.

Mr. P. S., age 54. The patient complained of paroxysmal palpitation which disabled him for work, but his wife complained that he took undue care of himself and lived in constant apprehension of his heart attacks.

Personality.—He has always been sociable, happy, talkative and over-energetic. His wife, on their first meeting, thought him the "most nervous man" she had ever seen: he was constantly active, laughing, talking and joking. His troubles he kept always to himself. Never until his present illness did he give any thought to his own health, which was always apparently excellent. He married at 32.

Present Illness.—The patient had a feeling of nervous shakiness for an indefinite time (some years). In December 1920 or thereabout he began to have a dull feeling in his chest, especially after exertion, sometimes amounting to actual pain. One night in March 1921, following a certain amount of emotional disturbance, he suffered from nausea and diarrhœa. In the morning his wife accidentally observed that his heart was beating very fast and pounding against his ribs. The patient himself had noticed nothing of this. A doctor was called in who, knowing of his over-active disposition and his alcoholic habits, tried to scare him into taking greater care of himself. He succeeded so well that the patient had rarely done a whole day's work since.

Attacks of palpitation occurred at intervals of about two

weeks during the eleven months preceding admission to hospital (May 1923). They were usually brought on by exertion. The attacks varied in duration from two to twenty-six hours and left him very tired. He always lay down during an attack. One attack in particular, which occurred in May 1922, left him prostrated and unable to do any work until July. The attacks were always accompanied by diarrhœa. He slept well, but during an attack of palpitation his sleep was broken. He lost about 20 lb. in weight. About two months before admission he noticed, for the first time, a slight swelling in his neck.

Since the beginning of his illness he lived in the fear of precipitating an attack, and of a possible complete disablement if the palpitation should become permanent. To avoid this catastrophe he greatly limited his activities, both in work and recreation. He frequently counted his pulse, and observed his cardiac pulsations in a mirror. When an attack came on he lay down, no matter where he had been. He once lay down on a sidewalk in New York City and was soon surrounded by an inquisitive crowd. On his doctor's advice, if an attack came on in his office, he immediately took a taxi home. His attention to his business consequently suffered. He moved his domicile to within two blocks of his office. Even this proximity did not reassure him, and he frequently took a taxi. His friends, observing no special change in his appearance and no apparent reason for his complaints, insinuated that much of his trouble was mental.

He was a thin, sallow-complexioned man. He was intelligent and co-operative. His activity was of the "nervous" type. There were rapid changes of expression when he spoke, he laughed readily, and frequently movements of his hands occurred while he was talking. Even in ordinary quiet conversation a tremor of face and hands was evident, and as he lay in bed he threw off the bed-clothes because he felt too hot. During examination he frequently felt his pulse, which was 100 in the recumbent position. He had several attacks of auricular fibrillation while in hospital, which were confirmed by electro-cardiogram.

There was fine tremor of the facial muscles, tongue and fingers. Von Graefe's sign was present.

There was a firm non-pulsatile swelling in front of the lower part of the trachea, and on either side of the mid-line, especially on the right side. It moved with swallowing, and there was a systolic bruit over it. The basal metabolic rate was +29, and the urine had a trace of albumin.

The patient was operated on, and the left half of the thyroid removed. It was found to contain toxic-adenomatous masses. His recovery was uneventful, with the exception of one recurrence of palpitation in the first few days following operation. He returned to business and a year later reported that he was in excellent health, had had no recurrences, was putting on weight and was free from anxiety.

In this case anxiety seems to have been the effect, and not the cause, of thyroid disease. Nevertheless in a striking proportion of cases of hyperthyroidism there is a history of emotional stress. In the least equivocal cases of this kind—those occurring in war—it seems doubtful whether a complete picture of "exophthalmic goitre" persists for any length of time. It has to be remembered that it is still uncertain whether exophthalmic goitre is hyperthyroidism pure and simple or involves perversion of secretion. Purves-Stewart says of "dysthyroidism" occurring in soldiers in the last War, that symptoms of "overaction of the thyroid rarely persisted in a complete form", the most lasting symptom being tachycardia. He records no very well-marked case of exophthalmic goitre, although the well-established neuroses of all types were common enough. If emotional stress were the principal cause of hyperthyroidism it would be imagined that in cases of anxiety and the like not severe enough to be diagnosed as primarily hyperthyroidism, which therefore have not been withheld from the psychopathologist, minor signs would be frequently evident. Out of 100 consecutive cases of war neurosis Eder mentions only 8 as having "hyperthyroidism". This is not a large proportion, and in civil cases of anxiety it is certainly rare to meet with hyperthyroid signs. This, in conjunction with the fact that out of a large population exposed to similar emotional stress only a very few develop hyperthyroidism, suggests that it is more likely that a sudden shock accentuates a pre-existing hyperthyroidism than that it originates it. There are many persons with mild hyperthyroidism who are unaware of its presence until their attention is drawn to it. Nevertheless the resemblance of many hyperthyroid signs to the physical concomitants of fear has to be remembered; and in some patients the rôle played by anxiety and by thyroid disease respectively is hard to estimate.

A third type of mental disturbance, and one which is entirely dependent on poisoning by thyroid secretion, is of the acute-organic type—delirium, often proceeding to coma. These are terminal states occurring in acute thyroid intoxication, either from thyroid disease, or from thyroidectomy when the blood is flooded with thyroid secretion, or as the result of overdosage with thyroid extract.

True psychoses have been described, viz. manic excitement and depression, but there is no characteristic thyroid psychosis, and we agree with Brunet that a psychotic predisposition may be assumed when a true psychosis develops.

Thyroid Hypofunction.—1. *Myxœdematous patients* are apathetic, losing interest in ordinary affairs. Thought is retarded, and speech slow and monotonous. They are somnolent, their recent memory is poor and their general intellectual ability deteriorates. Hallucinations appeared in 16 cases out of 109 investigated by the English Myxœdema Commission. In 16 instances also the latter found a frank psychosis, usually of depressive type. In these it is to be assumed that the myxœdematous condition brought to light a latent disposition to a psychosis.

2. *Cretinism* occurs both endemically and sporadically. Three classes are described corresponding fairly closely to the three types of idiocy, imbecility and feeble-mindedness in the sense in which these terms are used in this country (*v. infra*, "Mental Defect").

Parathyroid Disease.—In tetany, clouding or even complete loss of consciousness has been observed (Falta). In acute cases, profound depression, excitement and hallucinatory confusion have occurred. Tetany may supervene on epilepsy, and epileptiform attacks may occur in the course of tetany, or may begin simultaneously with it. Falta believes that the parathyroid secretion leads to deficiency of calcium in the nerve cells of the central nervous system, and that consequently this irritability is increased. When this irritability is confined to the peripheral nerves and spinal cord, tetany occurs; when it affects the cortex, according to Falta, epilepsy supervenes. It is possible that some epilepsies may be explicable in this way.

Pituitary Disease.—In acromegaly, apathy, want of initiative, lack of concentration, forgetfulness and slowing of speech have been described, and, more rarely, exaltation. In Fröhlich's syndrome, restlessness, gaiety, and in other cases, apathy are mentioned, while some are mentally retarded. Psychoses are very rare in pituitary diseases. Physically immature children (dyspituitarism ?) with intellectual precocity are described by Campbell.

Adrenal Disease.—In Addison's disease, except in the late stages, the mental symptoms can in part be regarded as a reaction to the feelings of bodily weakness, and in part are the result of the physiological changes occurring in the disease, such as diminished cerebral blood supply (since the latter depends on the general arterial pressure, which is so low in this disease). Fatiguability, disinclination for work, headache, poor sleep, tinnitus, vertigo and jaundice can be explained as direct results

of the physiological disturbance; while depression and irritability are understandable mental reactions to the sensations of physical malaise. In the later stages the physiological disturbances are more profound and the corresponding mental symptoms are delirium, convulsions, stupor and coma. The cortical extract of Swingle and Pfiffner, in the cases in which it has so far been employed, restores the mental, as it does the physical, condition in a remarkable way; whereas it is without effect (where suggestion is excluded) in the fatigue of "neurasthenia".

Gonads.—There are numerous evidences of an intimate connection between the gonads, as part of the whole psychophysical organisation, and mental disorder, but the evidences of a direct causal relationship between disorders of the generative glands and mental disturbance are so far very indefinite. We know that mental disease commonly breaks out soon after puberty is reached, at pregnancy and at the menopause; that the thought content of a psychosis is often predominantly sexually coloured; and that disturbance of the sexual function and sexual paræsthesiæ are common symptoms. But most of these are more easily explained on psychological grounds. Evidence of a physical factor in the connection between gonads and mental diseases is suggested in several ways. Frequent anomalies of the primary and secondary sex characters occur in psychotics. Thus Gibbs found an unusually large proportion of female patients with a masculine distribution of hair, and of male patients with a feminine hair distribution, among schizophrenics and manic-depressives. Kretschmer observed a scanty distribution of secondary hair with corresponding strong growth of hair on the head as a characteristic common to schizophrenics and eunuchoids. Castration leads to well-known bodily changes, including alteration in the secondary sexual characters, and to a diminution or loss of libido. The mental changes following castration are usually insignificant, but sometimes profound changes of character have been described. Males castrated in early life (the eunuchs of antiquity) are said to lack the courage and aspirations of the normal man. In eunuchoids, Kretschmer considers that the characterological relations and transitions to the "schizoid" temperament are unmistakable. Eunuchoids are quiet, dependent and emasculated. But again there is usually no psychosis.

In females castration is not infrequently performed as part of a gynæcological operation, but usually a portion of ovarian

tissue is deliberately left. The sudden artificial menopause following complete removal reproduces in a marked form the symptoms which commonly occur at the climacteric. Anxiety, depression and emotional lability, with headaches, fainting, hot and cold flushes and gastro-intestinal disturbances, are all described.

Something more than disease of the gonads is apparently necessary to produce a mental illness. The something more may be an aplasia or dysfunction of the tissues (brain or gland), or it may be a psychic " predisposition ".

Pancreas.—Campbell was impressed by the bright and cheerful attitude of a group of diabetics. A diabetic woman of 67, asked if she were depressed, said, " Not a bit, it did not bother me ; we have to get something to kill us ". Another diabetic woman of 47 said, " I don't believe in feeling blue ; it don't get you anywhere ". Depression appears in some, sometimes as a reaction to knowledge of the disease, and sometimes in association with feelings of physical weakness.

CHAPTER XV

EPILEPSY

THE term epilepsy has been used to designate a heterogeneous group of syndromes, of which the most prominent feature is the repeated occurrence of convulsive attacks. But it is now generally recognised that it is more accurate to speak of " the epilepsies " and to reserve the term " epilepsy " for genuine or " essential " or idiopathic epilepsy, in which no physical basis for the attacks has so far been discovered. Moreover, the essential feature of epilepsy in this sense is not the convulsive seizure or the disturbance of consciousness, but the episodic sudden disturbance of function in the central nervous system. Essential epilepsy begins about the period of puberty, is often progressive, difficult or impossible to arrest, and sustained by no tangible cause. It is thus readily distinguishable from the organic epilepsy arising from head trauma and from focal disease of the brain, from the infantile epilepsy accompanied by cerebral hemiplegia or mental retardation, from the later epilepsies arising from chronic disease of the heart and blood-vessels, or from chronic intoxications by alcohol, lead or syphilis, and from those springing from eclamptic conditions (Turner), as well as from the more recently described hypoglycæmic attacks arising in diabetics with an overdose of insulin, or in the rare cases of tumour of the islets of Langerhans.

Ætiology

Heredity.—The rôle of inheritance in the production of epilepsy is very obscure, partly because the presence of truly accidental epileptogenic foci may easily remain undiscovered and so may confuse the issue. Kraepelin found in his cases that the incidence of nervous and mental disease in the ancestors of epileptics does not exceed that in the ancestry of normal people. A history of epilepsy itself in the ancestry of epileptics occurred

in only 7·6 per cent of Kraepelin's cases. In the direct ancestry the proportion of epileptics is, naturally, even less. Of 533 offspring of 130 marriages of epileptics, only 10 cases developed epilepsy (Thom). It is rare to find brothers and sisters epileptic (Myerson).

Migraine is said to occur in the heredity of 60 per cent of epileptics, compared with 17 per cent in normals.

Alcoholism in the parent is said to occur in at least 25 per cent of epileptics (Paton). Kraepelin gives a figure of approximately 20 per cent (but see p. 52).

Hereditary syphilis is found in from 4 per cent to 5 per cent of epileptics.

A history of infantile convulsions occurs in about 20 per cent, compared with 4 per cent in a control group (Patrick and Levy).

Males are more frequently affected than females. The proportion of females is given variously as from 15 per cent to 45 per cent.

While electroencephalography reveals the presence of abnormal rates of discharge in the cerebral cortex in 50 per cent of clinically epileptic adults, it has been claimed that 54 per cent of the relatives of epileptics have abnormal E.E.G.s, whereas only 6 per cent of controls exhibit similar appearances. It has therefore been suggested that what is inherited is a cerebral dysrhythmia which may show itself clinically as fits or as abnormalities of temperament, or may not show at all. A strong argument in favour of the inherited nature of "essential" epilepsy is its occurrence in 66 per cent of pairs of uniovular twins and in only 3 per cent of binovular twins.

Trauma to the head is not a frequent cause of epilepsy in adults, but experimentally it is well recognised that brain puncture or gross head injury can predispose to convulsions. Recent investigators, *e.g.* Dandy and Colman, Wortis and McCullough, have demonstrated a heightened sensitiveness of animals to a standard convulsant, following cerebral laceration and skull fracture. Aldren Turner says that out of 18,000 cases of gunshot wounds of the head reported to the Ministry of Pensions, less than 5 per cent have developed epilepsy. It is met with in two classes of cases: (1) following slight trauma without obvious injury to the skull or brain and due mainly to the constitutional predisposition of the patient; (2) true traumatic epilepsy, following injury to the skull or brain, and associated usually with paralytic symptoms. In this second group the frequency has been placed as high as 31 per cent, penetration of

the dura and sepsis being important factors (see also p. 516), There may be a long latent period, even of years, between trauma and clinical fits. In children the more recent estimates attribute less epileptogenic importance than formerly to infantile birth palsies. This is inconsistent with the tendency to attribute many cases of idiopathic epilepsy to birth injury of the brain not followed by paralysis.

Physiology of the seizure.—In discussion of the ætiology of epilepsy, insufficient distinction is often made between the precipitants and the mechanism of the actual attack. All manner of factors can act as precipitants for epileptiform attacks, from emotional disturbance to brain tumour. But the nature of the individual attack, *i.e.* the biophysical processes involved in it, and what underlies the occurrence of "idiopathic" or "essential" epilepsy, remains the central problem. It is hardly to be expected that from clinical neurology much that is relevant in this sense can be found: for the seizures themselves, as seen clinically, are the effect of something that is already happening. A classical deduction of Hughlings Jackson from his clinical observations points, however, to the nature of the neuronal process itself as an active discharge at some level of the central nervous system anywhere from the cortex to the diencephalon, with accompanying phenomena, such as automatisms, conceived as release phenomena. Narcolepsy may be conceived as the result of discharge of inhibitory processes, or alternatively as a paralytic process due perhaps to a local ischæmia of the relevant area of the brain, *i.e.* of a "waking centre".

That a neuronal discharge is the primary condition is supported by Penfield and Erickson's observation that an attack which seems both to the patient and observer to be identical with the customary seizure can be provoked by electrical stimulation of the appropriate part of the brain.

Even some of the mental phenomena can be conceived in the same way. One of Penfield and Erickson's novel observations is that a visual memory of some old experience, which may have appeared also in a nightmare, as well as forming part of a seizure, has been elicited by electrical stimulation of the temporal lobe. We are reminded of Semon's theory, as well as of Samuel Butler's before him, of the registration of experiences as "engrams" in the cortex.

It is when we consider the intricate physical chemistry of the nervous system that we get glimpses of an understanding of the nature of the process which underlies the abnormal discharge of

excitation or inhibition, or both simultaneously, that produces the epileptic fit. It has been shown that the state of the blood, and therefore of the fluid bathing the nervous tissues, has an important bearing. If an epileptic patient breathes an atmosphere poor in oxygen, or is made to over-breathe by conscious effort (thus producing an alkalosis), fits occur in greater frequency than before. On the other hand, feeding with acid salts (NH_4Cl), fasting (which produces a ketosis) and a high fat diet (which also produces a ketosis and which epileptics assimilate better than the average person) all diminish the number of attacks in certain cases.

The physiochemical change produced by all these measures is similar, and is an acidosis, consisting mainly in a fall in the plasma bicarbonate; but, in the case of a ketogenic diet, this change is restored after a time and yet the effect persists in some degree; so that some physiochemical effect other than acidosis must be involved as well. Acidosis promotes oxidation in the tissues, as well as dehydration, and presumably from these changes results the decreased irritability of nervous tissues. The at present apparent prepotency of high fat diets requires an additional hypothesis.

The old theory that epilepsy resulted from watery œdema of the brain has been revived in a new form by Temple Fay. The proof of this view is made to rest principally upon X-ray photographs, which show dilatation of the fluid spaces within the cranial cavity, and upon the favourable effect in some cases of a reduction in fluid intake, but there is no evidence that there is any increase in C.S.F. pressure between attacks.

The general belief at present is that whatever the predisposing cause, the immediate excitant is anoxia of the cell. This appears to be supported by the results of gross circulatory interference. Presumably this acts by deprivation of oxygen. Thus compression of the carotid in man (L. Hill), heart block, Raynaud's disease (Osler), cutting of the cerebral and medullary circulation in cats (Stewart and Pike) have all been determinants of epileptic seizures. But the most recent view is that in "essential" epilepsy, vascular changes are secondary and the neuronal discharge primary. There is a marked increase in blood-flow through the grey matter in which the discharge is occurring. In spite of this there may be local anoxia because the supply of oxygen is insufficient for the discharging cells. The original increase in blood-flow may be due to the liberation of CO_2 from the discharging cells (Penfield and Erickson).

A *toxic origin* has been suggested for the convulsions. It is stated that the bodily secretions, especially the urine, are more toxic than normal after the fit. Since in patients having pre-convulsive abnormalities of mood the administration of bromide prolongs these moods until an attack is permitted to occur, Bleuler suggests that the convulsive attack is in the nature of a chemical crisis. Muskens suggests a detoxicating function for the convulsive attack. Convulsions are readily produced in animals by the injection of toxins, *e.g.* absinthe, and more readily if the brain has already been injured. It has been shown that a local injury to the brain makes it more permeable as a whole to dyes (Syz).

A *psychological* hypothesis has been advanced in which the episodic phenomena are regarded as incidents in a prolonged disease-process. This process is considered to be a psychological one, involving a gradual transformation of the personality.

Physical stigmata are traditionally said to occur in a considerable proportion of cases, in the form of abnormalities of the ear and palate, facial asymmetries, etc. But the figures of the Massachusetts state hospitals show that the frequency of these stigmata is literally less than in most psychoses (Cobb).

Morbid Anatomy.

In assessing the value of post-mortem findings in this disease, it is necessary to remember that some changes may be either the cause or the result of the epileptic process, whatever it is.

Dandy, in the exploratory craniotomy of epileptics presenting no clinical evidence of grave lesions, reports dilated subarachnoid spaces filled with fluid, with some softening of the underlying convolutions.

Alzheimer, as the result of the histological examination of 63 cases, gives the following tabulation:

(A) Cases with very obscure ætiology (genuine epilepsy).
1. This group comprises 60 per cent of the cases.
   (*a*) With sclerotic changes in the cornu ammonis.
   (*b*) With superficial gliosis of the hemispheres.
   (*c*) With signs of an acute process, besides (*a*) and (*b*).

(B) Cases due to external poisons.
1. Alcohol; various anatomical changes as in chronic alcoholism; besides these, sometimes acute changes as in delirium.

2. Lead ; various changes. Experimentally lead produces a genuine encephalitis.

(C) General diseases.

1. Syphilis ; various forms of brain syphilis, especially endarteritis of the finer vessels (Nissl and Alzheimer).
2. Arteriosclerosis.

(D) Focal diseases.

Most of the cases in this group are cases of epilepsy with idiocy after encephalitis. But Penfield and Erickson maintain that scar tissue from old trauma is more common than is generally believed as a cause of "idiopathic" epilepsy.

(E) Arrest of development :

1. Stadium verrucosum (Ranke) ; and
2. Sclerosis tuberosa.

It will be seen that even in the so-called genuine or essential epilepsy Alzheimer discovers pathological changes. Since the changes are of the ischæmic type and the distribution is the same as in degenerative brain-disease, secondary to arteriosclerosis, Spielmeyer believes that they are secondary to vasoconstriction and may therefore be purely secondary and accidental to the epilepsy. Penfield and Erickson's view differs from this. They look upon an epileptogenic lesion, *i.e.* one in which there originates periodically an abnormal discharge from nerve cells, as an area of grey matter in which the circulation is imperfect. This may be the result of an atrophic process resulting in scar tissue, or of an expanding lesion producing local ischæmia which acts as an irritant so that small portions of the area are periodically rendered more ischæmic. All cortical cells being very sensitive to oxygen, these cells proceed to discharge, and the discharge acting as a local pacemaker, conflicts with the sychronous discharge of the rest of the cortex. The discharge then proceeds through neuronal connections and is not diffused over the entire brain. These connections are either entirely physiological or acquired by accident and subsequent habit in the individual ; hence perhaps some of the unusual varieties of seizure such as the dreamy mental states.

It is claimed that this is the process in brains where obvious foci are discovered. By analogy it may be reasoned that in cryptogenic cases (Spielmayer's Grade A or "essential" epilepsy) a further refinement of methods might enable a similar basis to be demonstrated. This seems most unlikely in many instances of "essential" epilepsy in view of the evidence of inheritance.

It is possible that the mental deterioration that follows repeated fits may be due to a gradual widening of the necrotic area from repeated aschæmia.

Psychopathology.—Certain **mental symptoms** generally found in a confirmed epileptic constitute what has been called the "epileptic character". For a long time the epileptic character was looked upon as secondary to "the disease", *i.e.* to the fits. It is now recognised that the traits constituting the epileptic character can sometimes be shown to have existed before the fits began. It is now held, in fact, by many that there is a characteristic epileptic make-up, in which alone the disorder called "epilepsy" develops, that the epileptic character seen in the full-fledged disease is but an accentuation of the epileptic make-up, and that the mental deterioration of the epileptic is the direct outcome of the latter. Furthermore, the fits and other episodic phenomena are considered to be nothing more than psychological reactions of the epileptic make-up to the environment.

While it is true that in a proportion of persons developing essential epilepsy an unusual degree of egocentricity and sensitiveness can be demonstrated, as Clark especially has shown, it is certainly not usually possible to demonstrate this type of make-up. The egocentricity at first leads to shallow professions of interest in others, and to a selfish kind of religious devotion, so that "they are considerate without being kind, and are religious without zeal, and . . . they will work for praise, but not for love" (MacCurdy). Later, since these are unsatisfactory solaces, the person of epileptic make-up turns gradually away from reality altogether, and focuses more and more upon himself. There results a loss of interest in the environment, a loss which, according to MacCurdy, is at the foundation of many of the symptoms of the epileptic state. The loss of interest leads to a lowering of "mental tension", so that while special effort at arousing the epileptic's attention may be rewarded by good comprehension on his part, as a rule he pays little regard to what is going on around him. Hence his mental content becomes very limited, and his memory is poor both for recent and remote events—for recent ones because passing events are not registered, and for remote events ultimately for the same reason, and also because in the absence of interest associative thinking is reduced to a minimum. The defect of remote memory is not so great as at first appears, since special effort at recollection often improves it remarkably. Some patients have insight for their memory defect, but others fabricate to fill up the gaps. Related

to the effort of recall in memory, there develops sooner or later in many cases a functional aphasia—words are brought up and used with increasing difficulty, till in extreme instances there is complete mutism. In contradistinction to organic aphasias, reading, writing and spelling are surprisingly well done. Composition is rambling and pedantic. Speech and thinking are slower, and perseveration is sometimes present in excessive degree.

Pari passu with this intellectual deterioration, which is secondary to the affective defect—the loss of interest—there occur other changes also directly referable to the increased egocentricity. The patient becomes more susceptible to flattery; he indulges more and more in boasting, the childishness of which is in direct proportion to the degree to which insight and judgment in general have deteriorated; his vanity increases, and yet his care of his personal appearance decreases; he becomes less subservient to discipline; and he is increasingly inactive and lazy. His interest becomes exclusively centred on his body (hypochondriasis).

The fits are regarded by some as momentary accentuations of the tendency to withdraw all interest from an unsatisfactory environment. Clark says that they occur when things have been going badly, the patient not getting what he wants. In our view this is true only of some fits. In the episodic attacks on others the patient gives full rein to his primitive, selfish tendencies. Sexually the epileptic is considered to be at the infantile "polymorph perverse" level, in which he has merely impulsive desire for physical satisfaction, and lacks any objective sexual interest.

In the final stage of epileptic dementia the patient leads a purely vegetative existence, reminiscent of the helpless infant, but displaying much less spontaneity. He has to be clothed, fed and cleaned, makes no effort to control his sphincters, does not utter a word and has an entirely vacuous expression.

Symptoms can for convenience be divided into paroxysmal and interparoxysmal.

(*a*) *Paroxysmal.*—The classic major epileptic attack, *grand mal*, consists of four definite stages. There is a cry, with sudden and complete loss of consciousness, the patient falling to the ground. This is followed almost immediately by (2) the stage of tonic spasm, involving the entire body-musculature. In this stage respiration is arrested by the spasm of the muscles of expiration and the muscles closing the glottis, so that cyanosis

occurs and is sometimes extreme. This is followed by (3) the clonic stage, in which there is clonic jerking of the muscles which have hitherto been in tonic spasm. The jerking of the face muscles may cause the tongue or lips to be bitten. Froth often appears at the lips. Urine and fæces may be passed involuntarily. Fourthly, there follows the stage of coma, during which the subject remains in a condition resembling sleep for a varying period of time. In some patients the stage of coma is absent, being replaced by the stage of post-epileptic automatism. Usually the individual fit is isolated, there being no recurrence for some time, so that the patient can resume his ordinary occupation. But sometimes the fits succeed one another without intermission —the " status epilepticus ", which may go on to exhaustion and death. After a fit, and recovery from the coma, the patient is usually to some extent bewildered, and may perform acts which are semi-automatic, being accompanied by only partial consciousness. As a rule he complains after recovery of feeling tired, but his mental condition is usually better than before the fit—he is less irritable, and may even be unusually affable and pleasant for a time, in comparison with his behaviour before the paroxysm.

The tonic stage of the fit lasts from thirty seconds to a minute, the clonic stage for as long as three or four minutes. The stage of coma may last for an hour or two.

In the attack there is a positive Babinski, lasting sometimes for hours after an attack. The corneal reflex is lost. At first the pupils are usually small ; then they dilate widely, and remain rigid till the attack ceases. The fits are most often nocturnal, and suspicion of their presence may be aroused by the fact that the patient awakes in the morning feeling tired, or because he finds that he has wet the bed, or that the bed-sheet has been torn.

Petit mal consists in a momentary loss of consciousness with which are associated few or no convulsive phenomena. The subject turns pale, fumbles at what he is doing, or becomes confused in his speech. The attack is over in a few seconds, and then he resumes his previous activity as if no interruption had occurred.

In *petit mal* the E.E.G. shows that the discharge is diffuse and bilaterally uniform, as if it were a generalised explosion, or a local discharge beginning in some symmetrically placed area. Against the theory of general discharge is the fact that in *petit mal* there is some cortical process persisting throughout.

On the analogy of an epileptic discharge occurring in a speech area which produces silence and not words, Penfield argues that an epileptic discharge at the highest level of integration, *i.e.* consciousness, should also produce loss of function, in the form of a loss of consciousness such as occurs with a lesion of the diencephalon and in the electrical stimulation of this region, without evidence of loss of function in the cerebral hemispheres such as would be shown by an extensor plantar reflex. The conclusion suggested is that the focus of origin of the discharge in *petit mal* is probably in the diencephalon.

An epileptic attack may or may not be preceded by an "aura", sensory, motor, visceral or psychic. The aura is part of the epileptic process and may occur in isolation (a " sensory fit ", *q.v.*). It may be a paræsthesia such as a pain, or a sensation of warmth or cold, or a sinking feeling in the epigastrium, which is probably the most common, or vertigo, or headache, diffuse or one-sided. Sometimes the aura is a hallucination, *e.g.* of taste or smell—the so-called " uncinate " fits (which are sometimes due to gross irritation of the uncinate gyrus, *e.g.* by a tumour). Visual phenomena may be specks in front of the eye : or they may be elaborate hallucinations, which may be grotesque and reach always a certain stage of development at which the fit occurs. Hallucinations of sound are usually simple, such as humming, but may be elaborate, as music. They are most often associated with dizziness, in a temporal lobe discharge. Motor auræ may be sudden muscular twitches, or complicated movements, such as running. A psychic aura takes the form of sudden disturbance in the use of words, or of obsessive thoughts, with irritability.

The other paroxysmal manifestations are the so-called " epileptic equivalents ", of which the " psychic epilepsies " are the best known. These psychic equivalents are episodic disturbances (not losses) of consciousness, usually without detectable convulsive phenomena, but commonly associated with automatic motor acts. They are of especial interest in medico-legal work. The automatic acts performed under these circumstances lack motive, and no attempt is made at concealment.

CASE 75.—A case which is of considerable medico-legal interest is that of a young man, 26 years old, who was convicted on a charge of murdering his mother, and also his nephew and niece, aged respectively twelve years and two years and eleven months, by cutting their throats with a razor. This crime was committed

on the day on which he had been discharged from a general hospital where he had been a patient for seven months, during which time he had had a foot amputated. His history showed that ever since infancy he had had a deformed leg, for which he had had considerable treatment. When quite a child he had been in the East Park Home, a home for cripple children, and while there he had caused trouble by turning younger children out of their cots, by reversing the pictures on the walls, and so on. When about 16 years old he was a patient in a colony for mental defectives, but ran away. On one occasion, in his adolescence, he had attempted to commit suicide by throwing himself into the canal, from which he was rescued with great difficulty. During his adult life he had frequently been in trouble, and had served terms of imprisonment for assault and for theft. On one occasion he set the house on fire.

He stated that ever since the age of 14 years he had suffered from "turns" of a peculiar nature, during which he felt strange. These "turns" were accompanied by headache, and occasionally vomiting. After lying down, the attack would gradually wear away, and he would feel better. In these attacks he was not completely conscious. During the seven months he had been in hospital previous to the commitment of his crime, he had two such attacks. In one of these the sister in charge of the ward stated that he had behaved in a strange way, tearing his bedclothes, and strewing cigarettes all round in great disorder. On another occasion, when on leave from the hospital, he was overcome by a feeling of dread, hurried home, asked his mother if he looked peculiar and, after having vomited, came to himself and realised that he had had a "peculiar turn". After the crime with which he was charged had been committed, he gave himself up to the police. He knew that something dreadful had happened, but he denied knowledge of the actual details. During the time he was in prison he behaved in a perfectly normal, rational way. His general intelligence was well up to the level of one of his class.

His history indicated clearly that he was an unstable, irritable, impulsive man, who had been subject to peculiar episodes which he himself described as "turns". His physical deformity had no doubt helped to accentuate his character traits. It seemed reasonable to suggest, since the crime was committed without motive, and there was no attempt at concealment, that his condition was one of psychic epilepsy. The plea of epilepsy was not sustained in bar of trial, but his sentence was modified to one of penal servitude. In the course of a few months he made an unprovoked assault on a warder, was certified as insane and removed to a criminal asylum.

CASE 76.—H. B. A patient, 39 years old, was admitted to the Glasgow Royal Mental Hospital in July 1922, with a history

of having been ill since October 1921. His mother had died in a mental hospital. Two sisters had suffered from attacks of mental illness, from which they had made good recoveries. The patient himself was a nervous child, and a sleep-walker. He was clever at school, and after leaving, learned the trade of an engineer, at which he worked steadily. For three years during the War he acted as chief engine-room artificer.

His disposition was that of a sensitive, reserved man, inclined to be rather self-depreciatory.

He married in 1911 a woman who was twenty-one years older than himself.

In October 1921 he had a cycle accident, but escaped with a severe bruising. A fortnight later he told his wife that he had seen a bicycle accident: he seemed peculiar, and his wife went to get a doctor. He followed her to the doctor's surgery, and pulled her out of it. During that night he was in a very confused mental state. He attempted to throw his wife out of the bedroom window, burned a Bible and ill-treated a cat of which usually he had been very fond. He rushed from room to room shouting that the house was on fire, that he saw flames leaping up the bathroom walls. This period of confusion continued during the following day, and he stripped himself and sat naked on the kitchen floor for two hours.

He was admitted to a mental hospital at W——, and there his condition was described as one of acute confusion. He was discharged in the course of four months as recovered. On one occasion while in that hospital he had been allowed to leave on probation. He visited his mother's grave, and for two days afterwards he was acutely ill, and expressed delusions of sin. He was sure that he would go mad and die in a mental hospital as his mother had done.

He remained fairly well for a period of time, but then again became confused and excited, so much so that one night he ran about the house putting out the gas and lighting candles. He put his wife out of one room after another. He talked in an incoherent way, and he finally locked himself in a room and turned on the gas.

When admitted to this hospital his physical condition was carefully investigated. The results were entirely negative. His blood gave a negative Wassermann reaction, his cerebro-spinal fluid was negative in all respects: blood-cultures were sterile. His mental condition was characterised by recurrent periods of confusion. During such periods he seemed to have little idea of where he was or what he was doing. It was impossible to engage him in conversation. He wandered aimlessly about, picking up match-ends and pieces of paper, and anything that he could get his hands on. He would put such articles in his mouth and chew them, or would attempt to stuff them into his ears and nose. While in this condition he made several attempts to injure himself by suffocation and by strangulation. When

interfered with, he became excited and violent, and was dangerous to other people. This peculiar state would pass off just as abruptly as it had started, and he would become perfectly clear and rational. He apparently had no recollection of having been in such a confused state, as he always asserted that he felt quite well, that he was normal and that there was no reason for his detention. Sometimes he had periods when he remained clear for several weeks on end, but at other times periods of confusion would recur regularly every day. His memory, his power of retention and his grasp on general knowledge were all well retained. No physical basis could be found. Even in the presence of any known toxic factor it would have been difficult to correlate the toxæmia with the abrupt changes in his condition. His family undoubtedly had shown neuropathic tendencies : the patient had been greatly attached to his mother : he had been a sleep-walker : his mother's death created a severe psychic trauma : his illness seemed to have an exacerbation following a visit to her grave ; the only reason for his marrying a woman twenty-one years older than himself seemed to be that she was going to take the place of his mother rather than be a wife to him. We were inclined to look on this condition, even in the absence of any history of epileptic seizures at any time, as in the nature of a psychic and psychogenic epilepsy.

CASE 77. — G. H. A second case, very similar in many respects, was that of a man, aged 60 years, who was admitted to the Glasgow Royal Mental Hospital in March 1924, and was discharged in April 1924.

The patient had come from a healthy stock, and had developed normally. He was a master mariner. He tended to be of a rather jealous, suspicious temperament, and was touchy, sensitive and ambitious.

In June 1923, while abroad, he had a fall, due to a sudden loss of consciousness. He was unconscious for a minute or two, and then seemed quite himself. He was in hospital for a month, and then came home as a passenger. On the voyage home he communicated with his owners, asking permission to take charge of his own ship, but it was considered advisable for him to return home. Following his return in August 1923, his wife noticed that he had " turns " of some kind. In the " turns " which he had previous to October 1923 he would turn his eyes up, his limbs shook, but he did not fall. He did not himself seem to be completely conscious of these. During the six weeks previous to his admission to this hospital, it was noticed that he had " turns " during which he became pale, complained of headache and was perturbed and in a state of great anxiety. On one occasion when the doctor was present he had such a turn, and during it he wished to kiss the doctor, and seemed to be quite unaware to whom he was speaking. He became much more

irritable and jealous; he constantly recapitulated an incident when one of his owners had said to him that he had had many accidents, and he was inclined to feel that he had a grievance. On one occasion, while in one of these peculiar confused spells, he lifted a knife with the intention of striking his wife. His wife gradually became more and more frightened of him, because in his violent outbursts he was very threatening and dangerous to her.

Physically he was a big, deep-chested, well-nourished man. His blood-pressure was 150-110. No abnormalities were detected in his nervous system. His blood Wassermann reaction was negative.

Following his admission, it was noted that there were short periods of time during which he became greatly confused. On one such occasion, observed by the medical officer, his face became flushed, his eyes were staring, he addressed the medical officer as "dear" and apparently was quite unaware of his identity. In a few seconds this attack had passed off, and he talked to the point. These attacks occurred practically every day. Apart from them he was able to give an excellent account of himself, and his memory was good; he was inclined to be diffuse in his conversation, but there was no evidence of any intellectual disturbance.

(*b*) *Interparoxysmal period.*—Everything that has been described in association with the fits may appear in an individual who shows no detectable abnormality between the attacks. The onset of symptoms pointing to a definite mental impairment is especially apt to occur when the fits are frequent and severe.

The usual phenomena of the interparoxysmal period have been described above as constituting the "epileptic character", together with the symptoms following from the latter more or less directly and indicating a further involvement of the mental functions.

Transitory disturbances, especially of mood, are frequent in the interparoxysmal period. The patient becomes excessively irritable, and picks quarrels with great facility. Assaults on bystanders occur in such a mood, with slight or no external provocation, and sometimes on the basis of hallucinatory experiences, often with a religious colouring. Depression occasionally reaches such a pitch that suicide is attempted (but that is rare). Hypochondriacal complaints and paranoid trends are common. The epileptic's speech is fairly characteristic—the so-called "plateau speech", with its lack of the normal inflections.

Other Varieties of Epilepsy.—*Pyknolepsy* was first described by Friedmann in 1906 in a paper called "Non-epileptic Absences

or Short Epileptic Attacks". Papers have been contributed also by Heilbronner and Adie. The attacks begin suddenly in healthy children between the ages of four and ten years. In spite of the most careful treatment, the attacks may number 100 daily. After persisting for a number of years they may disappear entirely, and neither the physical nor mental development of the patient is in any way affected.

The attacks are of uniform mildness, and consist in an inhibition of the higher mental processes, lasting from five to ten seconds. Speech and voluntary movements cease, but automatic movements remain. Consciousness is not completely lost. The contrast between the prognosis in these cases and cases of ordinary epilepsy is remarkable. Many cases undergo spontaneous cure. Mental deterioration does not occur. In other words, pyknolepsy is a form of epilepsy with a good prognosis occurring in children. There is no association with a family history of epilepsy, alcoholism, or nervous disease.

"*Affect-epilepsies*" were described by Bratz and Leubscher. They are produced by purely psychic situations. The reaction of the patient is to conditions absolutely intolerable, *e.g.* a young man who suddenly realises that the key is turned upon him in prison for a life-sentence may beat against the bars and rush aimlessly about, tearing his clothes. Hallucinations may occur in these attacks, and amnesia may follow, although consciousness is not entirely lost in them.

Other supposed types of epilepsy have been classified as follows (after Kinnier Wilson):

(*a*) Motor variants of epilepsy: myoclonic or regional epilepsy (irregular twitchings of muscle groups); epilepsia partialis continua (continuous twitchings of individual muscles in the intervals of major fits); tonic epilepsy, similar to a typical major attack but without the clonic stage; co-ordinated epilepsy (in which the movements are purposive); and inhibitory epilepsy (cataplexy and narcolepsy).

Tonic fits are of two forms: (1) decerebrate rigidity, a true release phenomenon; (2) opisthotonos, indicative of a local lesion in the mesencephalic region.

Masticatory seizures, in which loss of consciousness is accompanied by chewing movements and sometimes by salivation and preceded occasionally by a sensation of taste, are presumably a localised variety of Jacksonian attack.

In co-ordinated epilepsy the movements exhibit to a large extent the features of voluntary movement. They may be present before

an attack as a motor aura ; or during an attack, replacing the convulsion as either discharge or release phenomena. Wilson believes that the existence of this group " breaks down any distinction between what we call functional and any other kind of fit ", that centres at the highest level must be implicated, and that both the hysterical fit and the post-epileptic states represent activity released from cortical inhibition, and further that a post-epileptic automatism does not differ in any fundamental way from a fugue that lasts hours, days, or weeks. It is impossible to accept this view as correct. There are symptomatic and ætiological differences. The epileptic co-ordinated fit exhibits a stereotyped uniformity on repetition, a relative simplicity as a rule, and a lack of adaptation to the immediate environment (*e.g.* a complete disregard for social conventions—as in exposure) which are foreign to the hysterical attack. The mechanism behind the hysterical fugue is not so much a release, in Hughlings-Jackson's sense, as a dissociation of cortical activity—*i.e.* the activity of the attack can be of just as high an order as that of ordinary life. But the fundamental distinction between co-ordinated epilepsy and a hysterical fugue is that in the latter a search for personal emotional factors will reveal adequate cause for the entire condition, which is then seen as purposive from the point of view of the patient's personality, whereas in epilepsy no such cause can usually be discerned at all.

Some epileptic automatisms are very complicated. The diagnosis is particularly difficult if the epileptic fugue has occurred in the setting of some emotional crisis, when it may look like an hysterical (avoidance) phenomenon rather than an epileptic one. The diagnosis is also complicated by the fact that in a mainly psychogenic fugue one usually finds evidence of a psychopathic background, dependent often on a manic-depressive or epileptic inheritance (Stengel).

Where the automatic act follows an obvious seizure (" post-ictal ", in Penfield and Erickson's terminology) as a release phenomenon, the diagnosis is much easier than in the instances where the automatic acts are the seizure (" ictal " automatisms). Theoretically they may then be either release phenomena or the direct effect of neuronal discharge.

Cataplexy denotes paroxysmal attacks of loss of muscle tone (often without loss of consciousness), so that the patient sinks to the ground. It is usually associated with narcoleptic attacks (paroxysms of sleep). Both varieties specially tend to follow emotional excitement

(*b*) Sensory variants (when the paroxysmal manifestations are purely sensory or are produced by external stimuli): sensory epilepsy; "reflex" epilepsy; affect epilepsy (*v. supra*).

Where a seizure is sensory in form, *i.e.* in sensory epilepsy properly so called, five patterns of discharge have been described by Penfield and Erickson, with the locality of origin largely proven by experiments in electrical stimulation of the appropriate areas. These patterns are as follows:

Somatosensory seizure.		Post-Rolandic gyrus.
Visual	,,	Occipital.
Auditory	,,	Temporal.
Vertiginous	,,	Temporal.
Olfactory	,,	Infra-temporal.

These are the auras already described but constituting in these instances an entire seizure in themselves.

In "reflex" epilepsy a sensory disturbance, *e.g.* a light or a sound, sets off an attack. In a case of ours in a professional man visual flicker was the stimulus, so that he could not allow himself to look at a fence with closely placed laths, while passing it in a car or bus, as the light flickering through the interstices produced an attack.

(*c*) Psychical variants: psychic epilepsy (~~already described~~); dreamy mental states; vasovagal attacks (some only).

"Vasovagal attacks" were so called by Gowers. The symptoms include palpitation (accompanied either by rapidity or slowing of the heart's action), a sense of constriction in the chest, nausea, shivering, sweating, cyanosis of the lips and urgent defæcation. Not all the symptoms are present in a given case. But the characteristic symptom is literally a feeling of impending death ("angor animi"). In some cases the process proceeds so far as to produce loss of consciousness. It is somewhat misleading to classify such attacks under epilepsy, because a very large proportion appear to be almost entirely determined by psychological causes, and can be cured by psychotherapy.

One or two cases have been recorded, however, in which a medullary tumour was the exciting cause, and we have known one case in which the attacks followed a fracture of the cervical vertebræ; others are to be regarded as true medullary epilepsy.

Certain *dreamy mental states* occur, which are in some cases epileptic in nature. Wilson classifies them as follows: (1) the familiarity or *déjà vu* type (see p. 115); (2) the unfamiliarity or unreality type, in which everything seems strange, far away and

unfamiliar (feelings of unreality also occur episodically in psychoneurotic anxiety-states, but are then readily distinguished by the other symptoms, etc.); (3) the "panoramic memory" type, in which the patient feels that he remembers many long-forgotten events of his past life; and (4) the abortive type, when the dreamy state remains indescribable by the patient, who feels perplexed afterwards in trying to recollect what he dimly feels that he experienced during the attack.

Penfield and Erickson distinguish between these "illusional" seizures which are altered perceptions with the patient aware that these perceptions are abnormal, and hallucinatory seizures which are independent of perception of the environment and may consist, for example, in the recollection of some actual past experience or in some nightmarish figure. Past experience is, as it were, "ecphorised" by the epileptic discharge. Dreamy states in general seem to have been associated with lesions of the temporal lobes, whenever a lesion has been successfully located.

(*d*) A *visceral* or *autonomic* type of seizure, characterised by vasodilation, lacrimation, sweating, salivation, pupillary alterations, slowing of pulse rate and respiration, and hiccoughing, has been attributed by Penfield and Erickson to a disturbance originating in the diencephalon, on two grounds: namely, the discovery in such a syndrome of a tumour in this region, and the possibility of eliciting the same appearances by electrical stimulation of the diencephalon.

It is important to note that loss of consciousness can be produced by stimulation of this region without any accompanying bodily signs and symptoms, an observation which has led Penfield to postulate that the neural mechanism essential to consciousness is located here.

Course and Prognosis.—The great majority of epileptics never display mental symptoms. The course in idiopathic epilepsy of the average mental hospital case is, for the most part, steadily downhill. Mental deterioration is more common and more severe in symptomatic epilepsy (following brain injuries) than in essential epilepsy, and psychomotor seizures are much more common than the ordinary type (William G. Lennox, *American Journal of Psychiatry*, 1942, 99, 174). But there are many epileptics showing mental symptoms who never require institutional care, and who remain at their occupation throughout their entire life. The fits may disappear completely for a long period of time, and sometimes they cease entirely.

The prognosis depends considerably on the stage at which

the patient seeks treatment. If treatment is begun early there is considerable hope that the fits may at least be made very infrequent, if they are not stopped altogether. Once general mental deterioration has set in, the tendency is for the fits to increase in frequency and severity.

Diagnosis.—It is essential to make a very careful physical examination, to eliminate the possible gross physical causes mentioned under "definition".

Idiopathic epilepsy is characterised by a set of phenomena which differentiate it clearly from hysteria—the development in early life, the tonic and clonic succession in the convulsion, the complete unconsciousness and the other symptoms of the attacks (nocturnal, the sphincter incontinence, Babinski's sign) are characteristic. Other characteristics are the occurrence of the attack when the patient is alone, or in a position of danger (*e.g.* on a bicycle or driving a car), actual self-injury in the fall, the performance of some stereotyped action, drowsiness, headache and prolonged sleep afterwards. Nevertheless, the attack is not often seen by the physician and he has to rely on the history and on the make-up, which in the epileptic is considerably different from the hysteric. But the typical epileptic personality in the mild or early cases is often not demonstrable. In any instances where there is doubt, prolonged observation is desirable. A history of mental stress immediately preceding the first attack is not necessarily in favour of hysteria. True epileptic seizures can be precipitated by obvious psychological causes. When the description of the attack is not typical of major epilepsy or of *petit mal*, it is a good working rule to accept nothing as idiopathic epilepsy until as thorough a search has been made for psychological and for physical causes.

When the diagnosis is in doubt, it is sometimes possible to induce an attack for the purpose of immediate inspection by voluntary over-breathing. In a variable number of minutes afterwards, in some cases, the epileptic attack occurs, instead of the tetany which would occur in the non-epileptic person in the same circumstances.

Some cases of migraine resemble epilepsy in having a well-marked sensory aura with a slow and distinctive "march", *e.g.* from the finger up the arm, but the aura is much more prolonged than in true epilepsy, and there is no consequent loss of consciousness.

Electroencephalography.—The electroencephalographic record which has been found to be characteristic of epilepsy consists of

waves slower than normal (" delta waves "), 1 to 5 per second, the normal rate varying from 8 to 12 per second. Not every patient, however, who shows this rhythm has clinical epilepsy.

The electrical discharge from the brain cortex which the records indicate is continuous and not affected by drugs, although the potential of the discharge shows spontaneous fluctuations associated with fluctuations in the frequency of fits. When an attack supervenes the record changes quantitatively and qualitatively.

An attempt to identify specific features in the E.E.G. with specific clinical forms of epilepsy has not been as successful as was hoped on the basis of the original formulation by Lennox and his co-workers. He described three types of disturbance :

(*a*) A smooth slow rhythm of high potential associated with " psychomotor attacks ".

(*b*) A slow rhythm with sharp spikes associated with " petit mal attacks ".

(*c*) A fast rhythm associated with " grand mal attacks ".

The wave-spike pattern attributed to *petit mal* and the slow high-voltage waves alleged to be characteristic of psychomotor epilepsy are found in other varieties, and often in non-epileptics (Knox H. Finlay and John B. Dynes, *Brain*, 1942, 63, 256).

Three additional observations are of great interest :

(1) Seizures hardly detectable clinically (very mild " petit mal ") are discoverable by electroencephalography.

(2) The " delta " type of discharge may exist for some considerable time before the appearance of the first fit.

(3) A " delta " type of discharge also occurs in brain tumour, emanating from the brain-tissue surrounding the growth (C. G. Walter, *Journal of Mental Science*, 1939, lxxxv, 932).

When all is said and done, the E.E.G. is only of confirmatory value in the diagnosis of epilepsy. Fifty per cent of individuals exhibiting epileptic symptoms of some kind do not have a characteristic E.E.G., and 25 per cent show no abnormality at all, while on the other hand a certain proportion of individuals without clinical epilepsy exhibit abnormal curves. What constitutes abnormality is moreover a matter of opinion in the least distinctive type of curve, the interpretation of which depends a good deal on personal judgment and experience. The absence of an epileptic type of curve tells us nothing, but the presence of an unequivocal epileptic type of wave will usually clinch the diagnosis in cases of supposedly hysterical attacks and other episodic dis-

turbances of consciousness. Some so-called "faints" and some fugues can be shown to be epileptic with the aid of an E.E.G.

Among psychopathic personalities 65 per cent of a group of 66 aggressive psychopaths had abnormal patterns of brain waves, and half that proportion, 32 per cent of 38 inadequate psychopaths, exhibited abnormal E.E.G.s. In a control group nearly 15 per cent were abnormal (D. Hill and D. Waterson, *Journal of Neurology and Psychopathology*, 1942, 5, 47).

It is of considerable interest that a history of aggressive bad temper was found three times as often in the first-degree relatives of aggressive psychopaths as among those of an inadequate group. Similar findings have been described in psychopathic children of the irritable, hyper-active, aggressive, emotionally unstable type, the difference being again one of relative frequency as compared with a group of apparently normal controls (C. Bradley, *Connecticut State Medical Journal*, 1942, 67, 73, and R. L. Jenkins and B. L. Pacella, *American Journal of Orthopsychiatry*, 1943, 13, 107).

Treatment.—The chief indications for the treatment of an epileptic in an institution are pronounced irritability, tending to violent assaults, and general mental deterioration, making special care necessary. The regular régime of an institution is in itself helpful—the sources of irritation are lessened, meals, etc., are regular and the patient is among people who are accustomed to handling epileptics. Further, suitable outlets can be provided for the development of their interests. Occupation should be an important part of the treatment from the beginning. Interest in occupation retards the progress of the dementia, as well as lessening the frequency of the fits. Very important also is the fact that institutional treatment prevents the marriage of epileptics, with its consequences, not so much in the direct transmission of epilepsy as of other kinds of nervous or mental instability.

In all epileptics at whatever stage, attention to the general hygiene commonly effects an improvement. Excesses of all kinds, whether in food, work, or excitement, must be forbidden. Alcohol is to be avoided entirely. Attention to the general health should include the treatment of infected teeth, tonsils, etc. The bowels must be kept regular and regular exercise should be obtained. The demonstration that breathing an oxygen-poor atmosphere may induce seizures speaks for tho importance of eliminating nasal obstruction and ensuring lung ventilation and intra-abdominal circulation by proper posture and exercises

(Lennox and Cobb). Real fatigue should be avoided, since it has been shown that exhausted animals are more liable to convulsions.

The drugs which have been tried are legion. The sheet-anchor of treatment is bromide, with a useful accessory in luminal. The amount of bromide required varies with the individual case. A period of experimentation will be necessary with each patient to discover how much bromide is necessary to reduce the fits to a minimum without handicapping the patient in another direction by dulling his sensorium, as excess of bromide readily does. Up to 100 gr. of bromide can be given in twenty-four hours if necessary. The doses should be arranged so that a maximum saturation will be produced at the hour at which the fits regularly occur; for example, if the fits occur in the morning, the patient should have a dose on waking. The dose finally selected should be continued indefinitely, and usually for life. A sudden omission may be followed by a status epilepticus (Bleuler). A restricted salt intake is thought to help bromide to replace chloride in the central nervous system. (There is a chloride retention in epilepsy.)

Luminal (phenyl-ethyl-barbituric acid) for a time was expected to supplant bromide; but it is found that it is a valuable adjunct rather than a substitute.

Golla found that 36 out of 125 previously treated with bromide did not improve, or even got worse, with luminal; but that the remainder all showed some improvement. The cases responding more favourably to luminal than to bromide were those with fits at frequent intervals.

Luminal should be used carefully, and in small doses (up to 2 gr. in the twenty-four hours). It has the disadvantage that if it is discontinued suddenly the symptoms are apt to be worse than ever before. The use of large doses is especially apt to be followed by unpleasant symptoms after discontinuance. Sometimes it is as if the sedatives had dammed up the seizures, which are released in torrents amounting sometimes to a status epilepticus, upon discontinuance of the drug, or when the seizures can no longer be controlled by the drug in any dosage.

Epanutin (sodium diphenyl-hydantoinate) has recently been introduced and promises to be a valuable alternative to luminal. It is given in doses of 0·1 gm. to 0·6 gm. in 24 hours. If no satisfactory result is produced by 0·5 gm. daily it is recommended that it be supplanted by other drugs such as luminal. Its effect is said to be anti-convulsive and not depressant. Toxic symptoms are fairly frequent—in the skin, gastro-intestinal tract and nervous

system. Erythema, petechial hæmorrhages and exfoliative dermatitis have been described. Anorexia, indigestion, lethargy, nystagmus, inco-ordination, ataxia, and Rombergism with increased ankle jerks, can occur. The therapeutic effects are remarkable in some cases and may include an improvement in the temperamental aspects. In others, the fits although less frequent, become more severe.

When a series of severe convulsions occur (status epilepticus) heroic measures are necessary. An extra dose of bromide (gr. 40) with chloral (gr. 30) may be sufficient. This may be given per rectum. Sodium luminal (gr. 5) intravenously or intramuscularly, together with spinal drainage, is probably the most efficacious method. Magnesium sulphate by rectum or intravenously serves the triple purpose of reducing cerebral œdema, increasing acidosis and cleaning out the bowels (Lennox and Cobb). The same writers suggest the inhalation of an atmosphere of 10 per cent CO_2 and 90 per cent O_2.

A *ketogenic diet* (high in fat and low in carbohydrate) has been shown to influence the attacks. In children, in about 30 per cent of cases, the attacks cease while this diet is given, and remain absent after a return to an ordinary diet. In adults, little result has been obtained by this means in the institutionalised patients, but there is some hope of improvement in milder cases. Naturally this method should be combined with general hygienic measures and must be strictly followed. The details of the ketogenic method should be consulted in special articles and books (*e.g.* Talbot, *Treatment of Epilepsy*, New York, 1930).

Treatment by dehydration.—A diet of low water content (500 c.c. in 24 hours is aimed at), both in water actually present and in water that might be formed by oxygenisation of the hydrogen in the food, has to be given. Elimination of fluid may be hastened also by giving magnesium sulphate and by diuretics. The dangers are excessive loss of weight and occurrence of nitrogen retention and acidosis, associated with the development of psychotic states (D. E. Cameron, *Amer. Jour. Psychiat.*, XL, i, 129, July 1931). The co-operation of the deteriorated institutional epileptic is impossible to secure, and a watch has to be kept so that he does not steal food and fluid. With epileptics showing little or no mental change difficulties of this kind are not entirely absent. Some cases are favourably influenced by this treatment.

All epileptics require the most careful supervision. They should never be allowed to sleep by themselves, on account of the danger of suffocation in nocturnal fits. Wherever possible,

epileptics in institutions should be nursed in open wards; and failing that, in a room under direct observation. But it is equally important that the epileptic should not have his life made miserable by unnecessary restrictions. The great majority of epileptics are capable of living normal lives with the exception of driving motor-cars and the like, swimming in deep water, or indulging in any other occupation or recreation in which a fit would definitely endanger the lives of others or of themselves. The mortality of epileptics from accidents arising during fits is in fact exceedingly small.

CHAPTER XVI

MENTAL DEFECT

THE term "mental defect" is generally accepted as denoting intellectual defect existing from birth or from the early years of the individual's life.[1] Difficulties arise when it is attempted to denote what is meant by emotional and especially "moral" defect. "Moral" defect is usually applied to those cases in which antisocial conduct has existed from an early age. It is now generally admitted that, as distinct from intellectual and emotional abnormality, moral deficiency cannot be inborn. Moral sentiments are in all cases acquired. Individuals who display moral deficiency have suffered from some antecedent abnormality, intellectual or emotional. This antecedent abnormality may be inborn, or may be acquired from the environment through infection (as, for example, the behaviour of post-encephalitic children) or through faulty training. We propose to confine the use of the terms "mental defect" and "mental deficiency" to cases of congenital or early acquired intellectual defect, as measured by one or other of the methods of intelligence testing. For "emotional instability" and "moral deficiency" or "moral imbecility", as it has unfortunately been called, we have used the term "psychopathic personality" (see Chapter XII). It must, of course, be recognised that cases with intellectual defect may, perhaps by virtue of that defect, show signs of emotional and moral instability; but all such cases will for convenience be considered as belonging to the first category.

The term "mental defect" refers traditionally to intellectual defect that has existed from birth or an early age. "Intellectual" defect consists of a defect in understanding, as distinct from emotional abnormality. It is true that what exactly is meant

[1] Mental defectiveness is legally defined in England as a condition of arrested or incomplete development of mind existing before the age of 18 years, whether arising from inherent causes or induced by a disease or injury. (See page 676.)

by "intellectual" is still a bone of contention among psychologists, but for medical purposes it may be taken to mean the ability to understand one's environment, and to make use of one's understanding to earn a living. It must be recognised that mental defect in this sense has a multifarious causation; in some instances it is purely accidental, the result of injury at any time from conception onwards ("secondary amentia"), while in other cases the defect resides in the germ-plasm ("primary amentia"). Such hard and fast subdivision of this kind is difficult to make in an individual case. The correct question to ask in each instance is, how much is this hereditary and how much environmental?

In this country *amentia* is a synonym for mental defect, either primary or secondary. In drawing a distinction between amentia and dementia, Esquirol said, "The demented man is deprived of the good that he formerly enjoyed: he is a rich man become poor. The idiot (ament) has always lived in misfortune and poverty." In other words, the ament lacks something, while the dement suffers from a disorder of that which he possesses (White and Jelliffe).

In America and on the Continent the term "amentia" has been confined to confusional states on a toxic-exhaustive basis. The term is thus best avoided altogether; anything that one wishes to say can be better expressed in other terms.

Three grades of mental defect—idiocy, imbecility and feeble-mindedness (moronity)—have been recognised, and have received legal definition in the Mental Deficiency Act, 1913.

Idiocy

Idiots are "persons so deeply defective in mind from birth or from an early age as to be unable to guard themselves against common physical dangers". Idiocy is the lowest form of mental development, and the condition is one which is readily recognisable from a very early age. Physical deformities are very common in idiots, and paralysis and convulsive attacks are frequent. The idiot is late in learning to walk and to talk, both of which he does imperfectly. His speech consists of no more than a few monosyllables. He can do almost nothing for himself. If he feeds himself it is in a clumsy and voracious way; he cannot wash, or dress, or clean, and he wets and soils himself. He is very often irritable. Most idiots are sterile. They are very prone to disease, especially tuberculosis. Their mental age, as

measured by the Binet-Simon or similar scale, does not exceed two years. Idiots comprise about 0·3 per 1000 of the total population of England and Wales, and are about one-fourth as numerous as the imbeciles (Report of Mental Deficiency Committee, 1929).

Imbecility

Imbeciles are "persons in whose case there exists from birth or from an early age mental defectiveness not amounting to idiocy, yet so pronounced that they are incapable of managing themselves or their affairs, or, in the case of children, of being taught to do so".

They constitute 1·2 per 1000 of the urban population and 1·8 per 1000 of the rural population, being one-fifth as numerous as the adult feeble-minded. Imbeciles are able to protect themselves from common physical dangers, but are quite unable to earn a living independently, even under the most favourable circumstances. A very simple routine job is all that can be expected of them. Physically they show numerous stigmata, from paralyses to deformities of the soft tissues. They are stolid, ungainly people, with poorly co-ordinated muscular movements. Their mental age (Binet-Simon scale) ranges from three to seven years. Imbeciles can be educated to a certain extent—they can be taught simple tasks and to keep themselves clean, but even the simplest scholastic attainments are beyond them. Some learn to read a few monosyllabic words. Some of them are imitative in a limited way.

Feeble-mindedness

The **Feeble-minded** (morons) are defined as "persons in whose case there exists from birth or from an early age mental defectiveness not amounting to imbecility, yet so pronounced that they require care, supervision and control for their own protection or for the protection of others; or, in the case of children, that they by reason of such defectiveness appear to be permanently incapable of deriving benefit from the instruction in ordinary schools".

They constitute 5·2 per 1000 of the total urban population and 8·2 per 1000 of the rural population. The mental age, on the Binet-Simon rating, is anything from seven up to twelve. The term "moron" is used in America for this class. ("Feeble-mindedness" is used in America to cover the whole field of mental deficiency.) They do not exhibit the

physical stigmata of the two lower groups. In scholastic attainments they may not be any worse than the more poorly educated type of constitutionally normal child. However, the type of work of which they are capable is routine only, and even at that they may not do well. This is revealed in practice by their being paid at a lower rate than other workers. Many are unstable in their aims and occupations, shifting about from place to place, and from one job to another. A considerable proportion, however, of these who rank as feeble-minded in the educational sense prove capable of supporting themselves socially on leaving school, and so cease to rank legally as feeble-minded. They lack ordinary judgment and discrimination—in brief, they have little common sense. Criminality is common among them, both on their own initiative, when their offences are petty or indiscriminately violent, or as dupes of others, on account of their ready suggestibility. Some of them acquire considerable manual dexterity. From the feeble-minded are drawn the "idiots savants" who show disproportionate accomplishment along special lines. As regards morbid anatomy in the feeble-minded it has been pointed out by Penrose that in the case of those with an intelligence quotient above 50 it is improbable that any large proportion of them would show characteristic microscopic abnormalities.

E. O. Lewis has suggested that a number of defectives are biological variants—they are simply those members of the population who occupy the lower end of the curve of frequency-distribution of intelligence in any population: while alongside these are the other defectives who are actually pathological cases.

The clinical varieties of intellectual defect are as follows:

Amaurotic Family Idiocy

This condition occurs mainly, but not entirely, in the Jewish race, and usually affects several members of the same family. The chief clinical signs are a state of idiocy, accompanied by spastic or atonic paralysis of the limbs, and blindness due to optic atrophy. Ophthalmoscopic examination reveals the characteristic cherry-red spot in the region of the macula lutea. According to Kingdon and Risien Russell, the child may appear normal until about the fourth month, when weakness in the neck muscles and dimness of vision set in. The characteristic eye-changes described above rapidly develop, a progressive weakness and marasmus occur and the child invariably dies, usually before the age of two years.

In addition to the infantile type described above, it is important to distinguish various post-infantile types, all characterised by blindness and paralysis, and some by extra-pyramidal signs, in combination with varying degrees of mental deficiency, which occur most often in Gentiles.

The chief distinguishing feature between the infantile and the post-infantile group is the fact that the cherry-red spot at the macula is present only in the infantile cases. Sjögren's investigations prove that the familial incidence is coupled with a high percentage of consanguineous parents and that both types of this disease exhibit the characteristics of a Mendelian recessive; it may be transmitted by "carriers" who do not themselves exhibit the defect. It has been supposed that the lesions found in the central nervous system are of the nature of an abiotrophy. The characteristic histological picture shows globular swellings of the pyramidal cells with balloon-like swellings of the dendrites, and perinuclear deposition of granular material in the cell-bodies.

Cretinism

Cretinism is due to a congenital deficiency in thyroid secretion. All degrees of deficiency can occur, from athyroidism through the various degrees of hypothyroidism. Three clinical grades are described—cretins, semicretins and cretinoids. Cretins have only vegetative faculties, being entirely destitute of reproductive and intellectual powers, and they cannot speak.

"Semicretins" have reproductive functions and some rudiments of language. Their intellectual efforts suffice only for their immediate bodily wants.

The "cretinoids" have some aptitude at learning a trade, but do not reach a normal intellectual level.

Two forms of cretinism are recognised, the sporadic and the endemic.

The sporadic usually appears at about the sixth or seventh month of life, but it may be delayed for a number of years, *e.g.* as the result of fever causing an atrophy of the gland, a condition which has been termed juvenile myxœdema. The usual history is that the child is dull and stupid-looking, and does not develop either mentally or physically. The body is dwarfed, the head is large, with pug-nose, thick and protruding lips: the tongue hangs out of the mouth, the skin is dry, the hair scanty, the eyes are half-shut, with swollen eyelids: the neck is short and thick: the anterior fontanelle may remain open until adult life. Denti-

tion is delayed. The patient does not speak. The limbs are short and pudgy; the muscular movements are unco-ordinated, so that walking is clumsy, or even impossible. Supraclavicular pads of fat are usually present. An X-ray examination shows defective and delayed ossification, and persistence of the epiphyseal cartilage. The abdomen is protuberant, umbilical hernia is common and the signs of puberty do not appear.

The degree of mental defect varies, as has been stated above, from idiocy to feeble-mindedness. Usually these patients are placid, harmless, good-humoured individuals, who are easily pleased, and not difficult to manage.

Endemic cretinism is the result of local conditions which are as yet undetermined. It is most common in Switzerland, the Himalayas and various parts of Italy and France.

The effect of treatment with thyroid gland often borders on the miraculous if begun sufficiently early. It is wise to start with a small dose—1 grain three times daily, and to increase this until the physiological result is obtained (short of producing symptoms of overdosage).

Mongolism

The mongolian, kalmuck, or tartar variety of mental defect is so designated because of the resemblance of the physical characteristics of the patients to those of members of the Mongolian race. The causation of this condition is still obscure. Neuropathic inheritance seems to play no special part (Stewart). Neither alcohol nor tuberculosis in the parents has been shown to be significant. There is evidence that mongols are usually born of mothers who are near the close of the reproductive period. An investigation by Penrose showed that the mean maternal age for 224 mongol births was 37·4 years compared with 29·4 in a controlled group. The probability that a mother will have a mongol child is more than double for every increase of 5 years after the age of 25. The theory that mongolism represents a reversion to an ancestral type does not explain the mental defect. Moreover the physiognomy of the mongolian imbecile is so distinctive that it can be recognised even when mongolian imbecility is found in the racial Mongol (Stewart). There is no evidence so far that endocrine anomalies are responsible. Evidences of congenital syphilis are usually absent and the blood Wassermann is only exceptionally positive. The fact that the mongol's cerebro-spinal fluid precipitates colloidal gold in the syphilitic zone, as occurs also in a number of other non-syphilitic diseases,

awaits explanation. Increased amniotic pressure producing arrest of cerebral development has been suggested as the cause. Clark suggests fœtal hyperthyroidism. There are suggestions of a genetic basis in that mongolism occurs in more than one member of the same fraternity more often than would be expected on the basis of pure chance; and that when first cousins have been mongols, the mothers have usually been sisters (Penrose).

The three features which specially characterise mongolism are the anomalies of the skull, the eyes and the tongue. The skull is small, rounded and so diminished in its antero-posterior diameter (brachycephalic) that the antero-posterior and lateral measurements are nearly equal. The face and the occiput are both flattened, the tongue is large, and shows hypertrophied papillæ and transverse fissures, the "scrotal tongue" of French writers. Fennell (quoted by Tredgold) reported that in his examination of 200 idiots of all other types he had never found such a condition of tongue, but Stewart has seen it in congenital syphilitics. The palpebral fissures of the eyes are oblique, narrow and slit-like, and eye abnormalities, *e.g.* ectropion, strabismus, cataract, are common. The hair is generally scanty and dry, the mouth slightly open, and the joint ligaments are very lax, giving a greatly increased mobility to the fingers and toes. Commonly there is atrophy of the terminal phalanx, and shortening of the middle phalanx of the little finger. Circulatory abnormalities, such as blueness and coldness of the extremities, and susceptibility to chilblains, are common.

Mentally the mongolian child is very good-natured and easily amused, and gives the appearance of being very bright, owing largely to imitativeness. The degree of intellectual deficiency varies very greatly from feeble-mindedness to pronounced idiocy, but the majority have a mental age of between four and seven years. Many die during the first few months of life, and it has been estimated that less than 60 per cent reach 5 years of age. They are prone to catarrhal affections.

Morbid Anatomy.—The brain is usually smaller and its convolutions simpler than normal. The cerebellum and brain-stem are usually under-developed. The pyramidal cells of the cortex are immature and fewer than normal.

Hydrocephalus

Two varieties of hydrocephalus are described, the congenital and acquired, but we are not concerned with the latter.

Congenital hydrocephalus is due to the accumulation of an excessive quantity of cerebro-spinal fluid within the brain ventricles, in consequence of which the development of the brain substance is impaired. Syphilis, toxic factors and the occlusion of the communicating orifices between the ventricles have all been held responsible, but the causation is not definitely known. As the fluid accumulates, " the brain substance becomes so greatly reduced that the convolutions and sulci are entirely obliterated, whilst the brain mantle encloses a thin, fluctuating sac of fluid ". The skull becomes greatly distended, the skull bones are widely separated and the fontanelles may not close until well into adult life.

If at the time of birth the hydrocephalus is fully developed, delivery will be prevented, and a good many such children die during birth. In the majority of cases the hydrocephalus does not fully develop until after birth. The skull is increased in all directions, is dolichocephalic in shape, with prominent frontal and parietal bulgings and a marked disproportion between the size of the head and the face, giving the individual a top-heavy appearance. The eyes look downward, and the veins of the forehead stand out prominently.

Often associated with the hydrocephalus there are other abnormalities, *e.g.* spina bifida, hare lip.

The majority of children suffering in this way die, fortunately, at an early age, but exceptions occur, when the disease seems to come to a standstill.

The mental state varies considerably from idiocy to feeble-mindedness. The vast majority show varying grades of feeble-mindedness, but they are cheerful, affectionate, good-humoured beings, willing to help in any way they can. Their physical disabilities are, however, so severe that they become paralysed, or suffer from involvement of the special senses, so as to necessitate bed treatment. A few cases are known where the mental faculties are not impaired.

Microcephaly

The skull is usually less than 17 inches in circumference, but measurement of the skull must not be considered as a sure guide. Tredgold reported a case in which the skull measured 21 inches.

The chief distinguishing feature of microcephaly is the " sugar-loaf " or cone-like (oxycephalic) shape of the skull rather

than its measurement. There is a rapidly receding forehead, a beak-shaped nose, a receding chin, and there is no occipital protuberance, so that the patient has a bird-like appearance. The scalp is too abundant for the skull, and is thrown into a series of furrows. Many microcephalics are dwarfs.

Mentally they are comparatively well-endowed, the majority of microcephalics belonging to the imbecile class. They are usually good-tempered and vivacious, restless, imitative, but unable to persevere. Some are so industrious as to be able to earn a living under sheltered conditions. About half of them are said to be subject to epileptic fits.

The brain of the microcephalic is extremely small; the temporo-sphenoidal, parietal and occipital regions are specially involved, so much so that the posterior lobes of the cerebrum do not cover the cerebellum. The convolutional pattern is simpler than in the normal brain, and developmental anomalies such as macrogyria, heterotopia, or even absence of the corpus callosum occur. The cerebellum is also smaller than normal, but never to the same extent as the cerebrum. Ireland described a series of remarkable cases in his text-book of *Mental Affections in Children*. D. P. Murphy (*Surgery, Gynæcology and Obstetrics*, 1928, 47, 201) has brought evidence that X-ray irradiation of the mother's pelvic organs during pregnancy is productive of microcephalic offspring. If confirmed, this is the first piece of evidence of an almost experimental order of the production of mental defect by ascertainable physical influences during intra-uterine life.

Epiloia

This is a combination of mental defect and epileptiform fits associated with tuberous cerebral sclerosis, sebaceous adenoma of the face, and visceral tumours, especially rhabdomyomata. The condition is progressive. Some cases with the face eruption and the visceral tumours show no mental defect, at least at first.

Paralytic Types

The paralytic types of mental defect result either from congenital lack of development of certain portions of the brain or (more frequently) from injury or tumour-growth. The most frequent cause is hæmorrhage, which may have been induced by prolonged labour, by injury in forceps delivery, or by an injury in the early months of life. Many of these paralytic

patients attain a high grade of intellectual development, but the greater proportion suffer to a certain degree from mental defect.

Associated with this group of paralytic cases are found cases of *porencephaly*, a condition where the lacking cerebral substance is replaced by a cyst connected with the ventricle (true porencephaly) or by cysts resulting from softening, hæmorrhage, or inflammation not connected with the ventricles (false porencephaly). The presence of porencephaly may be suspected in cases of congenital hemiplegia where there is considerable lack of development of the affected limbs, and where there is flattening of the opposite side of the skull.

Epileptic Types

This group is not a clear-cut one, since epileptic fits may result from a great variety of causes. As will be apparent from what has been already said, epileptic fits as an accompaniment of other types of mental defect are relatively common, but there does seem to be a group of cases where epilepsy—occurring early in life and frequently—is the prime cause of the lack of mental development. This may be partly because of irregular school attendance, but there are cases where mental development fails to occur beyond a stage of idiocy or imbecility. Great irritability in the form of sudden outbursts of temper and violence is particularly common. Shepherd Dawson showed that contrary to the general belief there is no regular relationship between frequency and severity of fits and the degree of subsequent mental dullness.

Syphilitic Types

States of mental defect due to hereditary syphilis are relatively common. The Wassermann test has shown that upwards of 20 per cent of all defectives give a positive reaction, although the exact significance of this in relation to mental defect is not quite clear. The signs of hereditary syphilis are well known; the peg-shaped teeth described by Hutchinson, the circumoral scarring, the keratitis, the saddle-shaped nose and the bossing of the frontal bones are all important features.

The child is backward in learning to walk and to talk, and his body is often stunted and poorly formed. Little progress is made at school, and not infrequently there is evidence of moral deficiency in the form of thieving, lying, delinquency and so on.

The treatment of such conditions by means of salvarsan has been fairly successful in a number of cases.

Juvenile general paralysis has been already referred to in the description of general paralysis.

Inflammatory Types

These types are caused by an inflammation of the brain and its meninges, as a result of infectious fevers, *e.g.* pneumonia, influenza, enteric and measles.

The pathological process is either a lepto-meningitis or a polio-encephalitis. The condition is usually ushered in by an attack of an acute nature, during which the child suffers from headache, vomiting and fever, speedily followed by unconsciousness, delirium, convulsions and paralysis. In a few cases complete recovery may ensue, but, as a general rule, the psychic functions are permanently damaged. The child now may not only fail to develop intellectually, but his disposition may have noticeably altered, so that instead of being able to play with his fellows he takes no interest in such things, and shows unusual traits of irritability. On the other hand, the extent of the brain lesion may be so severe that the child is left in a state little better than idiocy.

Encephalitis Periaxialis Diffusa (Schilder's Disease).—This is a familial disorder among children and characterised by blindness, deafness, disorders of gait, fits and mental deterioration which may either take an acute course to death in a few days, or be slowly progressive over some years.

Non-familial cases may occur, possibly on a toxic basis, as in a middle-aged adult who accidentally overdosed himself with ergotamine. (Geo. A. Jervis and A. Kindwall, *Amer. Jour. Psychiat.*, 1943, 98, 650.)

Pathology.—Large symmetrical areas of demyelinisation occur, most commonly in the occipital lobes round the posterior horns of the lateral ventricles, but extending in pronounced cases to the frontal lobes. The demyelinisation stops a few millimetres short of the cortex. There may be patches of this demyelinisation throughout the brain and spinal cord, so that the condition resembles, histologically, disseminated sclerosis.

The myelin sheaths in the affected areas have disappeared, and the majority of the axis cylinders have also degenerated. In the chronic cases, the demyelinated areas are replaced by gliosis.

Sensory-deprivation Types

In this group of cases there is no defect of the germ-plasm and no structural defect of the brain, but owing to injury or disease, vision or hearing, or both, may be obliterated. In these cases attempts are made to utilise other sensory channels to make up for deficiencies. Excellent results are now being obtained in training establishments for the blind and for the deaf. Persons so handicapped, especially deaf-mutes, are not infrequently mistaken for defectives. Tests of intelligence specially devised for them show that they have an intellectual equipment equal to the average (Drever). Deaf-mutes often score exceptionally well on performance tests.

The common cause of this sensory deprivation is an inflammatory lesion caused by one of the infectious fevers. There are now a number of classical cases on record, the best known, perhaps, being those of Laura Bridgman and Helen Keller. Helen Keller lost her sight and hearing at the age of nineteen months, but by means of the Braille system she acquired a knowledge of French, German, Greek and Latin, and acquired the power of speech. She has had a distinguished career, showing high intellectual capacity.

Phenylpyruvic Amentia.—A few cases of idiocy and imbecility have been described in which phenylpyruvic acid is excreted in the urine, and where there is a familial incidence pointing to a recessive inheritance of this combination of mental defect and the metabolic anomaly leading to the excretion of this substance, which gives a dark green colour on adding ferric chloride to the urine. There is nothing specific about the mental picture. A point of some interest is that in such families there is apt to appear in the normally developed members an involutional melancholia, suggesting, as Penrose pointed out, that individuals heterozygous for the recessive character show the weakness in their central nervous development in a mitigated form (L. Penrose, *Lancet*, 1935, ccxxviii, i, 23 and 192).

Psychoses in Mental Deficiency.—The mental defective is liable to the same types of psychoses as the ordinary individual. He is much more easily plunged into a psychosis than the latter, and recovers also with a corresponding facility.

Treatment.—Treatment in all types of mental defect has no hope of complete recovery. It is a matter of making the best of imperfect material. The great majority of intellectual defectives have to be trained in special schools or under in-

stitutional conditions. By these means they can be trained in orderly habits, and many of the higher grade can be made into wage-earning citizens, performing routine manual work. They continue, in many cases, to require supervision in the management of their lives. The question of segregation in relation to the procreation of defectives has been briefly dealt with in the opening chapter.

The feeble-minded are by definition educable in special schools. A proportion of them are so emotionally unstable as to make institutional segregation necessary. Imbeciles and idiots are not capable of education in day-schools, and have preferably to be placed either in institutions or cared for privately at home.

It is not valid to certify a defective child as an imbecile under the Mental Deficiency Act unless he is so defective as to be uneducable even in a special school, or so troublesome in behaviour as to make his presence in such a school undesirable.

For the emotionally defective, training is equally important, and perhaps more can be hoped for in them. For details of treatment of defectives recourse should be had to special books and articles on the topic.

Mental Tests

Anyone who aspires to work with mental tests must do so in all humility. He will find that none of them taken alone are completely satisfactory for the purpose and that, even when they work efficiently, it remains uncertain what is the nature of the function that is being tested, so multifarious are the aspects of human activity which we call mental; so much do these aspects, themselves artificially abstracted from experience, overlap one another; so mutually complementary and compensatory are they, so that if one is weak another seems to cover the gap; and so elusive do they seem to be of direct measurement or of experiment.

The purposes of mental tests are to enable one individual to be compared with another, at least of the same culture, and to compare an individual with himself at different times, and thereby in general to find a basis for prediction of future achievement.

A standard test consists usually in taking a variety of samples of different aspects of mental activity. It is customary to use a battery of tests. Even one particular type of test, such as the Binet-Simon scale and its modifications, is a battery of a diversity

of types of test the results of which, if taken together, make feasible an estimate of the efficiency of mental activity and of its future potentialities.

There are two general aspects of mental activity which usually go by the names respectively of "Intelligence" and "Temperament". It should always be remembered that it is not a matter of either intelligence or temperament, but rather how much a given activity is intellectual and how much temperamental. At one end of the scale there is apparently the wholly intellectual with a hardly discernible temperamental aspect, and at the other an activity which for all practical purposes is an emotional one. What most matters in real life is the mixture of the two, a fact which should never be forgotten by those who use mental tests.

Some important aspects of both it is impossible to assign exclusively to either. For example, should energy, which is so important a factor in intelligence—some, like Spearman, would say it was the central factor—be regarded primarily as intellectual? Yet no appraisement of temperament would be possible without consideration of the output of energy. Nevertheless, intellectual and temperamental aspects of personality are on the whole sufficiently distinguishable from one another to make it possible to devise methods designed to test one rather than the other. A large number and diversity of tests have been invented to sample intelligence; the temperamental aspects have proved to be much more elusive.

The Rorschach Test, which consists in getting the patient to say all that occurs to him on being presented with a standard series of patterns, some of them partly coloured, produced more or less at random by folding an ink-blot symmetrically upon itself, has come to be regarded as the most promising "test", or more accurately "probe", of the factors that go to make up the personality as a whole. The interpretation of the significance of the associations produced by the patient, when coded and classified, is fundamentally an intuitive matter in the first place. The interpretations, it is true, are to some extent standardised, but interpretation depends very greatly on individual experience and intuitive skill.

It has been used also as a differential diagnostic method in suspected organic brain disease or damage, as well as between different psychiatric syndromes. There is an extensive literature beginning with Dr. Herman Rorschach's original *Psychodiagnostik* (Bern, 1923), as well as the "Rorschach Exchange", which is a central bureau of esoteric information with regard to the method.

Intelligence Tests

There have been many definitions of Intelligence. It has been defined, for example, as the capacity to profit by experience and to act with foresight. This would put some individuals to whom ordinarily we attribute a high degree of intelligence very low in the list in some of their behaviour. The least committal statement is a circular one—"Intelligence is what we test with intelligence tests". It might be defined as the capacity to elaborate sensations and percepts and to integrate these percepts into adaptive behaviour. In this sense intelligence has many aspects: sensation, attention, perception, memory, association, discrimination, abstraction, reasoning and so forth. These are in some way artificial names; they are all aspects of one total process but they are generally recognised as being usefully distinguished from another.

In applying any kind of intelligence tests it is necessary not to let enthusiasm outrun discretion.

Tests of "intelligence" have of recent years been hunted to death. They should *not* be used as they are used, by professional psychologists, teachers and others, indiscriminately and apart from all other methods of estimating an individual's make-up. The latter is not to be easily measured by putting a series of questions, and assessing marks for the answers. What is for convenience, in our present state of knowledge, called the "emotional" as distinct from the "intellectual" is at least as important in determining an individual's capacities and chances. If it is doubtful what we measure with "intelligence" tests, it is still more uncertain what we would try to measure if we tackled "emotions" in a similar way.

The capacities and resources of an individual can only be assessed by all-round observation and by careful history-taking, and only by an examiner of wide experience of morbid as well as normal mental reactions. The observations must include not only tests of intelligence, which should be a part, although a small part, of the inquiry, but should comprise also inquiries directed to the individual's behaviour and reactions as revealed so far in his way through life. The physique and the history of physical morbidity; the family history, not only of mental disease but of general achievement; and the home circumstances must all be taken into account before a reliable opinion can be given.

Binet-Simon Test and its Modifications.—The oldest and still

the most widely used form of intelligence tests recognises the many faceted nature of intellectual processes. Binet and Simon, two Parisian psychologists, devised a set of problems, some mainly of memory and some of simple comparison, or of comprehension, or of appreciation of similarities of the meaning of words, and so on, and they devised them at varying levels of difficulty. They then determined what tests were successfully performed by what children and at what ages. They arranged the tests in age groups in such a way that the average child of a given age was able to answer the problems assigned to his age group. Ballard well said—" They tested the tests with the children before they tested the children with the tests." This very practical foundation has itself withstood the test of time, and the latest standardisation of such tests of intelligence—the Terman-Merrill (Lewis M. Terman and Maud A. Merrill, *Measuring Intelligence*, New York and London, 1937) Series of 1937—is essentially an elaboration of the original Binet-Simon scale. The following are samples of the Binet-Simon Series as modified by the Terman-Merrill (1937), for example :

At the age four level the child is asked to name some toy objects placed in front of him, such as a motor-car, a dog, a shoe, etc.

At the age six level a card with simple mutilated pictures is shown to him and the child is asked, " What part is gone ? " or " What isn't there ? "

At the age eight level one of the tests consists in giving the child a simple story to read on a card, and then removing the card and asking him half a dozen questions about the story.

The tests include vocabulary at various levels, the repetition of digits ; copying, by making models or the drawing of some simple thing, and so forth. An alternative series of tests is provided so that a mental test of equal difficulty may be given at a later stage without the fallacy that could result from learning the individual answers from experience.

A working rule was also established by Binet and Simon which has proved reliable in practice, namely, that performances in single tests are additive to produce a total score. Thus if a child answers four out of six tests at the age 5 level and two out of six tests at the age 6 level, the results can be summated so that the child can be regarded as having a mental capacity equal to that of the average child of 6. Each test is in fact given a quantitative value of from two to four months as a rule, and the total tests passed are expressed in so many years and so many

months of " mental age ". It does not sound very scientific, but on the whole it works. The mental age divided by the chronological age and multiplied by 100 is called the intelligence quotient. An intelligence quotient below 70 corresponds roughly to clinical feeble-mindedness (moronity) and below 40 to imbecility. Idiots will not score above about 20, if they score anything at all. Scores of between 70 and 90 indicate some degree of mental dullness, as far as schooling at least is concerned. Such individuals not infrequently pass as normal in adult life, doing rather humble and on the whole manual work or menial jobs. The average range lies between 90 and 110, and above that are the brighter intelligences, the scholarship children, and at the higher levels, the professional and able people of all types. It is found that the growing child's score in such tests increases with age up to approximately 15 years, after which the kinds of ability tested by the tests do not seem to increase. Hence the basis level of intelligence for adults is taken as a 15-year score on this scale of tests, although some have taken it as low as 14 and others as high as 16.

It would be rash to say that intelligence does not increase after that time but only the kind of intelligence that is measured by these tests. Experience obviously becomes an increasing factor as age progresses. The problems that have to be faced by the individual become more complex and it is not easy to devise test samples of such problems. It is quite likely, however, that the basis for intellectual operations which undoubtedly undergoes a process of maturation, completes its development in adolescence, and that further progress depends rather on the multiplication of associations through experience.

Tests of the Binet-Simon type are considerably loaded with tests of educational achievement, such as reading and arithmetic ; and this in spite of the fact that the aim of the intelligence test is to try to get behind the effects of education and to tap the inborn capacities. Hence in tests of this kind, individuals who have had some schooling do better than those who have not. Educational backwardness is shown up to some degree by adding intelligence tests of the performance type to the test battery.

Performance Tests.—Performance tests are concerned with simple problems depending principally on form-perception, on ability to profit by experience, and on conceptual planning.

Form-board tests, such as the Dearborn and the Seguin form-board (F. Gaw, *Performance Tests of Intelligence*, London Medical Research Council, Report 31, London, 1925), depend mainly on form-perception. Another type of test, the Porteous

maze test, requires the subject to trace with a pencil his way through a series of diagrammatic maze patterns, while the Koh's block test consists of a series of parti-coloured cubes which, if they are to be successfully fitted together according to the pattern exhibited to the subject, require at least the ability to learn by experience and at the higher level of performance the capacity to form abstract conceptions of the way in which the blocks have to be arranged. Such tests are less vitiated by education than the more verbal type of intelligence test such as the Binet-Simon, since education does not give so much practice in work of that kind. It follows that individuals with little schooling tend to score relatively low on tests of the Binet-Simon type and relatively high on performance tests.

A reversal of this tendency, a relatively high score of the more scholastic of the Binet-Simon type compared with a relatively low score in performance tests, is suggestive of temperamental instability (Earl).

For purposes of evaluating intelligence as a whole as well as for avoiding false conclusions arising from failure to allow for educational backwardness, it is essential to use tests both of the Binet-Simon and the performance type, and in this way some clue as to temperament can also be obtained. We ourselves never use the Binet-Simon type of test or a performance test in isolation from one another in a given case.

The assumption that underlies all tests of intelligence, even a compound one like the Binet-Simon scale, is that, although intelligence has many aspects, there is a more or less general factor in intelligence (some would say *completely* general) which is basic for all mental operations. Spearman has non-committally called this general standard "G" and has likened it to the energy driving an apparatus, while the apparatus itself he compares with different "engines" driven by the source of energy. The "engines" of course are the different kinds of intelligence, such as ability for languages, or mathematics, or mechanical comprehension or construction. Sometimes one or two of these particular abilities are much more conspicuous than the others, but it must be rare for anyone with a high degree of special ability not to possess also a greater-than-average general ability. The "idiot savants" are usually people with prodigious memory prodigiously localised as the result of the very limitation of their interests, which arises from their inability to comprehend and be interested to the usual degree in their environment as a whole, and of the fact that memory is probably the most primitive of

the factors that go to make up intellect.

Non-Verbal Paper-and-Pencil Tests.—On the basis of the conception of a general factor for intelligence an attempt has been made to construct tests which would tap this general factor and little else, and incidentally eliminate the effects of education. For this purpose non-verbal tests have been constructed the solution of which requires the ability to perceive relationships between one part of a pattern and another. The matrix test devised by J. C. Raven (*British Journal of Medical Psychology*, xviii, part i) is a well-known example of this type. It consists in patterns of increasing degree of complexity in each of which there is a gap. The testee is confronted with six variously patterned shapes from which he is instructed to choose the one which would fit most appropriately into the gap in the general pattern. Tests of this type have the advantage that they can be given to a large number of individuals at one time.

Group tests of intelligence, which, as the name implies, are devised to be submitted to a large number of people at one time, are necessarily of the paper-and-pencil type. Individual tests usually require verbal responses, except performance tests such as have been already described.

Individual tests are as a rule to be preferred to group tests, since one can learn something about the individual's temperament from watching him tackle problems, and also because one can ensure that by individual tests the subject is given the best possible chance. Group tests, however, are indispensable if a large number of people have to be tested quickly.

Tests for very Young Children.—Paper-and-pencil tests are not applicable of course to the youngest children, except in the shape of simple requests to draw something,—a line or a man. In the case of drawings of a man some standardisation has been attempted for different ages. Tests given to the youngest children are appropriately of the simple performance type. The Terman-Merrill scale has recognised this by inserting tests of this kind, especially at the lower stage levels. For example, the child may be presented with a series of toy objects and asked to name them, or, at an earlier age, to point to the object named ; or he is asked to string beads together after being shown a sample. The most elaborate tests of this kind are those of the Merrill-Palmer scale intended for children under 5, but the new Terman-Merrill for all ages should prove reasonably satisfactory down to the age of 2 ; below that age the estimation of the mental age depends on remembering that the average child can raise its head at 4 months,

and sit up at 8 months ; walk at seldom later than 18 months—assuming normal health, and talk a few words as a rule by the same time. Some very intelligent children, however, do not talk at all until as late as 5 years of age and occasionally later. This arises not from lack of intelligence, but usually from personality difficulties and consequent inhibition of speech function. Gesell has provided a scale of performance for infants of which the following are samples of the tests at various levels (A. L. Gesell, *Developmental Diagnosis*, New York, 1941) :

Examples of Gesell's Intelligence Tests for Infants up to Three Years

Four Months.—Child's eyes should follow white paper moved to and fro or up and down in the field of vision.

When child is laid prone on the table he should raise his head.

Six Months.—Child should distinguish between friends and strangers.

Dangle a ring in front of and above baby ; he should seize it.

Nine Months.—Hold child with feet lightly touching floor ; he should give stepping response.

Hold a spoon perpendicularly in front of the child ; he should reach for it directly and accurately ; he may put it in his mouth, but we esteem him more highly if he does not.

Twelve Months.—Give child pencil and paper ; if he does not scribble spontaneously, demonstrate and invite him to imitate ; the second reaction is quite satisfactory at this age.

Child should now stand and walk with help.

Eighteen Months.—Place a small rubber whistle doll prone on table in front of child : hit it two or three times so as to produce a whistling sound ; child should imitate.

Child should be able to use spoon to feed himself without much spilling.

Two Years.—Child should be able to name common objects such as penny, knife.

Child should be able to point when asked to two or more parts of his body, *e.g.* eyes, mouth, nose, hair.

This scale is based on Gesell's observations of child development in more or less controlled conditions.

For adults, tests of the Binet-Simon type are apt to seem too childish, and it would not be surprising if the adult under test resented their application. In fact he seldom does. So much depends on the way in which the procedure is presented to him.

This possible objection applies only to adults who are being tested on the lower age-level of tests because of suspected backwardness. At the upper levels the problems are not such as to invite ridicule. The principal defect has been that tests did not satisfactorily tap adult resources, especially the resources of superior adults. An attempt has been made to do this in the new Terman-Merrill series by introducing more reasoning tests ; but on the whole the tendency at present is to use the Matrix test and similar non-verbal tests of conceptual thinking for adults.

In assessing individuals at the higher intelligence levels by such methods it is conventionally not a matter of obtaining a mental-age score but of finding in what segment of the general population examined by such tests an individual appears. The score is given by stating that he is, for example, in the top 5 per cent or the top 10 per cent, as the case may be, of the general population. Statistically his position is stated as a percentile ; thus, a percentile score of 88 means that the individual concerned is in the top 13 per cent of the population as far as intelligence scores on a particular test can show.

An attempt has been made to devise individual tests that would be more palatable to adults than the standard Binet-Simon and varieties thereof. The Wechsler-Bellevue intelligence scale (*The Measurement of Adult Intelligence*, Williams and Wilkins, Baltimore, 1941) is an example of this endeavour, and consists of an information test requiring everyday knowledge ; a comprehension test ; a picture arrangement test in which a set of pictures has to be placed in an order that will enable them to tell a coherent story ; a digit span test ; an arithmetic test and a picture-completion test ; a similarities test where the subject describes in what ways various pairs of named objects are alike,—this being taken direct from the Binet-Simon scale ; a block design test ; and a test by object assembly, which is a kind of jig-saw ; and finally, a vocabulary test.

Other tests for adults, such as the Group Test No. 33 of the National Institute of Industrial Psychology, while also of the paper-and-pencil variety, are essentially verbal but employ logical connections. They consist usually of requests to find opposites to the meanings of chosen words ; analogies ; alternative sentence construction ; and problems requiring logical deductions to be made.

The following is a sample of an " opposites " test :

Rich . . . Poor . . . SAME . . . OPPOSITE . . . UNKNOWN.

The following is an example of the " analogy " test :

Good is to Bad as White is to Clean, Black, Wicked, Red.

The following is an example of the " mixed sentences " test :

a roses odour pleasant have . . . TRUE . . . FALSE . . . UNKNOWN.

The appropriate word in each example is underlined by the candidate.

The other two tests in this Group Test No. 33 series,— " Completing Sentences " and " Reasoning " Tests, are more complex, but are done in a similar way.

It has already been marked that individual tests can tell us something about the temperament of the testee. The examiners can watch whether the subject goes about the test by trial or error, or by planning his attack ; whether he is impulsive or dilatory ; over-confident or diffident ; easily discouraged by failure or flustered by perplexities. Certain general patterns of response are of some significance. A widely scattered performance, that is, one where there are a number of successes and failures throughout a large age-range, may sometimes indicate deterioration on a basis of organic brain disease, or interference by a psychotic process.

Tests of Intellectual Deterioration.—The series of tests devised by H. Babcock (*An Experiment : the Measurement of Mental Deterioration*, New York, 1930), many of them taken from the original Terman revision of the Binet-Simon scale, depends on the observation that with mental impairment due to brain damage or disease it is the speed of reaction and the capacity to form new associations that are most obviously affected, whereas old knowledge, tested by vocabulary tests, is relatively unimpaired, except in the most severe degrees of disease or injury.

The observation that the formation of new associations is hindered has also been utilised in a small group of tests adapted by Zangwill (*Proceedings of the Royal Society of Medicine*, 1943, 36, 576). In the first test the total memory span with a series of digits, such as 3.1.7.2.9.4, is contrasted with the time taken to learn to repeat gradually a series which is one digit longer than it is possible for the patient to reproduce immediately without error after one reading by the examiner. Thus a patient with a basal digit span of six digits may be unable to learn a sequence of seven digits even after ten consecutive trials.

The second test is adapted from Babcock's scale and consists

in counting the trials necessary for the patient to learn a sentence of rather unusual syntax:

> " One thing a nation must have to become rich and great is a large secure supply of wood ".

The sentence is repeated alternatively by the examiner and the patient until the latter gives two consecutive word-perfect versions.

While an intelligence test may show no appearance of subnormality yet the deteriorated patient may not be able to learn to repeat the sentence perfectly even after ten trials. Even this test, however, may show nothing when the patient has been originally of superior intelligence.

We have mentioned these tests because there is a great need for satisfactory clinical tests which would demonstrate objectively the less severe degrees of mental impairment if that should prove possible. Clearly such tests require grading and standardisation. The assessment of minor degrees of impairment must at present continue to depend on total clinical impressions rather than on specific tests.

The observation that in cases of organic deterioration vocabulary may be well retained while capacity for conceptual thinking is much impaired, has been made the basis of attempts to construct tests which will detect, and, to some extent, measure, organic deterioration. The Shipley-Hartford Retreat scale is an example of this type.

Lately some workers have attempted to assess mental deterioration in psychoses by similar methods. The value of such procedures is a little dubious, since co-operation and volition are important conditions for any test procedure. The results, however, in some schizophrenic dementias of hebephrenic type have been such as to suggest that a physical brain process is at work akin to what happens in structural brain disease. The failure shows itself in a diminished capacity for abstraction.

A special type of *performance test* has been devised for the purpose of detecting failure in mental processes due to organic brain-deterioration. The best known are the Weigl sorting test (D. Rapaport, *Bulletin of Klenninger Clinic*, 1943, 7, 106); the Vigotsky test and its modification the Haufmann-Kasanin test. Weigl's sorting test consists of 33 objects, such as knife, fork and spoon, pipe, cigarettes, matches and a cigar. The testee is asked to group them together and, secondly, define the rules governing the groups in which the examiner himself places them. The test

is one of capacity for abstraction, or in K. Goldstein's term categorial thinking (K. Goldstein and M. Scheerer, *Abstract and Concrete Behaviour: An Experimental Study with Special Tests*, Psychological Monographs, 1941, No. 2). The Haufmann-Kasanin test (E. Haufmann and J. Kasanin, *Conceptual Thinking in Schizophrenia*, Nervous and Mental Disease Monograph, No. 67, New York, 1942) is a modification of the Vigotsky test (L. S. Vigotsky, *Thought in Schizophrenia*, Archives of Neurology and Psychiatry, 1934, 31, 1063-1077), and consists of 22 blocks of six different shapes painted in five different colours, two different heights and two different general widths, and the task is to find out how these blocks can be divided into four consistent kinds. Again, it is a matter of ability to abstract and generalise, and on the theory that this is the most highly organised mode of intellectual activity, individuals with extensive brain injuries should exhibit relative failure. The efficiency of such tests, however, is impaired by the educational factor. In estimating whether the individual has fallen from his previous level or not, one has to be very careful to take into account his previous educational level.

CHAPTER XVII

PSYCHOSES AND PSYCHONEUROSES IN WAR

General Considerations.—The Great War of 1914–18 taught several valuable psychiatric lessons, although it produced no novel type of mental disorder. It proved, with great prodigality of example, that purely psychological factors can produce mental illness. This should hardly need such proof; but just as there were many who could see only physical commotion as a cause of "shell-shock", so there are many who find in endocrinopathy and sepsis the principal cause of its civil equivalents. It is therefore useful, for this as well as other reasons, to review the psychiatric experience of war: for in war the reactions are superficial and transient and more readily understood than the more complicated illnesses of ordinary life. "We find in these cases", says MacCurdy, of the psychoneuroses, "a great simplicity in the psychic mechanisms operating to produce symptoms." The War also demonstrated the validity of certain important psychological hypotheses and disproved some others. Thus the unconscious influence of a wish in determining symptoms was well shown. But it also showed that a "sexual" ætiology for war neuroses could only be hypothecated by using "sexual" in the widest possible sense to denote any emotional investment of an object. If any doubts remain from the last war as to the share of pre-existing personality in the causation of war neuroses, as well as of psychoses, they have been removed in this one. A predisposition of some kind is evident in most cases, except when the external stress has been very severe, in which event it is possible that anyone may develop symptoms. It is illuminating also to find that predisposition, as far as it can be quantitatively estimated, and external stress act together in a more or less additive way. It is broadly true that the more predisposition the less stress is necessary, and vice versa.

The nature of the predisposition is various and often composite, or, more precisely, its ascertainment depends on taking account of a diversity of facts and qualities. The most frequently recurring of these are a family history of mental illness of psychoneurotic or psychotic form, or of a neurotic or psychopathic personality; a history pointing to personal insecurity, as from the early loss of a parent, or, on the other hand, to too much security and self over-valuation, as in the case of the precious only child; psychological immaturity, arising often from the background just described; a history of nearly lifelong neurotic anxiety, such as is heralded by pronounced fear of the dark in childhood, or of excessive real anxiety in the shape of marked anticipatory apprehension of coming events; timidity, betrayed by lack of enthusiasm for the more hazardous games and sports; seeming antipathy to aggressive action, whether against other boys in the shape of boxing, or against animals, as shown in aversion to even the mildest blood sports; fainting or other excessive visceral response in face of emotionally disturbing experiences; lack of persistence, as shown by frequent change of job for insufficient or specious reasons; a history of what might be called in a question-begging way "physiological instability" in the form of sleep-walking, occasional insomnia, nocturnal enuresis, and manifestations of tension, such as long-continued nail-biting, and the like; lability of affect, especially a tendency to get easily depressed; extreme shyness; and indeed any of the other qualities which are known to favour psychological illness. But those which have been more particularly enumerated seem to be more often responsible for breakdown in the face of physical danger, although they are important also in breakdowns arising from Service conditions generally, such as separation from home and adaptation to community life, to financial sacrifice, to drastic alteration in the routine pattern of living, and to an unfamiliar job. It should be pointed out that some such personal characteristics may be an advantage in peace and a disadvantage in war, and vice versa; so that there will also be neuroses arising from transition back to civilian life, as indeed there were last time, although they did not provide newspaper headlines.

It should always be remembered, however, when making a psychiatric estimate of liability to breakdown under war conditions that the previous personality in its liabilities and assets is not the whole story. There is a fluctuating entity, very difficult to estimate, that must always be taken into account, namely motive. While this can be permanently strong in certain types

of character and temperament, and even to a pathological degree, as in the obsessional temperament, it is in the majority of people subject to external influences, such as battalion or squadron spirit, leadership, incidence of casualties, the general state of the war, fatigue and so forth.

Of special note has been the occurrence of dementia præcox-like conditions in a transient way and apparently without residual deterioration. This observation is of both theoretical and practical importance, for it supports the view that in many cases " dementia præcox " is the psychological reaction of an individual to his environmental difficulties rather than that which regards it as the mental manifestation of some obscure " metabolic " disorder or structural degeneration. It shows also that such a reaction need not be permanently vicious. If the stress be removed in time, recovery occurs ; and the stress of war is more easily and immediately removed than the distresses of civil life. Further, war experience is much more brief, and the præcox reactions have not been progressively woven into the personality, so as to become habits. The following was a case of this kind :

CASE 78.—Y. Z., 26 years, single, clerk, was admitted to hospital in April 1919.

Family history was negative for nervous or mental disease. Patient was a healthy child and developed normally. He was a sober, good-living lad, and a strict Catholic. He enlisted in May 1917, but was marked C III. on account of his size, and never served overseas. In November 1918 he contracted influenza, but recovered, and in December 1918 came home on leave. Four or five days after returning from leave he was admitted to hospital with mental symptoms. At that time he was greatly excited, incoherent, and was in a padded room. He spoke much about the Kaiser, said his brother was his father, and was under the belief that he had some scheme, and that various commonplace things that happened worked in with this scheme.

Four months later he showed no disorder of conduct, answered questions promptly, spoke in rather an abrupt way and constantly asked that the question should be repeated to him. He tended to make light of his case. He told how he had enlisted in May 1917, how he had suffered from influenza and had been in hospital, and then developed mental symptoms. In this connection he stated that it was something in the meat which made him sick. He then made an incoherent statement saying it all came about through an argument with some man—" It was a sign, a puzzle ". He could not give any satisfactory explanation of the above statements ; admitted having had imaginations, and having heard " voices ", but said that these had now disappeared.

Physically he was in good condition.

On the night of April 21, 1919, he seemed rather excited; told the attendant that he was the smartest man in the world. Later, when questioned about these things he flushed up, but denied all knowledge of them. When asked why he said he was the smartest man in the world, he said, "I am treating myself; do you not see I am different every day?" Gradually during his hospital residence he made good progress, worked with a garden party, and conducted himself in a quiet, rational, well-behaved way.

In September 1919 he was discharged as recovered. This patient was looked upon as a case of dementia præcox. The features which he showed were all rather striking, while the incoherence in his speech and his vague ideas of suspicion were much more in the nature of a dementia præcox-like reaction than anything else. He made a very good recovery, however.

Numerical Incidence.—In considering the incidence of mental disease under military conditions, it is useful to do so at three stages: (*a*) at mobilisation, (*b*) during war, (*c*) at demobilisation. In (*a*) the conditions approximate to the peace-time status in the civil populace; (*b*) alone bears directly on the problem; while (*c*) is in practice a combination of (*a*) and (*b*), the proportion of (*a*) depending on the thoroughness of examination at mobilisation. Figures from the last war will be quoted as more final at the present time except where experience of this war has called for revision in any significant way. The total population of risk has been less than in the last war up to now, and the more exposed sections, namely the Air Force and the Submarine Service in the Navy, are selected groups not likely to develop psychiatric disorders to the same degree as the generality of mankind.

(*a*) In the U.S.A. 12 per cent of all rejections on mobilisation in the first year of the last War were for nervous and mental diseases. Inspection at camps following mobilisation led to the rejection from these causes of a further 9 per cent of the first million recruits. Nervous and mental diseases were fourth in the list of numerical importance of all causes of rejection. Of the rejections for nervous and mental disease, psychoses constituted 11 per cent, neuroses 15 per cent, epilepsy 9 per cent, mental deficiency 32 per cent, constitutional psychopathy 9 per cent and organic nervous diseases and injuries 10 per cent. We quote the American figures, because the Americans, profiting from European experience, made their psychiatric examination on enlistment more complete.

(*b*) Farrar's statistics for Canadian casualties showed that nervous and mental diseases contributed 10 per cent of the total disabled, and that of these 58 per cent were neuroses, 16 per cent "mental disease and deficit", 8 per cent epilepsy and "epileptoids", 14 per cent head injuries and 4 per cent organic nervous disease. This illustrates very well an important conclusion; that while psychoses and mental deficiency are the most frequent cause of initial rejection for nervous or mental disease, in actual warfare psychoneuroses are numerically a far more important cause of disablement. To the same effect May quotes Hoche, who analysed Birnbaum's summary of seventy-two German articles written up to 1915, and concluded that among service troops psychopathic conditions, various psychogenic reactions, hysterical and anxiety states and exhaustion conditions were all very frequent, whereas serious psychoses were much rarer. Wollenberg, too, found that the individuals who broke down during mobilisation developed manic-depressive or paranoid schizophrenic illness or psychopathic excitements, while the cases occurring at the front were chiefly hysteria, anxiety states and conditions of exhaustion. In troops who have not seen any fighting psychoneurotic conditions are also the commonest. The heavier the predisposition the earlier the breakdown as a rule.

Six thousand cases of "shell-shock" were on the average admitted annually to British hospitals during the last War. The admission rate for nervous and mental disease was 2 per 1000 in home troops, 4 per 1000 in service troops and 1 per 1000 in the civilian population. As to the type of illness, exclusive of psychoneuroses, it is of interest to note the large percentage of mental defectives among British troops. Among 202 home troops, Henderson found 30 per cent mentally defective—much the commonest type. Marr claimed to find as many as 42 per cent mentally defective among 3755 cases (exclusive of psychoneuroses). Eager remarks: "It is quite clear they would be of no use for military purposes". It is also clear that psychiatric examination on enlistment is a necessity.

The rôle of wounding in the production of mental illness was slight. Mental illness was rare among the seriously wounded. A minor wound might determine the localisation of a hysterical disorder. In the psychoses, where wounding was found in the anamnesis, other factors could usually be discovered as well. Of 17 wound cases with subsequent psychoses examined by us, only 3 showed no other predisposing factor, and in these 3 the history was imperfect.

(c) One-seventh of all discharges from the British Army in 1917 were for nervous or mental disease. After the cessation of war, the proportions of mental illness existing among the troops previous to service reassert themselves. How this occurs is shown dramatically by the figures furnished by Ireland, who stated that of 2500 shell-shock cases awaiting transportation to the U.S., 2100 recovered within a day or two of the armistice. Hence, of the neuropsychiatric cases who in 1920 formed 27 per cent of the beneficiaries of war risk insurance in the U.S.A., 66 per cent were psychoses, 19 per cent psychoneuroses, 8 per cent epilepsy, 2 per cent mental defectives and 8 per cent organic nervous or mental disease or injuries. Within the group of psychoses the proportions also change, since on the whole the dementia præcox types remain permanently ill, while the manic-depressive types recover. Hence, in the service patients remaining in mental hospitals, dementia præcox is the commonest variety of illness (43 of 113 cases—Henderson and Gillespie, "A Review of Service Patients", *American Journal of Psychiatry*, July 1923). Of the psychoses persisting after demobilisation, it may be said that the majority would have occurred eventually without the superaddition of the strain of war.

Among prisoners of war psychoneuroses are rare. Mörhen found only 5 cases among 40,000 prisoners, and Lust found "very few" among 20,000.

Psychoses

Ætiological Factors.—In the psychoses, just as the types occurring in war do not differ from those of peace, so the causative factors in war and peace seem to be similar. Insane heredity, psychopathic predisposition, previous mental illness, mental deficiency, moral imbecility and excessive alcoholism were found in every one of a series of 66 cases in which fairly complete data were available to us from the 1914–18 War. It happened in these cases that the War precipitated a psychosis in a personality which (in the majority of cases) would have sooner or later become ill in civil life. Sometimes the War laid bare a latent disposition to illness which would not otherwise have been suspected and which only a post-war catamnesis confirmed. A schizophrenia-like stupor has been recorded occasionally following a severe emotional experience in an individual not apparently predisposed.

As a rule, the policy of returning mental cases to the front was a failure. Of 2429 cases, mainly psychotics, recorded by

Eager, only 10 per cent were returned to the army (not necessarily to the front) and of these only half were fit and well a few months later. Napier Pearn examined 200 cases which were considered to have recovered sufficiently from psychoses to return to duty. Only 47 per cent were found to be well some months after.

Toxic and infectious factors were not very prominent in the ætiology of war psychoses. Of 113 cases, 19 gave a history of malaria, dysentery, enteric, scarlet or rheumatic fever. The comparative freedom from serious infectious illness of the troops in the Western theatre was largely responsible for this. In the East malaria was the most important infectious agent in the production of mental illness (1914–18).

In those cases in which mental illness followed actual *brain injury*, the resulting disturbance, if any, was of the organic type, acute or chronic. The acute organic variety was the immediate effect of injury, and could be attributed to one or more of the following factors—brain commotion from aerial compression; concussion with or without burial (both of these resulting in increased intracranial pressure); decompression from rarefaction of air and embolism by bubbles of nitrogen and carbon monoxide; and inspiration of carbon monoxide. Loss of consciousness was the immediate result, frequently followed by a condition of "dipping" of consciousness, in which consciousness reappears from time to time, but is marked by disorientation, and often by incontinence, and complaints of violent headache. "A delirium is very frequent, the content of which is constant aggression on the part of the enemy" (MacCurdy). Mott found post mortem in two cases of true shell-shock, *i.e.* brain commotion resulting from an explosion, congestion of the meninges, scattered subpial hæmorrhages and congested vessels in the internal capsule, pons and medulla.

Mott described symptoms occurring after concussion and resembling those of carbon monoxide poisoning: headaches, blurred vision, visual hallucinations, blindness, giddiness, palpitation, yawning, weariness, vomiting, cold sensations, sense of oppression, loss of memory and of speech, and tremors.

The chronic type of organic brain disturbance included cases of aphasia (cf. Head's series), traumatic epilepsy (in only 5 per cent of all head injuries—Turner) and diffuse types of memory loss. Psychotic symptoms were rare among soldiers suffering from brain injury, and conversely a history of brain injury was rarely found among psychotic soldiers. Farrar remarks that among Canadian troops with head injuries psychoses and

"traumatic neuroses" were practically never observed. He quotes also Villard and Mignard, who among 350 cases of brain-injury observed no characteristic mental symptoms, but only occasional confusional states suggesting epileptiform equivalents. Aschaffenberg examined 74 men recently shelled but apparently well, and found evidences of local organic lesion in 67 of them. A week later some of these evidences had disappeared, but in no case did neurotic symptoms develop. Henderson observed an unusual sequel of brain injury which was probably the result of general cerebral commotion, in the form of a Korsakow-like syndrome. After exposure to blast there may appear symptoms pointing to cerebral damage such as general intellectual impairment and especially some defect of memory, occasionally some transient aphasic disturbances, and sometimes changes in the C.S.F.

There is no doubt that a number of men in the early stages of general paralysis were passed into the army as the result of insufficient examination. These broke down completely in a few weeks or months. On the other hand, 9 men known to us who developed general paralysis within three years of enlistment had served an average of 2·1 years before breaking down.

The clinical experience of 1914–18 gave suggestive data on the part played by *fatigue* in the causation of psychoses. Psychoses in which "exhaustion" was the sole or even the principal factor were extremely rare. Reliable authors have entirely denied their existence (Birnbaum, Bonhoeffer, Aschaffenberg, Farrar). Bonhoeffer pointed out that psychoses were extremely rare among Serbian prisoners who had experienced six years' continuous warfare and suffered from emaciation, diffuse muscle atrophy, cardiac dilatation, arterial fibrosis and extreme weakness. But in one group—those cases which followed a long and severe febrile illness—post-febrile exhaustion was very prominent and must be assigned a rôle in the subsequent development of a psychosis. Farrar has emphasised that the symptoms of exhaustion *per se* have to be differentiated from those of an actual exhaustion psychosis. The symptoms of exhaustion in soldiers included restlessness, irritability, sleep disorders, emotional instability and attention defects. As exhaustion psychoses there have been reported such syndromes as delirium and clouding. It seems to be going too far to deny exhaustion a principal part in producing such states, and to attribute them instead always to psychogenic factors, as Birnbaum did.

This reflection has been confirmed by experience in the present war. By far the greater proportion of casualties, other than wounds, in certain stages of the Middle East campaigns were states of exhaustion, which recovered within a few days ; only a small residual turned out to be fundamentally psychogenic.

It has to be remembered that stress, whether it be fatigue or fear, may often be a main factor in releasing psychological types of reaction which would not otherwise appear, whether they be anxiety states in those exposed to repeated danger, or mild depressions, which have appeared not uncommonly in individuals of obsessional temperament as the result of prolonged overwork. The appropriate treatment is rest, with sedatives at bedtime to begin with.

Psychoneuroses

The War of 1914–18 revived the old-standing controversy about the physical or psychical origin of numerous symptoms, such as paralysis, tremor, delirium, amnesia, D.A.H., etc. Oppenheim, extending his peace-time theory of the basis of " traumatic neuroses ", such as follow a railway accident, and which he believed to be caused by physical commotion of the nervous system, and consequent molecular change in it, was of the opinion that the important factor in producing such symptoms was concussion. He assumed that the latter, acting on a nervous system weakened by terror and exhaustion, produced a functional disturbance of delicate " psychic mechanisms ". In support of this hypothesis he drew attention to the rarity of a history of previous psychopathy in the patient and in his relatives. But his hypothesis broke down before a mass of contrary evidence. As in the psychoses, so in the psychoneuroses of war, gross brain injury was the exception. Further, recovery from psychoneurotic disturbances was frequently sudden, and was often brought about by psychic methods such as persuasion and suggestion. Exactly similar cases developed in men never exposed to battle conditions—" shell-shock " cases, so called, were not by any means unknown at the base camps. Moreover, the wounded rarely suffered. It is true that a certain proportion of wounded developed hysterical disorder, but in many of these it was after a long " latent " period, when they were convalescing. A limb immobilised for the purposes of healing would sometimes remain so after all necessity for immobilisation had gone.

Nevertheless at the beginning of this war special hospitals for D.A.H.—now called " effort syndrome "—were opened, but it

was soon found that with the exception of a small proportion of cases following an infectious illness the "effort syndrome" was an expression of some psychological disorder, and without any peculiar feature in psychopathology to justify regarding this as a separate group. The psychopathology was that of any state of psychoneurotic anxiety or depression, psychopathic personality, hysteria, mental dullness, or deficiency.

The reason for the inadvertent choice of this form of expression or emotional conflict lies sometimes in medical suggestion; more often in the fact that in individuals who have lived a sedentary life the unwonted physical effort demanded of them in a Service gives rise to feelings of cardiovascular distress, which naturally become the focus of any uneasiness of mind that may arise from the problem of adjustment to military life. It is the old story of morbid anxiety tending to centre round the function that is most used.

It is in line with this interpretation that effort syndrome, or D.A.H., is almost unknown in flying personnel, who are more apt to become concerned about their eyes. It might even be said aphoristically and without much exaggeration that heterophoria is to an Air Force what D.A.H. is to an Army.

The types of psychoneurotic disorder which occur are the same as those of civil life, but the factors involved are much more obvious and simple. Illness can be the result of failure to adapt to military conditions at any stage from enlistment to actual fighting. Enlistment itself demands a solution of a conflict between domestic ties and social obligations, and between self-interest and social prestige. Even when this primary difficulty is surmounted, an inadequate solution often paves the way for trouble later on. An example of this is furnished in an instance which came under our notice, of a man whose father was British but whose mother was German, and who was much under the latter's domination. He delayed enlisting in the British Army as long as possible and finally did so with a feeling of disloyalty to his mother. He obtained a commission, but had not been very long on service when he became depressed and irritable, and finally exhibited a fugue, after which he was sent home.

After enlistment comes the recruit's adaptation to his comrades; there also inadequacy could be a source of difficulty, either at the time or much later, as MacCurdy has shown. The greatest difficulty occurs when the front is reached, and the soldier has to manage his self-preservative tendencies, which

come into conflict with his ideas of duty, loyalty and respect in the eyes of his fellows. The thought of dependents at home also produces a desire for escape. The ability to accustom oneself to scenes of carnage has been said to depend on the success attained in giving rein to the primitive desire to kill or maim the enemy. If any of these conflicts remains unsolved, the way is paved for a neurosis; desertion and malingering being impossible (except in rare exceptions), death or wounds are longed for, and the longing is often only imperfectly repressed. Consequently, when physical symptoms (such as tremor, tachycardia, diarrhœa and insomnia) do appear, either as the result of fear and horror or of some apparently physical experience, such as partial burial or the effect of a near-by explosion, they attract undue attention. They persist long after the apparently exciting cause has passed, because the conflict already present sustains and reinforces them and because also in certain instances they present a solution of the conflict. Deafness or blindness, for example, occurring momentarily at the time of an explosion, are obviously totally disabling if they persist as the result of autosuggestion. As regards the more detailed psychopathology, there has been a tendency in psychoanalytic teaching to see in war neuroses an expression not so much of the conflict between group demands and egotistic demands of self-preservation as of the revival of infantile anxiety arising from insecure relationships to real or phantastic parents or their substitutes. This is more relevant to what might be called the psychoneuroses of mobilisation than of actual conduct.

In dealing with fatigue as a cause of symptoms in war psychoneuroses, it has to be remembered that in civil life at least fatigue is much more commonly a symptom of a psychoneurosis than a cause, and further, that the "fatigue" symptoms described above in discussing the ætiology of war psychoses are not different in kind from psychoneurotic symptoms. But fatigue and general bodily discomforts probably play an important rôle in lowering the morale, increasing the desire for escape, and at the same time impairing the resistance to it. MacCurdy found that fatigue was an almost universal factor in the production of anxiety states in soldiers observed by him.

The psychoneurotic disorders of war may for convenience be divided into two stages. In the *acute stage*, which might follow the bursting of a shell, or some harrowing experience, the symptoms bore a superficial resemblance to those of genuine

concussion (*v. supra*), the patient being in a condition which is described by MacCurdy as expressing the acme of fear, with dilated pupils, shallow breathing, violent tremor and incapacity for voluntary movement. "Following this there is a phase when voluntary movement is possible, during which he is dazed, inactive, confused and amnesic, and may use gestures in place of speech." Hallucinations sometimes occur, but there is no true loss of consciousness, and the entire picture is usually very transient, the condition developing into the more chronic one of an anxiety state or of hysteria. Babinski and Froment describe a "slight confusional syndrome" with suggestibility, in circumstances of great emotion; and such a condition would presumably afford an admirable opportunity for the beginning of, *e.g.*, a hysterical paralysis. It is often exceedingly difficult, however, to differentiate acute stuporous states of the functional (emotional) kind from organic stupor. Disorders of undoubtedly hysterical nature may occur in actual trauma when blood appears in the cerebro-spinal fluid; and the analogous occurrence of "neurotic" manifestations in epidemic encephalitis has to be remembered.

The *more lasting psychoneurotic disorders* follow the stuporous state described, or more often gradually develop independently. Not uncommonly they seem to begin after a latent period following some physical experience of a startling kind; but it is probable that in nearly all such cases the "affective background" is present to begin with, and the explosion or what not had simply a suggestive effect which operated when some further strain was added. They fall into two main types, anxiety states and hysteria, and their symptomatology does not differ essentially from the similar illnesses of peace. In the anxiety cases battle-dreams are frequent and are always of a terrifying description, at least until convalescence is reached. Jumpiness is usually present. Symptoms of hyperthyroidism appear in a small percentage of cases (Eder reports 8 out of 100). In 1914–18 it seems to have been universally agreed that anxiety states were found chiefly among officers, and hysteria almost exclusively among the rank and file. To account for this unexpected distribution, Rivers elaborated the theory that suggestion was more potent in the private, as the result of his disciplinary training, and that sublimation and repression played a larger part with the officer, who had a deeper sense of responsibility and duty and had to repress the display of his emotions to a greater extent. MacCurdy relates the difference to the type of solution desired: the

officer wished for death, as the only solution compatible with honour ; while a disabling wound was acceptable to the private. Differences in education, as Rivers suggested, probably had a share also.

States of Fear or Anxious Tension.—It seems necessary to distinguish from true psychoneurosis, states of chronic fear with resulting bodily or mental discomfort, such as lack of concentration, headache, palpitation, etc., usually with objective signs such as pallor, restlessness, lack of facial expressiveness and a rising consumption of cigarettes and alcohol. An individual in this condition may know quite well that he is afraid and that his discomforts arise from that cause; he can hardly be regarded as psychologically ill unless his discomforts become of such intensity as to disable him in action, or unless he comes to mistake his symptoms for those of bodily illness and to utilise them, consciously or unconsciously, as a means of avoiding duty. Until that happens such conditions are more correctly designated states of fear or of tension rather than psychoneurosis. One distinguishing mark is that the psychoneurotic condition persists even when no immediate danger threatens, while states of fear or anxious tension tend to show mainly or only when danger is to be expected within a few hours or days. It appears, however, that with repeated experience of frightening situations the condition may become habitual and the symptoms of it may persist at all times. This would explain the restless sleep and fearful dreams, and loss of weight over a long period, of some individuals of good morale persisting in their duty.

Associative or "Conditioned" Fear-reaction.—An individual who has had some very lurid experience in which he may have conducted himself perfectly well at the time, may afterwards when faced with any threat of a repetition of the same experience, such as getting into an aeroplane again, develop symptoms of extreme apprehension to a disabling degree in spite of all his efforts to overcome them. The closest analogy appears to be that of the conditioned reflex.

It must not, however, be supposed that the phrase "conditioned reflex" as it is usually understood accurately describes this state of affairs. It is not a simple reflex consisting in visual stimulus followed by emotional disturbance ; it is the meaning of the situation that matters, whether the situation be the sound of an aeroplane or the sight of a falling bomb, or what not. As Massermann has pointed out, no conditioned reflex can be established except in the event of some instinctive interest being

aroused, and in this case the instinct is that of self-preservation and the avoidance of danger. It has been noticed that any reminder of such a situation may produce the bodily reverberations of emotion but no conscious fear so long as the reminder itself does not indicate danger *now*. For example, a pilot on a country walk found his heart bounding suddenly although he felt no fear; he then noticed a smell of burning and realised that it reminded him of an aeroplane crash in which he had been involved and some of his comrades had been burned.

Desertion is sometimes accomplished by hysterical or other morbid mechanisms, but it is an unusual solution. The following is an example:

CASE 79.—A private in the R.A.M.C., aged 36, who had seen fourteen months' active service and who had been sent home in a nervous depressed condition, with headaches and sleeplessness, volunteered for service again in France. On being ordered to rejoin the Field Ambulance he again began to suffer from headache, giddiness, sleeplessness. He remembered arriving at the railway station, but then "something came over him", and he wandered away. On recovering himself he realised that he had committed a grave offence and determined to end his life. He remembered going into a billet where there were rifles and ammunition, and maintained that a rifle went off accidentally and shot him through the foot. This was probably an attempt at self-mutilation. For many weeks he remained sleepless, tremulous and depressed about his conduct.

Desertion also occurred in soldiers suffering from previously existing but unrecognised organic disease—*e.g.* head trauma, general paralysis, mental deficiency, epilepsy and infection-exhaustion states, and as part of a manic-depressive or schizophrenic psychosis (Henderson). Amnesia following desertion is sometimes the result of panic with failure of perception at the time; but more often it is the excuse of a weak individual for leaving the post of danger, and is then akin to malingering.

Prevention.—This falls under two main heads: (*a*) selection and (*b*) the maintenance of morale. The need for selection has been recognised in the fighting Services of most of the belligerents. All recruits in this country now have a group intelligence test, which is successful in picking out nearly all the dullards. Those scoring below the agreed level are referred automatically to the psychiatrist for individual appraisement. The psychiatrist should not be guided by the result of intelligence tests alone, since tests

even of the non-verbal type are influenced by factors other than innate ability. A social record indicating ability to stand on one's own feet in spite of a minimal intelligence score will allow a man or a woman to be placed within a Service in some non-combatant job of a more or less menial kind.

Mentally defective persons who are either too dull for a Service at all, or who are in a job too difficult for them, betray themselves in a variety of ways—chiefly as unreliable and erratic in their work, to the extent of being a menace in a combatant unit and a nuisance in any other ; as perpetrators of repeated offences against discipline, usually of a passive rather than an active kind, such as being absent without leave ; as habitual attenders at sick parades for minor ailments ; and as dirty and untidy in their personal appearance, and more apt than the average to acquire venereal disease.

No diagnosis is more frequently missed by medical officers of units than that of mental dullness. Placed in jobs suitable to their mental limitations and supervised by selected N.C.O.'s, most dullards improve, sometimes remarkably, in their happiness and behaviour.

The British Army has placed dullards in unarmed Pioneer Corps, where they are happy and useful, doing labouring work. The other Services have been able to utilise very dull individuals as kitchenmaids, dish-washers and the like. Nevertheless it is unlikely that anyone with an intelligence quotient of less than 50 per cent in individual tests will give satisfactory service. The prospect can usually be anticipated by perusing the social record, which shows an inability to obtain a job or to keep it for any length of time. A history of frequent change of job for unsatisfactory reasons indicates usually dullness or psychopathy or a combination of dullness with temperamental instability. A psychopathic personality, if well pronounced, should usually also preclude acceptance, even if the individual is very intelligent. This should be the rule at least in instances where the psychopathy has shown itself not in any internal suffering but in failure to make a satisfactory adjustment to civil life. The hope that some psychiatrists have entertained that a disciplined Service would stabilise psychopathic personalities is certainly often, and perhaps usually, unfulfilled. Dullards on the whole, if not too dull, and if they are stable, may do better in a selected job in a Service than they do in civil life, because the régime is regular, employment is certain, and there is no unavoidable competition ; but every case has to be judged on its merits,

and what sways a decision towards acceptance or rejection is often the man-power situation.

A history of prolonged incapacity from mental illness at any time or from frequent disturbances of the psychosomatic sort (indigestion, anæmia, etc.) or of chronic complaints of the same kind should raise grave doubts about acceptance—a fighting Service is not a sanatorium.

These observations apply to acceptance for Service as a whole, including the multifarious non-combatant jobs that are a necessary part of the structural organisation of a modern fighting force.

A written questionnaire even of a simple kind will succeed in picking out the majority of such individuals for a psychiatric interview.

Previous civilian experience in a specific job acquired slowly over a long period of years may compensate for lack of ability, but where a skilled trade has to be learned quickly, intelligence tests are valuable in finding out those who are more likely to make the grade than those who are not. For such purposes a battery of tests consisting of verbal and form-perception tests, as well as tests of the ability to perceive relationships, *i.e.* non-verbal reasoning tests, is on the whole more useful than one type of test used alone. Arithmetic tests, although they have a scholastic appearance, are in fact among the most valuable as tests of general intelligence. All such tests are usually given in a group fashion as paper and pencil tests. It is possible by these means to assess the probability of an individual passing a given course of trade training, and of performing satisfactorily afterwards.

When individuals intellectually unequal to the job have been eliminated, the majority of the failures are due to temperamental instability of great or less degree, ranging from chronically anxious personalities to social psychopaths. In the elimination or "screening" of such people from skilled trades and higher responsibilities psychiatrists can be of service in collaboration with their psychological brethren.

At the other end of the spectrum, as it were, there are the highly skilled jobs, for which selection according to both intelligence and temperamental attributes is highly desirable, although very difficult to do.

Experience has shown that while different jobs naturally require different levels of intelligence, the range of intelligence scores among those actually doing these jobs successfully is fairly wide, and that there is consequently a considerable overlap in

the intelligence scores of individuals in one group of more skilled jobs in comparison with jobs above and below them in level of difficulty.

More difficult still is the selection of individuals for posts of executive responsibility, which in a Service usually means selection for commissioned rank in the first place. The Service officer is apt to be optimistic about individuals whose intelligence is in fact inadequate, partly because people who are not accustomed to dealing preponderantly in the intellectual or temperamentally inadequate have greater trust than is justified in the ability of individuals so handicapped to improve themselves by effort and education.

The less obvious sorts of defects of personality may to the less skilled observer be successfully concealed behind a façade of good manners or good looks or a fine physique. Difficult as the matter is, selection for commissioned rank can be helped by the use of intelligence tests and by psychiatric opinion.

Treatment.—As regards methods of treatment, these may be defined as (1) simple rest, in the sense of removal from the scene of battle or of enemy action; (2) psychotherapy; and (3) physical methods, especially sedation. Mere removal from the scene of action for a time may be sufficient, especially where fatigue, which is so prominent in war, has played a part. It can also be enough in a certain proportion of individuals who have been exposed to a very disturbing situation and received a severe fright, provided at least that they had a good previous personality and have a sound morale.

Psychotherapy is applicable mainly to those who develop transient states of anxiety, hysterical disabilities and amnesias, while physical sedation, by means of hypnotics, usually of the barbiturate group, is indicated in states of emotional disturbance of recent origin, and sometimes in chronic anxiety states and depressions following exposure to danger.

Naturally all three methods may be usefully combined in individual cases. In states of acute fright or panic with generalised tremor, staring eyes, and sometimes total immobility and mutism, and with severe insomnia and terrifying dreams which wake the patient up very soon after he drowses off, sedation of any degree up to continuous narcosis by any of the usual methods from twenty-four hours upwards according to the severity of the case is the best method. In less acute states of fear immediately following a disturbing experience emphatic reassurance and persuasion, together with an hypnotic at bedtime, may prevent

the continuance of anxious tension, or the hysterical perpetuation of symptoms.

For psychogenic amnesias brief mild narcosis with pentothal or amytal will serve as a means both of rapid recovery of the repressed memory of a traumatic experience and as a method of suggestion to remove hysterical symptoms connected with the experience. The advantages over hypnosis possessed by narcosis of this type are some saving of time, and greater certainty of success, because it gives the doctor himself more confidence. In some cases it works simply by giving the patient a tangible excuse for sharing with the doctor the memory of experiences that he professes to have forgotten. But this observation applies more to the amnesia that is protective of self-esteem and not to amnesia arising from sheer terror in the automatic attempt to protect oneself from the mental pain of it. If the patient is seen early enough after the traumatic experience it is possible to prevent the development of amnesia by persuading him to recount the history of what he has gone through.

In some chronic states of anxiety prolonged narcosis has been found helpful in promoting improvement, especially in those who have got into a rut; but it is not to be expected that such treatment will enable those to return to active service who would not otherwise have done so in the course of a slightly longer time, —in other words, in individuals whose temperament and personality are in themselves such as to make a return to full duty unlikely.

For psychoneurotic reactions of minor intensity simple explanation and persuasion are sufficient, at least in individuals of good morale. Very often it is not desirable to remove such people, even temporarily, from the scene of action. It has to be remembered that it was noticed in the war of 1914–18 that the further a soldier with psychoneurotic symptoms was transported from the front, and the longer the symptoms had existed before treatment was begun, the more frequently he had to be removed also from the prospect of a return to active service: the percentage of psychoneurotics who returned to the front from base hospitals and did not relapse was extremely small. On the other hand, of those treated at casualty clearing stations or field hospitals, 70 per cent were said to have been returned rapidly and successfully to the front. It is obvious that discipline and the atmosphere of mass suggestion which comes from standing " shoulder to shoulder ", as Farrar puts it, are important psychotherapeutically.

It is a matter of experience to know how much firmness to combine with an understanding attitude. Clearly the medical officer has to avoid the appearance of furnishing an easy escape from duty. Some individuals will confess to the medical officer their resolve not to return to the post of danger. Such individuals frequently do not profess any symptoms. The matter then becomes one for the executive branch, unless the M.O. is fully convinced that the symptoms are of sufficient severity to constitute disablement in themselves, in which case evacuation to a hospital is justified. In a base hospital it was noticed that hysterical symptoms were very favourably influenced by the withdrawal of privileges, *e.g.* of receiving visits or of being allowed recreation outside the hospital grounds.

On the whole it may be said that the greater the external stress, the better the prognosis. Where fatigue rather than fear has been the important factor the prognosis is also usually favourable. It is, however, important to estimate the personality, both in its liabilities and its assets. The prognosis depends on this much more than on the nature of the symptoms, although on the whole it can be said that the prognosis for states of anxiety is better than for hysterical reactions, which develop very readily in people with inadequate motivation and with a special capacity for self-deception.

In special hospitals for the treatment of psychiatric casualties it is essential to have a well-organised régime of recreation, physical training, organised games and social activities. Not only is rumination thereby forestalled as far as possible but the general morale of the patient is improved. Many patients like to feel that part of their day is spent constructively, and for this purpose farming and other occupations not reminding them of the war are helpful. The prescription of a suitable occupation, however, is an individual matter. There are some individuals who are inclined to regard hospital life of this kind as a pleasant alternative to duty and develop a vested interest in remaining there. It is therefore important to establish the tradition of a fairly rapid turnover.

In depressions of the constitutional type electric shock therapy is obviously applicable, but it is necessary to consider very carefully before applying it in Service personnel. A considerable proportion of the depressions that are seen are precipitated by fatigue and external stress and make a quick recovery in any event. Furthermore, until our knowledge of the more subtle after-effects of shock therapy is defined, it would be dubious

policy to employ such treatment and then to return the individual to a post of responsibility where his comrades' lives may be in his hands, even apart from the fact that a depressive illness is apt to recur and its early stages to be subtle and undetected, and therefore a source of possible risk that cannot be provided against except by excluding the patient from further responsible duties.

In individuals who have lost weight fattening by insulin has been found useful in improving both the physical condition and to some extent the mental state where this is mainly anxious or mainly depressive in nature. (W. Sargant, *Brit. Med. Jour.*, 1942, ii. 524.)

Psychiatric Casualties among Civilians

Psychiatric disorders attributable to air raids have been remarkably few. As far as can be measured by absenteeism during " blitz " conditions there was no appreciable increase; absenteeism in fact was rather less in some large firms than before (R. D. Gillespie, *Psychological Effects of War*, New York and London, 1942). Of 2306 patients admitted to the Sutton Emergency Hospital serving one of the London areas between September 2, 1939, and August 31, 1941, only 283 were civilian casualties, and of these only 41 were attributable to the effects of air raids (L. Minski). A survey of conditions in general practice at this time revealed only a slight increase, and that mostly among people who had previously suffered from psychological disability of some kind (A. J. Lewis, *Lancet*, 1942).

Clinically the immediate reactions induced were terror, panic and stupor, the last being an immobility reaction, comparable perhaps to the defensive immobility of animals threatened with attack.

In children the same general observation held; they took their cue largely from the adults around them. When anxiety was displayed by children in connection with air raids it has been attributed to the reactivated fear of their own aggressive impulses and of retributory punishment for their own phantasied misdeeds. It has even been suggested that they were relatively immune from fears engendered by threats of enemy attack since in their games they developed methods of mastering their anxiety during the " blitz " period; they became interested in playing war games of bombing, etc., without any sense of fear but with a feeling of excitement (D. Burlingham and A. Freud, London, 1942).

A number of people who showed no abnormal reaction during an air raid itself developed anxiety or hysterical symptoms some days afterwards. This is related to the severity of the experience and especially to their degree of predisposition. It is probable that disorganisation of their pattern of living, from loss of relatives, home, etc., plays a larger part in many such after-effects than the experience itself. Psychotic patients are singularly unmoved by threats to their safety.

In children the effects of separation from parents and the like are much more pernicious than the effects of exposure to danger. It has been calculated that during the war there has been a slight increase of neurotic disorders among children of the order of about 5 per cent. Even here, however, it is more often a question of revival of pre-existing trends than the creation of new ones. Such problems are of course mostly seen in areas to which children have been evacuated for safety's sake. Enuresis and behaviour disorders are what come mostly to notice, since they are the difficulties that are most evident to foster-parents and others. What the ultimate damage may be as the result of the disruption of emotional ties at a crucial stage of the development of the child's emotional life remains to be seen in the future years.

As regards after-effects of air-raid experience in children it was found that about 4 per cent of 8000 school children in Bristol exhibited symptoms. Some months afterwards it was calculated that about 11 per cent had symptoms suggesting a development of disturbance after a latent period. All these were children under 5½ years (F. Bodman, *B.M.J.*, 1941, 486).

Other possible effects of war conditions are suggested by Mira's observation on the mental effects of starvation. " People who would stand their ground in the food queues in an air raid, would become desperate or hopeless when they failed to get the promised amount of bread or other nourishment." " Butter was quite as important as guns."

CHAPTER XVIII

THE PSYCHIATRY OF CHILDHOOD

Principal Characteristics of Child Psychopathology

Three cardinal points exist for discussion in the psychology of children, in distinction from adults, as far as a distinction in this field can be drawn. They are, first, the enormous influence of environment on the child's mental processes; second, the plasticity of the latter; and third, the prominence of egoistic tendencies—their substitution and frustration—in the production of symptoms.

Influence of Environment.

Environment means, of course, the personal environment of parents, brothers, sisters, teachers and companions; and an important reflection occurs here, that when signs of morbidity appear, they arise at the surface of contact, so to speak, of the child's environment with his aims and desires, rather than at some locus of conflict deeply within the psyche. It is far more often a question of some direct frustration than of an intrapsychic conflict.

This is a generalisation which admits exceptions, but it is of sufficient importance in theory, and especially in practice, to warrant expansive discussion. For instance, it connotes that relatively simple adjustments of the environment, after careful consideration of the tendencies whose frustration or misdirection are indicated by the symptoms, will cause the latter to disappear, and that intensive intrapsychic exploration of the child's mind is usually unnecessary. Hence the psychiatrist's method of exploring the problem principally through interviews with parents and other adults more than with the child has its justification. There is, however, a small residue of cases in which intensive exploration is desirable.

Plasticity.

The second point, the plasticity of the attitude and behaviour of children, is another aspect of the first, and is of immense practical and theoretical importance, although the plasticity is limited to some degree by inborn disposition and temperament. In the adult the problem of adjustment is complicated by the existence of a long accumulation of habits and attitudes, of the origin of most of which the subject is unconscious at the time the causal factors operate. In the child this accumulation is naturally much less, and even those attributes with the longest history are comparatively unfixed. The practical importance of the consequent plasticity lies not only in the management of nervous children, but in the prevention of neurotic and psychotic disorders in later life. There are two principal psychopathological views of the ætiology of adult mental illnesses. Both of them place the primary focus in the formative influences of childhood; but one view to which most attention has been paid in this book regards the adult illness as the cumulative result of mental habits acquired and ingrained throughout childhood and adolescence; while the other regards it as a regression to particular emotional fixations or attachments of an erotic kind at the same period. The apparent divergence of views lies perhaps more in emphasis and terminology; but they certainly agree in acknowledging the importance of early factors. It seems to us, however, that in its insistence on a set pattern, the Œdipus pattern in the infantile foundation of neuroses, the second view does less justice than the first to the almost infinite plasticity of the young organism's mental and emotional equipment, the wide variety of the influences that impinge upon it, and the multiplicity of its responses. This belief receives support from an unexpected quarter—so experienced a child analyst as Anna Freud has to confess that she has failed to observe directly in the children she has treated the developmental situations in the first two years of life classically considered by psychoanalysis as at the root of adult psychoneuroses. She meets this by saying that the material presented by the child furnishes "clear and unequivocal clues to the foundation of the infantile neurosis", but that the absence of the reaction-formations and cover-memories of the latency period deprives the child analyst of the material which alone furnishes the psychoanalytic data. The pre-speech period remains inaccessible—the analysts would say, not because the material was not there, but because in children it has not had time to be formulated. It would also be possible to suppose that the

psychoanalytic situations were not commonly important at that age, and that the memories in most instances were relevant only to later neuroses.

Whatever view be taken, the plastic trend of childhood remains highly significant for the prophylaxis of adult neuroses, but the more immediate practical importance of the plasticity lies in the improvement that follows treatment in " nervous children " generally. This therapeutic response is so marked and so invariable where it can be expected that the reflection readily arises that so called " nervous children " would usually get better of themselves without the aid of the clinic. Indeed, while giving proper weight to the immense effect of the child's environment in producing psychological disturbances in him, it is necessary to remember that all children are subjected to innumerable traumata, and the wonder is, not how many nervous and unstable children there are, but what a large proportion grow to be reasonably normal men and women.

Rôle of Innate Factors.

But just as too much optimism may lead to a policy of *laissez-faire* on the ground of the self-adjustment of the majority of psychopathological phenomena in children, so, on the other hand, may a pessimism preconceived on the score of the importance and immutability of inborn temperament and disposition lead to a failure to grasp numerous possibilities of modification, for the limitations produced by inborn factors are much less than is usually believed. It is a sound working rule to attribute nothing morbid, whether of behaviour, mood or thought, to congenital and therefore, presumably, less modifiable causes until a complete investigation has revealed nothing in the history of environmental influences and personal events that will reasonably account for the symptoms, and until the latter have proved but little modifiable by any known therapy ; and even then the matter may not have been congenitally engraved.

Psychophysiological Interconnections.

A further point is the profound interconnection between mental and physical factors in the child. Even more than in the adult, the emotions influence bodily processes and vice versa. Not only do the various bodily functions have a lower threshold of irritability than in the adult, but the general metabolism is less stable ; so that especially the requirement of carbohydrate varies widely in the twenty-four hours, and the acid-base balance readily

shifts under emotional as well as physical influences. This is associated with a special group of disturbances which we have called for convenience the " glycopenic " group, and which tend to come to the notice of the psychiatrist not as his primary concern but because they are by the general public loosely called " nervous " disturbances, or because they occur more readily in children who are emotionally unstable, or who are presenting in other ways definite psychological problems, with the " glycopenic " disturbances as a secondary result.

With these general reflections we may proceed to a brief discussion of psychopathology as it applies specially to children. The intrinsic psychological factors are conveniently discussed first.

The Egoistic Tendencies.

It is customary to designate the thinking of the young child as essentially egocentric. Quoting Piaget's example, we would say that for the child the sun or the moon appears to follow him wherever he goes ; at first there is no thought of reconciling this relationship with the sun's possible appearance to other persons. But this is merely the more intellectual aspect of the general tendency and orientation of the child—he is not merely egocentric but egoistic. Growing up, psychologically, consists in a progressive diminution in egoism, and a corresponding socialisation of derivatives of the instinctive tendencies, egoistic and other.

This egoism implies many things—a drive towards self-assertion in all regions of living, including therefore a desire for affection and approbation, a tendency towards self-display, a craving for personal prominence, rivalry with others and jealousy of them ; and, on the other hand, a persistent awareness, dimly or not at all consciously formulated, of a lack of personal security. It is a cardinal principle of treatment that this many-sided egoism must have outlets, but they must be healthy, and such as are socially acceptable and adapted to the chronological stage of development. Mental growth is one long conflict between the demands of natural egoism and the conditions of the environment ; but it need not be a painful conflict except at intervals. A very large proportion of children, and the grown-up children we call adults, who are brought for treatment are, however, suffering from the pains of this strife. Very often the pains are far more acute than is needful, since the parents, for reasons later to be explained, have begun by indulging the egoism. Hence the child finds on entering school or going among his

coevals in any way, that the contrast is too sharp for him to bear, and so he develops truancy, or anxiety, or outbursts of temper, or hypochondriacal aches or pains. Along with egoism, and as an example of that bipolarity which is characteristic of so many aspects of the mind, there goes a feeling of helplessness and insignificance, the famous " feeling of inferiority " which colours so many of the child's reactions as well as of the adult's.

The egoistic trends, like so many of the other childish characteristics, have a high degree of plasticity. It is usual to speak of this plasticity in its relationships to persons as suggestibility, and where an element of conscious volition enters as " imitation ". The suggestibility can appear in relation to any one in the environment, but especially toward those with whom bonds of affection exist, and towards those who are older or who for some reason possess prestige. Naturally the parents and their substitutes, as the most ordinary objects in the environment, and the mother especially as the most intimate, are potentially the mightiest factors of this kind. The nervous disorders of childhood, which are not dependent considerably or entirely on errors in parental example or attitude, and which cannot be greatly improved by modifying that attitude or example, are in the minority. The point is also usefully considered, however, from the aspect of abnormalities in the parents, which will be summarily discussed later. In the meantime let us recall that the automatically suggested example of the parents and elders and companions becomes gradually imbedded in the child's mind, sometimes reaching conscious expression as the ideal ego, but more often operating quietly and unconsciously to modify the conduct (the super-ego or the unconscious conscience, *v.* Chapter VI.). Not all, however, of parental example and precept is incorporated in this way. Some of it is rejected, and may even provoke the opposite reaction to that desired (negativism or counter suggestibility), the result of egoistic aims coming into too direct collision with environmental demands. Negativism is apt to grow and flourish upon increase in the environmental resistance, on the principle, as it were, that every action produces an equal and opposite reaction ; and like many mental reactions negativism may continue to operate automatically as a habit, in apparent independence of any connection with its original stimulus. Hence it comes about that the most rigid disciplinarian among parents may produce the most stubborn children. This general tendency towards conflict between egoism and the environment naturally has its foci of special concentration. The

regulation of any special manifestation of the self-assertive tendencies along a social channel, or the relinquishing of any form of pleasure not socially permissible, can form such a focus. In accordance with his general theory, Freud attaches importance principally to the conflict produced by enforced relinquishment, especially of activities of a sensuous or, in the Freudian sense, erotic kind. Hence weaning and the education of the bladder, and especially the bowel function, become, on this theory, the critical points of development of temperament and character, and so also in the determination of the pattern of future reactions. Thus an unusual difficulty round the relinquishment of " anal pleasure " (either from accidental accentuation of the latter, or from innate factors) is held to lead by " reaction-formation " to traits of obstinacy (persistent negativism). This view differs from that encouraged by observation of the reactions of children, in attributing obstinacy specially to anal erotism instead of regarding it, as we do, as a reaction which may arise and persist as the result of mismanagement of any phase of development, of egoism generally or of its specific manifestations.

Negativistic conduct being the outcome of aroused egoism can naturally minister to egoism in a high degree. Temper tantrums, for example, serve the double purpose of avoiding some duty of accommodation of one's wishes to others, and of self-display. Some investigators consider that there is a definite crisis in the adjustment of the infantile egoism to society between the ages of three and five, and that if this stage is not properly managed, obstinacy may persist as an unusually prominent personal characteristic.

It has been a favourite phantasy of mankind that the original state was one of happiness and universal love. Mythology and religion alike tell of a " Golden Age " when the world was young. English men of letters of the eighteenth century and later were fond of referring to the " noble savage ". There are not wanting psychopathological grounds for seeing in this an unconscious desire for a return, on the part of those who advocate these views, to the " Golden Age " of their own childhood, when all was (as they now believe) as they wished, and only ties of affection governed their relations to other men. It is a fact that affection is the readiest response of the infant and young child to other individuals ; but as the latter do not always minister to his needs, and may even frustrate them, it is not difficult for the corresponding opposite to appear, namely, hatred or some degree of it. This may lead to a cordial death wish towards the obnoxious

person. Death does not mean very much to a child; it represents disappearance-as-far-as-he-is-concerned; the antagonist is no longer in the path. Such feelings of hate, however, appear much more readily in relation to rivals, or, in other words, as jealousy, with results which have been exemplified above. In a wider circle than the family we find hatred combined with negativism to produce an attitude of hostility to the social group in which the child finds himself—especially his or her companions at school and the neighbouring children. Not infrequently a child is sent to a clinic with the label from school, "Dangerous to others": we have known such a label to be attached to a six-year-old. The child had been sticking pins in others, or "going for" their eyes or hitting them with slight or no apparent provocation. Usually such a child comes of a bad home, and is often reproducing the attitude to the world of school which it found meted out to it by its parents—hatred showing itself in verbal or corporal chastisement or in other ways. Sometimes, of course, it is a direct retaliation for attitudes assumed by school-mates towards some one recognised as not belonging to their particular herd—children coming from some other country or another race; or some personal peculiarity, especially of such a type as Fröhlich's syndrome, may produce ridicule which stings the child to retaliation. As the majority of children are timid in face of much show of physical aggression by their comrades, another factor begins to act; the aggressor finds that he can dominate in this way, and so compensates doubly for his own felt inferiority. More often than is usually suspected a desire to dominate other children shows itself also in subtle ways, as in a girl of twelve who managed to impress and frighten a class-mate and competitor in such a way that the latter was miserable and consequently did her work badly, so allowing the tormentor to bear the palm.

In vindictive behaviour such as this there sometimes enters a definite element of cruelty. There is no doubt that all children possess a capacity for cruelty, but it is not commonly shown to any marked degree, and then only transiently as a rule. There is equally no doubt that behind such manifestations of cruelty lies a certain feeling of pleasure. Cruelty, however, except in the rare instance of the so-called "moral imbecile", nearly always yields to kindly depreciation and provision of other outlets.

The inner development of egoistic feeling determines, almost independently of outside influences, phantasies of power and importance. The upbringing of most young children favours this, for at first the baby is usually the centre of his little world and

he does not readily relinquish the feeling so engendered. The couplet,

"I do not love the human race,
I do not like its ugly face",

covers the survival in many adults of the results of the clash of reality which is felt to interfere unpleasantly with the infantile omnipotence (the Jehovah-complex, or God-complex, of the Freudians; the "almightiness" of Adlerian usage, and the root of many phantasies and mannerisms of everyday life). But in children it is not a "complex" in the morbid sense, but a normal state of affairs. The feeling of importance usually undergoes correction in the light of experience, as long as no close rival appears on the scene. But let a younger brother or sister appear before the elder child has outgrown the phase of wanting everything in his environment for his own delectation; then the signs of jealousy readily appear. One small girl was found to have banged her baby brother's head on the gas stove and at another time to have emptied him from his pram into the roadway, while yet another was discovered pulling the baby sister's hair and spitting on her face as the baby lay in her cot. Instances of that sort, less pronounced as a rule, are numberless.

The notion of power and omnipotence is closely linked with the unreality feelings which are far more common in children than is usually realised. The latter present in a way the reverse side of the picture, and result from the contrast of a small being, suddenly aware of his own comparative insignificance, with the overwhelming immensity of the external world of space and time. The more intense the notion of power has been, the more intensely this contrast is felt, and the greater the resulting anxiety, reinforced, sometimes at least, by feelings of remorse for having provoked the external forces, often regarded at this age implicitly, if not explicitly, in a demoniacal light.

The Sexual Instinct and its Ramifications.

Of the tendency of children to develop affectionate attachments to persons of either sex, every one is aware, but it is difficult to differentiate their attitude to persons of the same sex from that shown towards persons of the opposite sex. The same elements of interest and regard and affectionate dependence are evident in either case, but what sex the choice is focused on seems to be a matter of circumstance. Much has been said of the tendency of a boy to prefer his mother, and a girl her father, but from infancy a strong preference for the parent of the same

sex is not infrequently observed. This can sometimes depend on the attitude of the parents eliciting a differential response in the child. Similar factors can determine to some extent the attachments formed outside the family ; thus males are chosen by small girls as substitutes for unaffectionate fathers.

To say, however, that any considerable proportion of the relationships just discussed have a sexual aspect, conscious or unconscious, in the sense of adult sexuality is still a large assumption ; and to say further that such attachments, or the repression of these attachments upon a sexual basis, is the root cause of the symptoms of many of the persistent nervous disturbances in children is not yet justifiable. No one can deny the existence of infantile and childish sex manifestations, but their place in the psychopathology of childhood is another matter.

There are three types of reaction in which the assumption of a sexual basis of a childish neurosis probably holds good, but in some cases in each group only—namely, the psychoneurotic group (anxiety-states and hysteria), obsessive-compulsive states and some of the instances of the rare psychoses of childhood. The psychoanalytic work of Klein, and the history of Little Hans, would, if valid, make sexuality the root of these types ; but the interpretative work involved is not convincing. For example, a train going into a tunnel is translated and told to the child as " Bobby going into Mother " ! Such a system of interpretation does not seem to us yet to have a proved basis, and even other Freudian writers like Anna Freud have taken exception to it. If used at all it should only be for the interest and guidance of the analyst, and then only with adequate preliminary evidence of a clear kind spontaneously produced under favourable conditions by the child himself.

Play Technique.

On the other hand, the method of studying the child when he is playing, and of making use of well-controlled interpretations based on his play, is the method of choice in any case requiring intensive study rather than environmental manipulation. For example, if a child of a family consisting of father, mother and two daughters is supplied with dolls to represent each of these, the child may proceed to a play in which the dolls clearly represent its own attitude to its parents. For example, one little girl who was very jealous of her younger brother, when given two dolls of different ages, used invariably to smack the face of the smaller one within a few minutes. In this case the interpretation

told us nothing new, but the principle involved may lead to interesting discoveries in more complicated settings.

In brief, we should always remember to take account both of environmental factors and inner mental processes, and welcome any method, however indirect, of getting at the latter; for in a child this is a specially difficult task and a direct approach is of very limited value, being handicapped in many ways by the child's reserve and his lack of verbal formulation of his problems.

Materials.—The materials for a more extended use of play as a means of discovering the contents of a child's mind include such primitive materials as sand and water; plasticine for modelling into objects of interest or curiosity; articles capable of functioning as power symbols such as toy motor-cars and engines; others such as toy guns or animals capable of symbolising aggressive impulses; objects with direct or indirect reference to excretory functions such as toy lavatories, watering-cans, etc.; and pencil and paper. Such materials give a wide range of opportunity for the expression of aggressive, excretory and sexual impulses, and together are capable of expressing most of the child's interests.

Interpretative Technique.—The degree to which the use made of these materials by the child can be utilised for the understanding of his or her inner interests and conflicts, is a matter of dispute. Melanie Klein considers that the play of children is comparable with the free association of adults and that interpretation to the child can and should be made accordingly. Apart from the dubiousness of some such interpretations and the impossibility in many cases of satisfactory confirmation, the subsequent objective value of the therapist's observations is diminished by the suggestive effect on the child of such interpretations.

Relationship to Therapist.—Anna Freud believes that the relationship of the child to the analyst has something essentially different from the relationship of the adult and that the classical transference situation does not exist, since the parents, the original love-objects, are still important in the patient's life and are not phantasies with which the adult can be clothed. As a corollary, she considers that the super-ego of the child is still attached to the external objects (persons) from whom it is derived, and that re-education is therefore possible and important.

As Rogerson points out, " again and again one finds evidence

that it is not the interpretation of a difficulty that causes it to vanish. On the contrary, the important things are the expression of it, and the reception of it without hostile criticism." He also considers that the relationship with the therapist can be a very simple one, similar to what occurs in the shorter forms of psychotherapy in adults, but that it can be sufficient to enable the child to feel enough protection to discuss the jealousies, for example, that had been producing anxiety (Rogerson, *Play Therapy in Childhood*, London, 1939).

Modification According to Age.—Play therapy in some form is the only medium of approach to the younger children. With older children, story telling, story writing, drawing and painting, the invention of and participation in little plays, and the use of a toy theatre, have all been found useful in one case or another. For group purposes, puppet shows have been found useful by Bender and Woltmann, the children tending to pick out the episodes that stimulate their inner phantasies. They are asked at critical points in the play what the persons should do and are asked to retell the story in their own words. With young adolescents discussion becomes possible, and for deeper investigation, free association may, in a few instances, be found practicable. Melanie Klein uses their interest in games, sports, motor-cars, bicycles, etc., as symbolic of conflicts dating from earlier years and gives interpretations accordingly (sexual guilt, rivalry with siblings for mother's affection, etc.).

Allen prefers to study the child itself in its immediate relationship to him while playing and talking with him. By showing him how to deal with the mistakes in his attitude and behaviour which arise during his contact with the therapist during the session, he helps the child to manage similar emotional problems occurring in the wider setting of his ordinary life.

The *type of phantasies* revealed by the interpretation of play technique in Melanie Klein's hands are especially those of the sadistic pregenital stage of libido organisation. Urethal-sadistic phantasies (*e.g.* of destroying by flooding, etc.) help to give the penis the unconscious significance of cruelty and to cause subsequent disturbances of potency in the male. Sadistic impulses in general are shown to be directed towards the inside of the mother's body, which may be pictured as having incorporated the father's penis, or as being the source of potential rivals (younger brothers and sisters)—both of which objects the child wishes to destroy. The child pictures his parents as " destroying each other by means of their genitals and their excrements,

which are imagined as dangerous weapons. . . . The penis, incorporated in the mother turns into a dangerous weapon or into weapons loaded with explosive substances; or . . . the vagina becomes an instrument of death, for instance a poisonous mouse-trap." In her work with children Melanie Klein also comes to the conclusion that the super-ego is a product largely of the pregenital stage, and that the destructive nature of the child's impulses at that time have much to do with the super-ego's subsequent severity (Melanie Klein, *Psychoanalysis of Children*, London, 1932).

Therapeutic Effect of Play Technique.—The fact that in many instances the child improves without any interpretation being given to his play, suggests that it is the feeling of security that the child gets from expressing thoughts and impulses of which he is otherwise afraid, in the presence of a non-critical and kindly adult, that is the important medium of therapy. Rogerson instances a child with obsessive thoughts about killing people who said to him, "You know, its funny I don't have these thoughts when you are here", and later she played violently aggressive games of killing and stabbing. It is not always aggressive impulses of which the patient has been afraid; sometimes it is the rebuffs that he would have experienced had he expressed his thoughts to anyone else.

Nature of Impulses Recorded in Play.—In the course of play aggressive impulses may be displayed towards the therapist, and the child then oscillates between affection and antagonism. This may represent a reactivation of earlier and contemporary attitudes towards the parents. Rogerson points out that after an outburst of jealousy, the child would call the therapist "Daddy". The repression of such contradictory feelings in the presence of an adult not reacting critically towards them evidently enables the child not only to get rid of the tension produced by them, but to accept them as part of himself.

Even general aggressiveness, without specific object, can lose its disturbing quality when expressed in play under the eye of the therapist. The timid child with underlying aggressive impulses which he is afraid to exhibit, derives lasting benefit from this release.

Relationship of Play Trends to Symptoms.—The appearance of excretory and sexual phantasies in the play of children does not mean that they are casually related to the symptoms. Curiosity, rivalry with the opposite sex, the difference between the sexes, and anxiety about the absence of a penis or its possible

loss, all may appear without apparent relevance to the symptoms: but this is not to say that a castration fear, founded on the observation of sex differences, may not play a part in the genesis of a chronic state of anxiety later on. But Rogerson noticed in practice that anxiety connected with birth phantasies as revealed in play (*e.g.* building a hollow house in which babies were found) tended not to disappear till an explanation was given to the child.

We have quoted Rogerson's work at some length as it was conducted with a deliberate avoidance of interpretation (except in the last instance quoted) and seemed to demonstrate that great improvement and recovery can occur without interference by actual interpretations; and that the child's acceptance of its own impulses and interests under the protection of an older person was the potent therapeutic factor.

Melanie Klein, on the other hand, declares that she has "never seen any advantage follow from a policy of non-interpretation". Nevertheless interpretation is certainly not necessary in a fair proportion even of those cases in which play technique is the only likely method of approach.

We have ourselves been impressed with the relative infrequency with which specifically sexual interests are causally associated with the problems of childhood. This is a judgment based on an examination of symptoms, of the circumstances apparently producing them, and of the results of treatment devised from our observations. On the other hand—and there is no seeming contradiction here—it is equally certain that children exhibit sexual interest of some sort, in some cases from their earliest days. Masturbation, presumably with pleasurable sensation, is found even in infants, and even as early as 4 years we have known it associated with conscious thoughts of the other sex, although there had been no known precocity of education in these matters. Homburger relates in detail the case of a girl of 3 who showed definite signs of erotic pleasure in genital examination and of erotic interest independently of actual stimulation. Curiosity as to the genitalia and excretory functions of children of both sexes, exhibited in looking or in actual mutual sexual play, is usually felt as wrong at the time because of the general social prohibition that is felt to surround them. Later they may become coloured with a greater feeling of guilt, from their conscious association with more adult forms of sexuality. Such associations may lead to anxiety or to obsessive-compulsive preoccupations in children, but not by any means necessarily;

nor need anxiety or obsession necessarily or usually be related to erotic trends. Naturally if as the result of unwise parental attitudes and actions, such as will be illustrated later, erotic feeling has been aroused in relation to the parents, the conflict will be more intense and the likelihood of a psychoneurosis greater; but instances of nervousness dependent on such definitely sexual interests are much in the minority in children, and only begin to appear with any frequency in adolescents.

Parent-Child Relationships.

It is a commonplace that the relationship of parent to child is of maximal importance for the shaping of character; it is of no less weight in the production of psychopathological deviations in childhood. The factors of dependence, imitation and suggestion already mentioned, with their complication in action and reaction, are of primary importance. There are two parental attitudes that are specially common, the over-anxious mother and the domineering father, over-keen for the progress and advancement of his son. The father who expects his son to conform closely to his own desires and aspirations, and shows it, often succeeds in producing either a weak-kneed creature lacking in initiative, readily depressed and filled with morbid fears; or an unstable truant; or a sullen, defiant and sometimes furtive individual, who steals and goes with "rough boys".

The "babying parent" is a caricature of the over-anxious one and may produce either the same namby-pamby type, or, in turn, frank rebellion. It is not very uncommon to find mothers who help at their son's bath until he is 16 or 17, and we have even encountered a father who was frequently present at the same function with his daughter of 16. A father of this type dandled his daughter on his knee and wrote poetry about her and with her, from her childhood into adolescence; her subsequent schizophrenic psychosis was strongly tinged with feelings of guilt towards him. "Babying" of this kind has obvious sexual connotations, but at an earlier age these connotations do not usually enter. A mother's insistence on having her child sleep in the same room as the parents after the period of infancy can heighten a child's feeling of insecurity, increase his fears and fill him with an uncomfortable curiosity. It can also foster a close attachment of the child to the mother which can seriously hinder adaptation to marriage in later life.

"Spoiling" in the sense of indulgence and lack of discipline is a commonplace as a cause of childish misbehaviour, as well

as of difficulty in after life. Of it are born temper tantrums, food fads, ostentation, mannerisms, tearfulness, jealousy and the like.

At the opposite extreme of these instances is that of the parent of an unwanted child, which, in consequence of the lack of love or actual spitefulness of its parent, displays similar traits in itself.

Parental dissatisfactions have, however, subtler consequences than this. A parent dissatisfied with his or her own life wants to see his or her own unfulfilled longings gratified in the children. A father expects his son to excel at games, and is annoyed, and the boy correspondingly depressed, when the expectations are not fulfilled; and at a later stage choice of occupation may be unfortunately regulated from the same motive. A young woman who has had an unhappy experience in relation to her own mother, tries to make her companionship with her offspring "perfect", and so blocks out the possibility of her child making the fullest use of friendships with coevals. Or she may be unhappy in her marriage and seek emotional compensation in excessive devotion from her child, with a resulting conflict in the latter, and its consequences in fears or compulsions. Parental rejection, no matter how carefully disguised, is felt by the child as a lack of the affection it craves, and it is a frequent factor in producing psychological disturbances.

The grandparents (and over-indulgent uncles and aunts) can also have important formative, or, rather, deformative, influence on a child's life—especially if parents and grandparents happen to live together, as occurs fairly often in the houses of the poor. It is possible for a grandparent to be on more friendly terms with a child than its own parents, and it is equally possible for a grandparent to appear as a destructive kind of ogre and spoil-sport. It is not uncommon to find parents and grandparents differing openly in their attitude to the child, from personal prejudice and from the result of old-standing conflicts between them, with the result that the child's training and standards are impaired, and he learns to play off one generation against the other.

Difficulties found Primarily at School.

Of these the most common, but even yet often undetected, is scholastic backwardness, of all degrees from mere dullness to a considerable degree of feeble-mindedness. Naturally, the more severe degrees of intellectual defect (imbecility) announce them-

selves early, and if they appear in school at all are not long left there. But not infrequently with the dull and backward, or the feeble-minded (morons), the first sign of anything amiss is some form of misbehaviour. Naturally, the child who is not capable of the average school work for his years becomes either uninterested, anxious and humiliated, or openly rebellious. Rarer and more localised forms of congenital handicap, like word-deafness and word-blindness, are still more readily missed, and are mistaken for general mental defect.

When intelligence testing first became popular, much was made of the idea of the possible discovery by this means of hidden talent, and even of genius. Expectations of this kind are only rarely borne out, but occasional instances of persistent ill-behaviour, or even apparent scholastic backwardness, are found, which depend on a child's being included in a class where the work is far below the level of his intelligence.

Emotional factors count no less than intellectual ones in the production of symptoms of unrest at school. Naturally, emotional conflicts at home may disturb the attitude at school, but much more rarely than would be expected. The school itself affords emotional difficulties *sui generis*. " Differential behaviour ", *i.e.* a good report from school as compared with a bad one from home, or vice versa, is a valuable diagnostic aid. The child has to adapt to school-fellows as well as teachers—from both he begins by expecting the same kind of attitude as he experienced from members of the family. Disappointment in some degree is inevitable and may intensify a previous feeling of uncertainty and inferiority. But this will rarely reach pathological dimensions unless the soil has been prepared by unhappy relationships at home, or unless the teachers themselves adopt a mistaken attitude. The latter is not uncommon, but should never be inevitable. The size of classes, which while valuable in one way in reducing the chance of perpetuating " spoiled " and similar reactions, is against individual understanding when any preliminary difficulties have already appeared. It is not an uncommon experience to find a child given a bad name by schoolmasters, which in itself serves the worst possible purpose.

As with parents, so with teachers, dissatisfactions and morbid attitudes of their own may produce morbid reactions on the children under their care. A love of power, or sometimes actually sadistic trends, show themselves in teasing, bullying and stupid forms of punishment. Such minor manifestations of lack of the proper relationship between teacher and pupil as impatience,

frequent criticism and heavy reproof in front of others and the like, can have a considerable effect in producing difficulties both of scholarship and behaviour. An attitude of a too affectionate kind on the part of the child depends for its results on the response of the teacher, who, if wise, may turn it to good account. Such attitudes frequently have, consciously or unconsciously, an erotic basis, and more is heard of them when this basis is of a homosexual kind ; but heterosexual attachments, limited naturally by the arrangements of things in schools to preference of female teachers for certain pupils, are commoner than is supposed, and account for some instances of favouritism, which is the equivalent in school of spoiling at home. Naturally such attitudes have a specious maternal look; and the ill-effect on the child is simply the ill-effect of most-favoured-nation treatment. All these possible variants of the relationship between child and school are fraught with greater importance in boarding-school than in day-school. A general observation is opportune ; that just as the usual type of scholastic education suits one child far better than another, so does boarding-school vary in its value in comparison with day-school with various types of children. The choice of a suitable school is of enormous importance for the nervous child.

Methods of Investigation

These differ considerably in some respects from the methods used in adult mental and nervous illness, for two principal reasons, that the average child is even less conscious of his own mental processes than the average adult, and for this reason does not readily communicate material that is of value ; and secondly, that since in practice it is found that so much can be done principally by manipulation of the environment, it is not necessary as a rule to attempt to probe the child's mental life too closely or in too great detail. The general principle is to make the lines of inquiry as broad as possible, by including school reports and (in clinic practice) a report from a social worker, visiting both home and school, as well as the evidence obtained from parents and from the child himself.

Since a child practically never seeks advice of its own accord, it is from the parent or guardian, or from the school, that the information about the " complaints " or symptoms is obtained. This should be recorded in detail, and inquiries extended to all the fields of possible unrest mentioned in the subjoined classifica-

tion. A history of the child from its earliest days is then taken, both with regard to physical development and physical illnesses, and with special reference to landmarks in mental and nervous development. The times of beginning to walk and talk are of great importance, and, of a very young child, of beginning to support its head, to sit up and to crawl. Of lesser importance is the date when bladder control in the day-time was obtained. Normally a child holds up its head at four months, can sit up unsupported at six months, can walk and talk by not later than two years, and can control the bladder sphincter by day and night at the latest at three years of age. In some exceptional cases talking has been delayed even as late as five years, without subsequent intellectual retardation, but usually a very considerable proportionate retardation in any of these functions beyond the times mentioned is evidence of mental defect. The dates of more educational and less intrinsic significance are those of sleeping alone, of first being allowed out to play with other children, and of going to school.

Then follows an inquiry directed to the family relationships—the number of brothers and sisters, their personalities and the place of the child in the family—whether eldest, youngest or what. Attempts have been made to demonstrate statistically that eldest and youngest children are more prone to maladjustment than children in other positions in the family series. Levy has recently shown that eldest children are slightly more liable to suffer generally; while only children are more likely to be victims of parental over-solicitude and ambition.

The actual sleeping arrangements (hours of sleep and whether alone or with brothers or sisters or with parents) and the history of these is to be ascertained, and behind any peculiarities the reasons for them (accommodation or parental wishes).

It is necessary to have particulars about play—whether the child is allowed to play with other children, at home or outside; whether he prefers to play alone; and the types of play he prefers (*e.g.* a girl, aged 6, preferred to amuse herself by shooting and killing tin soldiers, which was on a par with her behaviour to others).

Information about the parents themselves is naturally one of the most important lines of inquiry. They should be interviewed alone, as well as together (if possible), and a kindly attitude will usually prompt confidences about their own lives which may throw considerable light on the symptoms of the child. Tact is very necessary, since they are often naturally sensitive about

their failures with the child. It may be possible to discover whether the child was wanted, whether the parents co-operate in training it and in their discipline, and what place the child is occupying in the mind of each parent with regard to the other. The grandparents are also of importance, not only because they had so much to do with forming the parents' character, but because they frequently intervene, deliberately or not, in the upbringing of the grandchildren. Not uncommonly a relationship which is more pleasing to the child can be found with its grandparents than with its own immediate parents.

Stepchildren seem from experience more likely to come under the psychiatrist's care than when the parents still survive and live together; and the children of "broken homes" are also more prone, according to American experience.

The economic status of the family, the size of house and other facts of this order are often of much importance.

In all these fields of investigation the services of a social worker are invaluable, and for carrying out parts of the treatment, in hospitals and clinics at least, indispensable. She can arrange either to do this herself or by co-operation with some social agency outside the hospital or clinic, always of course under the psychiatrist's ultimate direction.

Not least in all this routine, and in spite of the reservation made at the beginning, is contact with the child himself. We say "contact" advisedly, because we do not plunge into an investigation of the child, but rather seek to establish a friendly relationship. After that has been accomplished, and it can be done remarkably quickly with most children, since they are naturally friendly, it is possible with surprising frequency to get the patient to talk about his difficulties. This talk may not be very free, or, if it is free, it is usually superficial, but it is often illuminating. Even when deception enters, the fact of deception itself is of great interest; its evaluation can follow in the light of discoveries from other sources. In younger children it has to be remembered that denial has the rank of phantasy—the child readily believes his own statement once made.

A child, however, cannot stand prolonged conversations. They are boring for him after a short time, unless something else is introduced. The natural thing to introduce is play. It is also the easiest way to study the child, as he is off his guard, at least to some extent, even if it is with a doctor or a member of the clinic staff that he plays. Strictly speaking, it is not necessary to institute observation during play for the investigation of the

majority of problem children, but as we desire to know as much about the children as possible, we arrange play time with a member of the clinic staff, if not with the psychiatrist himself, wherever possible. Organised play can be of three types—games with other children, where the social reactions can be studied; games of the solitary type, such as building bricks, Meccano and the like, cutting out shapes, plasticine modelling, dolls, toy soldiers; and æsthetic and intellectual pursuits—drawing, painting and story-telling (oral and written). All these give additional sidelights on a child's character and problems, as well as providing him with outlets and modes of expression, untrammelled by criticism.

For cases not yielding to these methods, and for those not likely to be satisfactorily treated by them, such as psychoneurotic anxiety states not dependent on environmental influences, obsessive compulsive psychoneuroses, and some behaviour disorders (*e.g.* cases of truancy, and stealing not resolvable in environmental terms or in terms of personality organisation), play technique of the type alluded to above, either interpretative or non-interpretative, is indicated. It is in many cases, even of the apparently obscure kind, worth trying the simpler methods first, since often they are capable of subsiding in a surprising way in response to simple measures, *e.g.* physical or psychological alteration of the environment.

Classification

We have found the following classification useful for nervous disorders in children in general. Only the first four are additional to the syndromes, described in previous chapters, in adults.

1. Disorders of personality: Timidity, obstinacy, irritability, sensitiveness, shyness, day-dreaming, lack of sociability, emotional disturbances, etc.

2. Behaviour disorders: Truancy, wandering, temper tantrums, lying, stealing, begging, cruelty, sex misdemeanours, food fads, refusal of food, etc.

3. Habit disorders: Nail-biting, thumb-sucking, incontinence (nocturnal and diurnal), constipation, vomiting, stammering, etc.

4. Disorders of the so-called "glycopenic" variety: Migraine, crises of collapse, insomnia, night terrors, cyclical vomiting, etc.

5. Psychoneuroses: Anxiety psychoneuroses, hysteria, phobias, obsessions, compulsions, tics (some).

6. Psychoses: Schizophrenia, manic-depressive psychoses, etc.
7. Epilepsy.
8. Mental deficiency—dull and backward group—the result of general or localised defect, *e.g.* word blindness and word deafness; feeble-mindedness, imbecility, idiocy, temperamental defect (" moral imbecility ").
9. Mental disorders occurring with, and probably dependent on, some physical disease, *e.g.* chorea, epidemic encephalitis, trauma.

This grouping is for convenience of description only. The same patient may manifest disorders in several of the above categories. The following is a brief systematic description of the various categories:

Personality Deviations

Personality traits are the outcome of the interplay of inborn and environmental factors, and it is from the beginning difficult to distinguish how much each of these types of factor shares in the production of the traits which ultimately distinguish the individual. There is no doubt that temperament, which plays so large a part in the development of the personality, is largely an inborn affair. Infants a week old, living in the same environment, present to trained observers differences of a temperamental kind; yet even as early as this the skilled nurse will also detect the reaction of a child which is unwanted. Thus early does the psychological environment play a part. The observation of twins gives some means of estimating the relative importance of environment and inheritance. Identical twins, even if reared apart, show a remarkable similarity in their traits of temperament, while dissimilar twins, brought up together, show obvious divergences from the earliest age (Hirsch).

The post-natal development of traits of temperament and character proceeds as a result of friction arising from within and without, and whatever views may be held with regard to the share of inheritance, there is no doubt of the modifiability of this development by changes in the external factors.

Some characteristics are the more or less direct expression of innate qualities—as, for example, energetic activity, impulsiveness, cheerfulness, persistence and pugnacity. They naturally undergo a progressive socialisation in the course of time. Where the environment enters unusually early or forcibly the trait may be regarded as either imitative of the environment, *e.g.* vanity in the child of a doting mother (the mother dotes on the child

and the child dotes on himself) or, as a reaction against it, *e.g.* sullenness in response to a nagging parent. Some traits, however, have a more complicated origin, of the same form as a psychoneurotic symptom—they are reactions against certain inner tendencies and attitudes, which may of course themselves be largely determined by environmental influences. Such in many instances are shyness and over-conscientiousness.

In any case, an attempt should be made from the main facts to surmise at least what may have been the exact cause of any trait so disadvantageous as to bring the child for treatment.

Paranoid and schizoid personalities can be discerned occasionally among children, especially from about twelve years onwards. Their occurrence is of particular importance, of course, for the topic of predisposition to and prevention of a psychosis in later life ; and they deserve much more attention than they have yet received, both as to cause and treatment.

The following example illustrates many such points. The patient had already from the beginning of our observation been regarded as a psychopathic personality. He represents one of many possible varieties.

CASE 80.—Solitariness, temper tantrums and a fanatical interest in religious ritual were the principal marks of a boy, age 12½, Peter T., who was first seen at Guy's Hospital on the 22nd February 1927. His mother added that he was " difficult ", slept badly and was easily frightened. He went to bed at 9 P.M. but did not fall asleep till midnight, and insisted on one of his parents remaining by his bedside the while. At meal-times he frequently refused to stay at table, alleging as his reason for this that his mother " did not eat right " or " was not dressed right ". He had " church on the brain "—his main topics of conversation were ecclesiastical, and his principal recreation out of school hours was rehearsing church services. His knowledge of these matters was said by his mother to be astonishingly detailed, and when he went to church he would find fault with the minutiæ of the service.

He played ordinary boys' games very little. Football he only took part in when compelled to do so by other boys. He had no friends of his own age and said that he did not want any. If his parents invited another boy to the home he " sat and talked quite nice to him ", but he would not accept invitations in return.

From his mother it was discovered in addition that he swore, even in front of his father (who never punished him). He was not cleanly in his bodily habits. His mother bathed him, to the accompaniment of screaming and fighting. At night in his bedroom when his mother sat with him, he terrified her with his

restlessness, throwing his arms about and talking incessantly. He had the habit of harping on one theme to the intense and frequently expressed annoyance of his parents—for example, he would talk for hours to his cat, saying "nice boy" over and over again, *ad nauseam*.

He was in a private school, and the school report said:

"I have pleasure in stating that he has never given us the slightest trouble. The boy is obedient, quiet and inoffensive; in fact, the one thing that strikes us is that he is apathetic, dreamy and slow on the 'up-take'. In some subjects—English and drawing—he is in advance of his years; in others—arithmetic—he is slow and backward. When he first came here he kept somewhat aloof, but he is now mixing gradually with the other boys.

"Judging from his behaviour here I cannot understand the trouble over this boy. Here he is perfectly docile, without vice or troublesome tendencies."

This divergence in the reports from school and home furnishes an example of the differentiation of behaviour which is so frequent in children, and is one of the evidences of environmental influences.

Family History.—The father is quiet and retiring, sensitive and gentle in manner. He never cared to play with other boys when he was a child, and when he first went to work had a "stiff" time, as he could not hold his own in the company of others. He neither smokes nor drinks and has no hobbies. He takes little interest in Peter, but takes his part against the grandmother in a negative way—refusing to scold him at her demand.

The mother herself, who gave much of the above information when she came up to hospital and afterwards added considerably to it, was obviously greatly perturbed by her child's conduct. She confessed her entire helplessness to alter it. She admitted that she herself was of a worrying disposition. Since childhood she had thought worry the "right thing to do". She had been taken to a doctor at the age of 14 as she was "all shaky". Being afraid of her mother, who was ill-tempered and often thrashed her, she would wander about the streets at night afraid to go home.

The grandmother had now resided with the parents for the past three years, and entertained a violent dislike for the boy with whom she frequently quarrelled, while, on the other hand, she took his part against his mother on any question of discipline.

Home Conditions.—The family occupied a good-sized house which they were buying by instalments. The situation was somewhat complicated, as they borrowed the capital for this venture from the maternal grandmother, and instead of paying her interest they kept her. They used four rooms—well-furnished parlour and kitchen, a bedroom for the old lady and one for themselves. The home gave the impression of real comfort and

prosperity. There was a garden, and the neighbourhood was a good one. Part of the house was let.

Previous History.—Birth was normal and the child appeared perfectly normal during his infancy. When he was one year old his father went into the army and his mother went out to work. Peter was left to the care of his maternal grandmother until the age of 5, when his father returned. From 5 to 10 years of age Peter went to an elementary school. He did not get on well with the other boys, and his parents were anxious for him to mix with a good type of boy. Also, when he was about 10, he began to be difficult and moody, and the parents decided to make a great sacrifice to meet the expense of sending him to a private school.

Mental Status.—In appearance he was a well-grown but thin and sallow-complexioned boy, who carried himself in slovenly fashion, with rather bent shoulders, and looked older than his years. He had a glum expression, and he did not talk spontaneously at the interview but only in answer to questions, and then rather briefly. He did not look his interlocutor in the eye, but usually looked at the ground instead. The general impression gained from his demeanour was of a rather surly reluctance.

He denied being unhappy and gave no evidence of realising that his conduct and interests were abnormal, or of any desire to change them. In reply to questions, he admitted his interest in religious ritual. His reading, besides the Bible, consisted almost exclusively of Shakespeare and Mark Twain. He was not interested, he said, in such papers as *Chums* or the *Boys' Own Paper* or in tales of adventure.

A psychological rating a year later, at 13½, gave him an I.Q. of only 77 on the Binet-Simon scale and of 87 on a scale of performance tests. Educational achievement tests gave him a mental age of 10½ years for mechanical arithmetic, 8 years for problems, 10 years for mechanical reading, 9 for appreciation of material read, and 12 years for spelling. The report on the tests in general was as follows:

"Peter's school work is probably up to the level of his power. He is quite unsuited to prolonged education of a school type or to advanced work."

These tests did not corroborate the schoolmaster's report in several important points. Part of the explanation lay in the lower general standard of pupils in certain private schools; but, from the subsequent history, it seems probable that the results of the tests were vitiated by temperamental factors.

Summary.—It is clear that in this boy symptoms in the ordinary sense played an insignificant part. He was slow in going to sleep at nights and he had certain compulsions, but the preponderating abnormalities were in his conduct and in his trend of interests. The latter were unusual at his age—the Church and Shakespeare—and would be unusually one-sided at any age. He was preoccupied, like so many children of his type, with the problems of the hard-

ship of life and the unkindness of fate. His predilection for the ritualistic aspect of religion perhaps reflected his own shrinking attitude to life, which was shown also in his shunning companions and their boisterous games. If we considered only these more subjective aspects we would conclude that we were dealing with a temperamentally abnormal boy, shy, timorous and tender-minded, weltering in difficulties of inner origin, sometimes perhaps hereditary, in the light of his father's history. But the more objective aspects of his behaviour were equally striking, and although they were the more immediate cause of his being brought for advice, they are much more suggestive of possibilities of treatment than the subjective characteristics which we have just considered. Evidently the boy had some inventiveness ; his interests may have been perverse but they were strong, according to his mother's account, and they did not seem to derive anything directly from the parental example except some of the strength that springs from rebellion.

It was clear that the father was a minor factor in every sense ; he had done little positive harm, but had erred rather in what he had failed to do, in not exerting some discipline. The mother was of much greater importance. She had been badly brought up by her own mother, knew no discipline except that of fear, and no attitude to difficulties except anxiety. The son unwittingly copied her timidity, and at the same time, not so unwittingly perhaps, took advantage of it, and of his father's feeble attitude. Also it was apparent that the follies of the parents were visited on the offspring in more subtle ways. The boy made use of the antagonism of mother and grandmother to play them off against each other, while he went himself unpunished. He saw that to defy his mother gave the grandmother opportunities for homilies to her daughter, and for maliciously gloomy forebodings that he was a little maniac and would end in an asylum; while, when he called his grandmother " old cat ", he earned but a mild reproof from his mother, whose inmost feelings to her own mother he was expressing only too well.

From the school report and from the results of psychological testing it was clear that the parents' ambition had placed the boy in an atmosphere too rare for his intellectual capacity. Probably also, their delicacy about allowing him to mix with rougher companions of his elementary school had something to do with his withdrawal from all companions later.

Treatment.—1. In view of the mismanagement at home and his mother's emotional condition, it was decided to send him for a time to a holiday home at the seaside. He remained there only two days, as he cried the whole time and was sent home.

2. Change of school. He was removed from the private secondary school he was attending and placed in a public (rate-aided) elementary school. This was followed by an immediate improvement in his behaviour ; and he approximated much more closely to the normal in school.

3. Instruction was given to the parents, accompanied by reassurance and explanation of the true nature of the boy's condition.

4. The boy himself was encouraged to join some social bodies like the Scouts and a Church Club.

Results.—Besides the appearance of normal behaviour in school and the improvement of his work there, he gained in several ways. He was no longer morbidly interested in Church. He bathed himself. At home he was no longer omnipotent. Outside of school he remained solitary, however.

Later (October 1928) the mother reported that she had found him a post in making artificial teeth. He proved efficient at it but " did not like having to do clearing up ", so he left of his own accord. After being unemployed for about fourteen days he found a good job for himself in a stockbroker's office, which he still holds. He has entirely dropped his interest in church, and now goes every week to a theatre or music hall. He has made only one friend, who dropped him, " as Peter was so rude ". He attended hospital again in June 1930. He was then a grand young man in a bowler hat, and appeared to be happily settled in the stockbroker's office. He spoke with much feeling and bitterness against the grandmother, who, he said, was getting old and silly and was the cause of much friction at home. Peter had one friend, and was strongly advised to make more and if possible join a club. (It is an interesting and significant fact that this boy was at least three years retarded when given Intelligence Tests and had an I.Q. of 77, and yet apparently managed to pass muster as a clerk.)

The subsequent history of this youth, in spite of all the more that has been done with him, is not encouraging. He is solitary, seldom goes out, except after dark, and has been back to church again. In fact he appears to be heading for a schizophrenic psychosis.

Behaviour Disorders

These include such complicated actions as truancy from school, wandering, lying, stealing, refusal of food and refusal to speak, cruelty and temper outbursts.

These are positive acts, isolated or habitual, of the child as a whole, *i.e.* in relation to the society in which he finds himself. More uniformly and definitely than any of the previously described symptoms they betoken a conflict of his urges with what his environment allows or requires. The point of outbreak, so to speak, of the abnormal behaviour does not necessarily represent the point of conflict. This is frequently a displacement from the real source of friction, and the large part of the psychiatric diagnosis and therapeutic task depends on detecting the true cause of the discontent.

It is important to realise that none of the disorders enumerated are themselves " abnormal " in the strict sense. Ask any group of normal adults whether they have ever stolen anything in their lives and they will almost to a man answer " yes ". Few people have not in their childhood secretly admired the boy who had the courage to play truant. Lying is a universal tendency. Cruelty, although being less useful it is much more readily discarded, is a common enough trait in any child.

But when any of these reactions occur flagrantly or persistently inquiry is indicated, lest the tendency become a habit and worse things befall.

Truancy may be a negative or avoidance phenomenon, as when a child funks going back to school in face of a threatened punishment or disgrace, or it may be a more primitive phenomenon, as the expression of the boy's urge for adventure and variety. Wandering is only a prolonged truancy, usually with a similar basis and in older children who have left school. Lying may be done for defence or prestige. Sometimes it depends on simple confusion of phantasy with fact. In the latter instance it is usually elaborate and based on egoistic phantasy. Stealing may be a simple matter of opportunity having presented itself, or it may also be done for prestige, as when a child spends the proceeds on gifts to his friends. It may, on the other hand, be a rebellion against discipline, directly as in deprivation of pocket-money, or indirectly against some other form of frustration. Rare instances have been described by Healy, where stealing represented a neurotic symptom, a compulsion being felt to steal because of the similarity of the guilty feeling aroused by the deed to that attaching to sexual curiosity which had been repressed. It has been suggested that some habitual stealing comes from the child's urge to compensate for what he feels to have been denied him, namely the love of his parents or their substitutes. Acts of cruelty express either an innate tendency, common to everyone but usually soon brought under discipline (except in places where it is tacitly encouraged, as it used to be in certain public schools), or as a response in kind to an unfriendly environment, as jealousy and revenge. Temper outbursts are either negativistic in origin or matters of egoistic self-display, or more usually composed of both, and refusal to eat or speak have similar origins.

Behaviour disorders are often of such a nature as to bring the child under the notice of the law; they then constitute the delinquencies which crowd the children's courts.

The following is an example, principally of **temper tantrums:**

CASE 81.—Gavin T., age 13¾, was referred to hospital in February 1930 by the school care-committee because the mother complained of the boy's tantrums, in which, for example, he threw the coal shovel at her. When asked by her to tidy the sitting-room and do some shopping for her, he refused and flew into a rage, and when she pleaded with him he threw a book at her. Headaches were also reported, for which no physical cause could be discovered at a school medical inspection.

Family History and Home Environment.—He was the third of a family of five children, the fourth being a girl while the other three were boys. The father, age 41, was a manager in a local shop. He had had to work very hard when he was young, and said that he had suffered headaches worse than Gavin's. He said that the boy would grow out of them. Towards his wife he was curt and unsympathetic in the presence of the social worker, and took sides with the children against the mother in any difference that arose.

The mother was the youngest of a large family whose father was comfortably off and died when she was young. At the time of her marriage at 21 she had furnished the house, "bought a job" for her husband, and given a sum of money to his mother, all from money which she had inherited. She had a "nervous breakdown" the year before the boy came for advice. She had had fits (hysterical) since the birth of the daughter, now aged 10.

The father's mother had lived with the parents for a considerable time after they married. She adored her son and he reciprocated the attachment. She constantly made trouble between her son and his wife, insisting that he could not digest dishes made by the latter. If Mrs. T. (the younger) suggested that she and her husband should go anywhere, or buy anything, he always consulted his mother first and usually followed her advice. The grandmother also interfered with the discipline of the children, while at the same time disliking Gavin and pinching him when he was younger and making him cry. After the younger Mrs. T.'s return from hospital, she found the home so unbearable that she refused to have the grandmother live any longer with them. The grandmother now lived alone, her son making her an allowance.

As an example of the atmosphere which had been engendered, the following example may be quoted. The eldest boy refused to make the tea, told his mother to shut her —— mouth, jumped up, caught both her elbows and held them right back, breaking her *brassière* and causing her pain. When the father was informed in the evening he was merely abusive.

The house itself was physically comfortable—a six-roomed house, clean and well kept by the mother, who did all the work, including the washing. The father had refused to allow her any

help, saying that when a woman married she must be prepared for hard work.

Personal History.—The patient was born during an air raid. Nothing abnormal was noted in his early years, but for some years he had displayed fits of temper. Recently at school he had not been allowed to enter for a scholarship examination, as in the opinion of his teachers he could not apply himself to home work. His school report stated that he reached a fair average in a class where the average age was three months less than his, but in manual work and drawing he was reported " very good ". He was not good at games, however, which were the touch-stone at this school, and was regarded as " too much of a nincompoop to be a prefect ". There was no trouble with his behaviour.

Mental Examination.—He exhibited nothing abnormal in his attitude. When his tantrums were mentioned he looked embarrassed and would not talk about them at the first interview. His I.Q. on the Binet-Simon scale was 93, but his performance with Porteous mazes was much better, and he attained the average for the sixteenth year. The examiner stated that " he perfectly understood the problem, made no impulsive mistakes, and planned the whole path before he began to work ". Physically he was sound.

Summary.—It was clear that the boy's sole form of misdemeanour depended on his mother's feebleness of discipline, the subversive attitude of the grandmother, and the father's failure to adjust to his wife on account of his own maternal attachment. As far as factors in the boy himself were concerned, the self-assertion, which had no outlet at school (he was far from scholarship standard, had little ability at games, and had never had conferred on him any work of authority in any official way among the other boys), found distorted expression in his tantrums at home.

Treatment.—The boy and his parents were all interviewed and advised in turn. The boy was encouraged to take an interest in his manual abilities, and led to understand that the criteria by which his school judged him were not the only ones possible. At the same time, a standard of behaviour at home more suited to his age was held up to him ; and an attitude of protectiveness towards his mother was fostered. The mother was given a simple exposition of the reasons for the boy's outbursts, and was supported in a more courageous disciplinary attitude. At the same time, she herself was recommended convalescent home treatment, as she suffered not only from hysterical fits but complained of feeling weak and ill.

The father was at first aggressive and resentful of outside interference, but was ultimately persuaded to support his wife to some extent—at least in her attempt to keep control of the family, to the extent of corporal punishment, which he inflicted on one occasion on Gavin with a marked improvement in the latter's behaviour. Soon afterwards the mother went to a convalescent home for two months, and in the meantime Gavin was invaluable as cook and housekeeper. Since she returned home there have

been no further complaints about his conduct. He left school in July 1930 and has gone to work at a wholesale hosier's.

Aggressive sexual behaviour, self-ostentation, a hypochondriacal trend and disobedience were all exhibited by—

CASE 82.—Gladys B., age 14½, was referred to hospital by the school authorities for advice, principally on account of her behaviour towards the opposite sex. She showed much less than the normal reserve, and was particularly bent on making friends with men in uniform, especially policemen! She talked so readily to strangers that her parents were chary of allowing her out of the house. At home she was untidy, disrespectful and disobedient. She would not perform services for those at home but would perform them readily for strangers. She showed little perseverance and had not learned to sew or knit. When playing games, or at school, she always wanted the limelight and to be first. She would appear in school with her arm in a sling and make a great fuss over a small cut. From time to time she complained of various aches and pains, to the mother's alarm, so that the latter took her to hospital, where, however, nothing physical was discovered amiss. In school her achievement was poor. This had been attributed to her day-dreaming. It was considered by the school authorities that she would be capable of the average work of her class if she concentrated on it.

Family History.—The patient was the youngest of four children, the others being capable and successful. The father, age 52, a tram driver, was a kindly, respectable, home-loving and sentimental man. He had been brought up strictly by his father and did not drink or even smoke. He was apparently on the best of terms with his wife. The mother was an ailing woman with various minor physical complaints and inclined to lean on her second daughter. She had spoiled the patient constantly. The eldest daughter was married, capable and much more successful than the parents in managing Gladys. The second daughter, age 28, was superintendent of a Sunday School, hard-working, economical and self-sacrificing. The third member of the family was a young man, recently married, and capable at his work of motor mechanic. None of them were outstanding at school, but have made excellent citizens.

The patient's history showed that her mother had found her difficult to manage from her earliest years. There had been no serious illnesses. At school her record had always been indifferent. Her school report for the current year showed that she was much below the class average in achievement, though seven months older than the average age of her classmates. Spelling was "poor", arithmetic "very poor", and composition "fair". She did not mix well with other children and had no friends, and had a reputation for being untruthful.

For example, she was heard telling her class-mates that the teacher had given her sole charge of her desk, which was untrue. She reacted to lessons in mothercraft by telling a policeman friend that she was about to enter a maternity home. The mothercraft lessons were swiftly discontinued by her scandalised parents.

Physically she was well developed and good-looking. She had a coquettish air and wore clothes of a showy type. Her pleasure at being taken notice of by being brought to the clinic seemed to outweigh any sense of social transgression she may have had when the doctor talked to her about the behaviour. She claimed to have friends, older than herself, including one who had recently had a baby.

Her *intelligence rating* gave her a mental age of $10\frac{1}{2}$ on the Binet-Simon scale. Scores on performance tests ranged from 7 to 11 years, the average value being $8\frac{1}{2}$. In the Porteous mazes she showed a power to plan only under the simplest conditions. She attempted the tests generally too rapidly and inaccurately. Her perception for form was poor. She tried to cover up her deficiencies by gossiping. It was shown that the school report, already quoted, erred in supposing that her difficulties depended on lack of concentration, and that she was actually a high-grade defective.

Summary.—The intelligence rating gave the clue to much of her behaviour. It definitely accounted for the backwardness in school and for some of her behaviour there and outside. In her pleasing appearance and address she had found her main asset, and her erotic drive was allowed fuller play than a child capable of more intelligent social adaptation would have allowed. Her ill-discipline at home and her unpopularity with other girls probably depended more on the faults in her parents' management than upon mental defect.

Treatment.—The position was explained to the parents and a more consistent discipline enjoined, with allowances to be made for her lack of common sense, *i.e.* she was to be supervised in her activities much more closely than the average child of her age. The mother was advised to invite the child's young married friends to tea, so that they might undergo inspection, and, if considered desirable, they were to be invited to co-operate in managing Gladys.

A training in domestic service was arranged for, and it was decided that if by the time she reached 16 she still required social supervision, she would be notified as defective within the meaning of the Mental Deficiency (England) Act to the local authority.

CASE 83.—**Stealing** as rebellion was well shown by a boy of 13 who was brought by his mother, who was in great distress. He was the eldest child and only boy in the family, and had been the apple of his parents' eye, but two years previously he had begun to steal anything of value that he could find lying about the house. He stole his mother's money, his father's cigars and his sister's sweets. He was incorrigible ; no punishment was

of any avail. This hardened young delinquent, when interviewed, rapidly dissolved into tears. It came out bit by bit that after day-school, which ended about 4 o'clock, he was expected by his mother to do two hours' lessons ; thereafter to practise the violin (which he loathed) for half an hour, and after that to help his mother in the garden. If any leisure remained before bedtime he was allowed to play with his sister in the garden ; the village boys were considered " too rough ". Nominally he had ample pocket-money for one of his years—8d. a week—but 4d. of this he gave (under duress) to foreign missions, and the other 4d. he placed in his bank against the purchase of Christmas and birthday presents for the rest of the family. A reasonable rearrangement of pocket-money and of the other conditions of his life led to an immediate cessation of stealing.

The following boy's stealing was secondary to his truancy, which in turn was dependent on the reaction of a timidly evasive personality to scholastic difficulties.

CASE 84.—William C., age 13.11/12, was referred to hospital by the Probation Officer on account of truancy and stealing, with the report, " About four months ago he truanted successfully for a whole fortnight. When found out he ran away from home and slept out. He has done this four or five times since, sometimes staying away for several nights at a time. He never goes far away, but sleeps in the blocks round where he lives. He has also stolen from his younger brother's and sister's money boxes and has borrowed money from the neighbours under false pretences. . . ."

Family History and Circumstances.—The father was a boiler-coverer whose work took him much away from home. He is an intelligent man, much interested in his children's welfare, but, according to his wife, he has a bad temper. The stepmother was a pleasant woman who married Mr. C. when the second boy was a baby, and the boys had been brought up to believe that she was their mother. She had one child, a girl, age 9. Willie had also a younger brother, age 11. Both parents had become extremely worried over Willie. The father was very bitter about the effect of his delinquencies on the peace of the household and was very anxious that he should be " sent away " (*i.e.* to an industrial school). The house was in a rough district but clean and comfortable. The income was sufficient to prevent hardship. The children were mostly with their mother in their free time and were not given much opportunity of mixing with others. Willie had 1s. a week pocket-money, of which he spent 3d. and saved the rest for camp. He belonged to the Boys' Brigade, whose officers had often been out at night searching for him.

Personal History.—Willie had an uneventful career until the recent outburst of truancy. His stepmother, however, had always found him more difficult to manage than the other children. He was well-behaved when his father was at home, but inclined to

torment the younger ones in his absence, while very resentful of any teasing himself. At the Boys' Brigade his reputation was that he "could not say boo to a goose".

His *school report* from a Central school (*i.e.* of scholarship boys) was that he was at the bottom of a class of 40, the average age of the class being 13, *i.e.* slightly younger than Willie. He was reported as below average capacity. His marks at the various examinations had been — Arithmetic 0; Spelling, 0; Algebra, 0; French 17 out of 75. Totals of 317 out of 1000, and 411 out of 1000 were some of his results at the end of term exams.

Psychiatric Examination.—The boy himself presented a reserved appearance at first; but he soon talked readily enough. He was very unhappy about himself, and especially about his position at school. He declared that he truanted because he hated lessons and was always being given lines. Having stayed away from school he was afraid to go home, and so in order to provide food while he lived out he took it from home just before truanting from school. On the second last occasion his father had thrashed him when he returned from his escapade. On the final occasion, which brought him ultimately to hospital, when he heard his father was coming, Willie took 2s. 6d. which his aunt had given him to do some shopping and stayed out all night. He was found next day, soaking wet, and his aunt undertook to charge him with stealing.

He was very anxious to leave school and go to work, but he did not want to leave home.

The impression was of a timid, likeable boy, who was over-dependent on his home, shy of friends and evasive of difficulties. An intelligence test showed that with an I.Q. of 90 he belonged to the low average group. In performance tests his results ranged from 10 (Dearborn and cube construction) to 14 years (substitution test and Healy, 2). Scholastic tests gave, for reading: comprehension, 10 years; speed, 11 years for three-letter words, and 9 years, continuous prose. In dictation he scored 11.8/12 for separate words, and 11-12 years, running. These tests were made because an independent attempt had been proposed to apprentice him in the printing trade. They showed him to be unfit to be a compositor.

Physically he presented no signs of organic disease.

Treatment.—As his delinquencies had occurred since he had been de-moted to a class below his previous one, evidently the easing of school work had little effect. It was accordingly recommended that he should leave school forthwith and go to work. The headmaster demurred, and advocated his entering the third year in six months' time, but with the intention of working on the technical side and having opportunities for handwork instead of shorthand and other commercial subjects. The boy was much upset at this decision, and the stepmother removed him without further consultation with any one (October 1930). He started work in an office and went willingly to evening classes,

but at Christmas failed to bring home his wages for the week. When his parents pressed him he disappeared, slept anywhere he could, and when found by them was put to bed for several days. It transpired that a practical joke had been played on him at his work—he was told that he would be given handsome overtime for doing extra work before Christmas. He went to work an hour early every day for a week, and expected to get 4s. or 5s. extra on Christmas Eve, instead of which he received only his normal pay. He was dreadfully disappointed, and apparently tried to realise his hopes by giving his stepmother 4s., which he said was overtime, and pretending that he would not get his week's pay till after Christmas. This of course involved him in a tangle of lies, and when he could not escape from the tangle he ran away again. He was found five nights later by his stepmother.

On this occasion work was found for him as a page boy and he continued at evening classes. Three months later he was reported to have remained well.

Cruelty.

There is another kind of dog which is apt to be given a bad name and hung in consequence, and that is the child who is labelled spiteful and cruel, and whom the doctor is sometimes asked in consequence to exclude from school.

CASE 85.—A small child called Gladys, age 6, was reported to scratch, kick and bite other children, to be disobedient and unmanageable at home and to be beyond control at school.

Family Circumstances.—The father was a labourer, age 40, and the mother about the same age. They got on well together and had five children, of whom Gladys is the youngest but one. The second oldest child, also a girl, was reported to have been disobedient and unruly at one time, but by "severe discipline", that is, by whipping, she is said to have been made into a normal child. The whole family of seven people lived in two rooms and they all slept in one of these rooms. The other room was very clean and tidy, and was kept so in case anyone called. Gladys and the other children were not allowed to play in anything but the bedroom.

Personal History.—Until she was about four years of age Gladys was a perfectly normal and very affectionate, attractive child. Until the same age she was never allowed to play with her older brothers and sisters, but was kept altogether with the mother. The reason alleged for this was that the grandmother, who lived downstairs, complained of the noise that the children made in the yard, and it was felt that Gladys would be the last straw which would break the grandmother's back, and so Gladys was sacrificed.

At four she went to school and the mother began to allow her out to play, but the elder children regarded her as a nuisance,

and as a rule made her stay in a corner. If she emerged from this she was set on by the other children, and made to go back to what they considered was a place of safety for her. In the meantime, her restless liveliness in the confined precincts of the narrow space of the home became more than the mother could stand and she tried to repress it. If the child would not keep quiet she was smacked, and this happened often—so frequently in fact that ultimately it had no effect. Threats were tried, but Gladys screamed if deprived of her weekly penny, and found that by this means she could always get it back. Putting her to bed was no use, as the mother did all the housework in the room where the child slept. Thus repressive discipline completely broke down with the triumph of Gladys, but at the expense of a feeling of defeat and exasperation on the part of the mother.

Furthermore, the child followed instinctively the rule of doing as she was done by, through lack of being taught the other rule, to love one's neighbour as oneself. For example, Gladys had begun by being fond of the baby, but, just before she came to hospital, there had been an occasion on which, after being punished by her mother, she went and stuck pins into the baby.

Psychiatric Examination.—When Gladys was first seen by the doctor she screamed and wept. The mother explained that she was always being punished and so was afraid. Later, after playing with toys, she came happily to the examination room and talked quite freely. It was interesting that her favourite toys were soldiers, and she loved shooting them, and when she played with a doll she confessed quite blithely that she enjoyed sticking pins into it. She asserted without any sign of rancour that everybody hit her, as though this were the normal order of things. Our impression was that she lacked not moral sense but simply moral teaching, and that her spitefulness and cruelty were direct reactions to her environment. They could hardly be innate tendencies, as until she was four she was regarded as a pleasant and affectionate child.

An *intelligence test* showed that she was one year backward on the Merril-Palmer scale. This was by no means sufficient to account for her behaviour.

Treatment consisted in stopping all physical punishment forthwith and removing her to a different environment. We do not like removing a child from its environment when it is giving difficulty, but prefer to adjust the environment, so that the child need no longer be ill-behaved in order to assert itself in some way. In this instance, however, the conditions were so cramped, and it seemed so difficult to make a complete alteration in the attitude of the family without at least a preliminary absence of the child from home, that we decided to place her in a foster home.

Soon after her arrival in the foster home we received the following report: "This child is not at all difficult to manage here. She has at times attacked other children, but not often, and lately she has been perfectly good. She takes very little real

interest in any occupation; she only wants to rush about and give vent to her enormous activity."

Finally, after some months, she returned home, and the report was that she was a happy child at home and there was seldom any difficulty. The school report was that Gladys was less given to kicking and unruly behaviour and seemed to be forgetting to do nasty and unkind things.

Some months later it was said that she was no bother unless she was kept indoors too long. The school report said that kicking was not unknown but was comparatively rare.

A delinquent act may represent, according to Healy and Bronner (W. Healy, *The Individual Delinquent*, Boston, 1915; W. Healy and Augusta F. Bronner, *New Light on Delinquency and its Treatment*, London, 1936):

(*a*) An attempt to avoid, even as a temporary measure, the unpleasant situation by escape or flight from it.

(*b*) An attempt to achieve substitutive compensatory satisfactions through delinquent activities,—by adventures or through notoriety.

(*c*) An attempt to strengthen or bolster up the ego wounded by feelings of inadequacy or inferiority,—by obtaining status with the delinquent crowd, or, in a solitary individual, by proving his courage and worth to himself.

(*d*) A delinquency may also represent an attempt to get certain satisfactions through direct and conscious or even unconscious expression of revenge attitudes, perhaps through a hidden desire to punish parents or others by conduct that will make life difficult for them.

(*e*) An attempt to gain a maximum of self-satisfaction, to inflate the ego, by generally aggressive, anti-social attitudes.

(*f*) A response to instinctual urges felt to be thwarted—sometimes in the form of sexual misbehaviour, but more often of attempts at emancipation.

(*g*) A wish for punishment which is always a response to a conscious or unconscious sense of guilt.

Habit Disorders

including thumb-sucking, nail-biting, head-rolling, masturbation, enuresis (nocturnal and diurnal), fæcal incontinence, stammering (some cases) and other speech disorders. These, for the most part, are either primarily autoerotic in basis or represent a regression to infantile sources of satisfaction in face of environ-

mental frustration. They readily become associated secondarily with defiance (negativism).

Treatment again consists in analysing the situation in each case and making appropriate readjustments. Frustration in any direction, " babying " by the parents, erotic stimulation by the parents (usually unrealised by them), jealousy of another child in the family and defiance of the parents from lack of their affection, or mismanagement in other ways, are the commonest causes.

It is particularly in this group that successes are obtained in young children with Thom's method of encouraging the child to keep a diary in which a star is marked on each successful day, and the dates of failure are left blank, and the child is mildly praised or rewarded in some small material way for successes.

CASE 86.—Simon J., aged 5.2/12, was brought by his mother on account of a " nervous habit " of a curious kind. On going to bed he would put his arm up to and round his head (without actually touching it) and rock his head and arm at increasing speed until he was " hysterical ", to use the mother's phrase. By this she meant that he seemed not to be able to hear when at the height of the habit, and could only be stopped by placing one's hand on him. The habit occurred every time he lay down and was also repeated if he woke up in the night.

Family History.—The father was a professional man of an intelligent, stable type. The mother was a highly intelligent woman, and the married life was happy and marital relations normal. There was one younger child, a girl aged 2½, of whom the patient was very fond. He displayed little jealousy of her, and would himself place her on his mother's knee.

History of Patient.—His birth was two months premature and the labour was induced for gynæcological reasons. His habit of head and arm rocking began at about 18 months, just after circumcision. He had an anæsthetic for the operation, but he screamed a good deal for three weeks after. He touched his penis so much that it was difficult to procure healing. Walking did not occur till 2 years of age, and he was still later in talking (3 years). The mother brought him up very strictly on Truby King methods. The régime was relaxed, however, when the baby sister arrived.

He had recently gone to school in the mornings from 9.30 till 12.30. He slept at midday and was in bed by 6.30. No food was given after 4.30. He now slept in the same room as his sister. Formerly he had talked a little about the " dark coming in at the door ", but less was heard of this after his sister had been put to sleep in the same room. He bit his nails for a time, but his mother's old nurse succeeded in stopping this. During a visit to his grandmother, who thought she could cure his head-rocking, the latter became worse.

His mother declared that his pleasure in his habit was obvious.

Psychiatric Examination.—The boy was a bright-looking, lively youngster, with intelligence above the average. He had a very definite ambivalent reaction to the habit, a look of pleasure passing over his face when it was mentioned, while at the same time he flatly denied indulging in it.

The inference was that his habit was an autoerotic phenomenon. His mother had let him feel that it was " naughty " on the basis that it was against her wishes. This, combined with the pleasure obtained, probably accounted for his abnormal attitude. The mother's opinion that she had been unduly severe in her discipline in the first three years of his life was of interest, especially in view of the fact that among his leading characteristics already were obstinacy and persistence.

Treatment.—The mother was advised that the habit could not hurt him physically unless he banged himself against some hard object, and it was pointed out that the physical damage would be limited to that. An attempt was also made to reassure her on the whole subject, by explaining that while the form of the tic was unusual the motive behind it was not. The importance was stressed of trying to get rid of any guilt feeling he might have by getting him to co-operate with her in trying to remove it. She was advised to talk to him about it and to give him a small diary, asking him to keep it himself and to put a cross against the days when he managed not to do it, and to give him little rewards for slight improvement.

A light meal of easily assimilated carbohydrate about an hour before he went to sleep was recommended, such as toast with very thin butter and a sugary drink or some simple sticks of barley sugar.

Three months later the habit was reported to have ceased.

Nocturnal enuresis is probably the commonest habit disorder. By the age of three most children have attained control of the sphincter of the bladder both by night and day. The term nocturnal enuresis is applied to bed-wetting occurring after that stage. This is one of the commonest disorders of childhood. It is a problem both in the home and in the institution ; although the degree to which it persists in the latter varies considerably and depends on a number of factors. Nocturnal enuresis is also much more prevalent in some families than in others—three out of four siblings may show it, and very often one or two in the previous generation as well. It appears to be more prevalent in boys. Commonly it ultimately ceases spontaneously, at various ages. Few people suffer from it after adolescence has been passed. In an individual case it may occur every night, or nearly every night, or with intervals of days or weeks or months. There is

no morbid anatomy of the condition, although it has been associated at times with vesical calculus, spina bifida occulta and other local anomalies. Rarely in cases of spina bifida, improvement has been reported following the surgical division of the fibrous band that in such cases passes from the extremity of the conus medullaris. But, as a general rule, no gross physical disorder is to be found that has any relevance. A subthyroidic type of child is described (not actually cretinous), but often this is a mere hypothesis, which is not necessarily justified by the fact that after thyroid medication the enuresis sometimes clears up.

General debility is a factor in some cases.

From the psychological aspect the likeliest causes are these :

1. Lack of training. According to Levy, this is the most important cause.
2. Lack of educability, from mental defect.
3. Anxiety on the part of a timid child who has learned to fear his enuresis, or who fears other difficulties.
4. Regression to infancy, associated with too much maternal attachment.
5. Negativism.
6. Possibly a substituted erotic manifestation.

A familial incidence has been reported by various observers. The significance of this is as yet uncertain. We suspect on several grounds a constitutional factor not as yet further definable.

The first two factors are not frequent. The function of nocturnal control establishes itself even in defectives, except in those of the lowest grades. The timid, anxious, excitable, often very intelligent, child of asthenic habitus is the most frequent type. Apprehension is one of the principal factors here. It is this type principally which Cameron refers to when he emphasises that nocturnal enuresis rarely occurs if a child is removed to hospital, where a child is, in a way, expected to wet the bed and so does not fear it any more. When bed-wetting occurs as a negativistic phenomenon, it is permissible to suspect that it is not always unconsciously performed. When the general nutrition is below par, and especially where the child is of the type susceptible to "glycopenic" disturbances, glucose sometimes acts like a charm : but so does anything else in many cases, so that the factor of suggestion must often be the most important one. Direct suggestion itself is sometimes sufficient either in the waking state or under hypnosis.

The psychological treatment should, as a rule, be of the type

fitted to the type of maladjustment that has been discovered, and should follow the general lines indicated in this chapter.

Of drugs, many have been tried. They have all had successes attributed to them, and they have all failed in the majority of cases to which they have been applied. They are principally tincture of belladonna, in doses increasing from ℥|x. t.i.d. gradually to just short of the usual toxic level, bromides and ergot. The result of using them is so uncertain that most of their successes must be attributed to suggestion with other psychological and physical accompaniments of drug therapy. Ephedrin has lately been employed on the hypothesis that it increased the tone of the sphincters; but it is no more successful than the others.

Fæcal incontinence in any but the lowest-grade defectives is so much more amenable to treatment than nocturnal enuresis that its origin must be very close to consciousness. Sheer unhappiness is often an important factor. Negativism is the basis in others: and in some the aspect of sensuous pleasure suggests itself, associated with anal-erotic phantasies. It usually clears up when the child is made to discover disadvantages associated with it—not of the repressive type, but such disadvantages as the deprivation of some treat that would otherwise have been shared with companions. The method works best in association with other children living in the same house and with a tradition of cleanliness.

Sleep-walking is a fairly common phenomenon, which usually occurs only on a few occasions in the child and does not persist, except in rare instances, into adult life. It must depend on an extensive dissociation of cortical function, and, like similar dissociations in waking life, can result from either psychological or physiological factors. On the more physiological side it is, very rarely, an epileptic symptom. Sometimes it is found in several members of the family, *e.g.* mother, son and daughter, and may then be a peculiar physiological anomaly. It occurs, however, principally in children of the type designated elsewhere as glycopenic (it yields at any rate to the administration of glucose in some form at bedtime), and in children with definite discoverable conflicts, where the somnambulism is the equivalent of a hysterical symptom. In the former group the somnambulistic activity has no primary psychological meaning, whereas in the hysterical group the goal of the sleep-walking may in itself suggest the psychological interpretation. For example, a boy of 10, very much attached to his mother, who had until recently slept in the same room with her, walked frequently in his sleep to his

mother's bedroom, saying, "You know about it," "What is it?" "Tell me the secret." Talk of this kind is rarely recorded, but the apparent setting of a definite objective, especially the parent's room, is not rare.

It is not unknown, although it is very unusual, for a somnambulist to injure himself and even another person.

Treatment is, according to the cause, by glucose, bromide or luminal (grs. 1 or 2 at bedtime) and (in any case) by adjusting psychological difficulties.

Stammering.—There are broadly two types of stammering,—that acquired for the first time in adolescent or adult life in relation to some emotional problem, and stammering originating in childhood.

The first, of recent origin, and commonly of short duration, is a form of speech disorder that is easily and obviously imitable by voluntary effort and is in effect an hysterical symptom. The more usual type of stammering is not so susceptible of close imitation and can often attain considerable complication in the form of tonic or clonic spasm of the articulatory movements. The former is entirely psychogenic; the latter type is mainly due to physiological instability in the neuromuscular organisation, although it may be provoked or increased by emotional causes. In many instances it induces a secondary shyness, but some stammerers of this type are remarkably unembarrassed by their disability.

The evidence for a physiological basis of some sort lies in a family history of stammering, which is fairly often elicited, or of some speech defect which may not always amount to stammering, but may consist in lisping, or of mere slowness in enunciation. The not infrequent discovery of a family history of left-handedness has given rise to the theory that the fundamental fact is an incomplete dominance of the leading hemisphere. E.E.G. records tend to confirm this view, the alpha waves of the two hemispheres being out of phase. The incidence of stammering in the population is thought to be about 1 per cent.

The treatment of the physiological type of stammering must obviously depend on re-education, in addition of course to removal of any emotional factors which may reinforce the stammering. There are many varieties of re-educational method, but they all depend on a mixture of suggestion and a mechanical trick of articulation. Attempts at a deeper psychotherapy of stammering of this type have usually been unsuccessful, but it is nevertheless possible that some stammers originating in the first few years of

speech development may be mainly or preponderantly of psychological origin. It has been shown in some cases that stammering can originate around infantile conflicts even as early as the suckling phase (cf. L. Despert, *Amer. Jour. Psychiat.*, 1943). Any threat to the mouth area at a time when phantasies are apt to centre round it, especially those concerned with aggressive impulses and fears of retribution, is likely to elicit stammering as a psychoneurotic symptom (S. T. Orton, *Reading, Writing and Speech Problems of Children*, New York, 1937).

The prognosis for a stammer of early origin of the physiological type is usually of spontaneous disappearance in the course of later adolescence. Few seem to persist into middle age. Naturally a previous habit of stammering may be re-aroused under emotional stress.

"Glycopenic" Disorders

The term "glycopenic" requires some explanation. We use it as a convenient term to cover a group of so-called "nervous" disturbances frequently encountered in children, which can be caused to cease by the administration of glucose alone, although, as will be explained below, there is usually no hypoglycæmia. Night terrors are the most typical representatives of this class, being almost constantly stopped by the administration of sufficient glucose during the day; but bus and tram sickness, the vomiting that so frequently precedes parties and examinations, headaches preceded by feelings of faintness and pallor, some cases of insomnia (especially difficulty in falling asleep), some of sleep-walking, of nocturnal enuresis, of transitory loss of consciousness (resembling *petit mal*) have been known to yield to the addition of dextrose to the diet. These are, of course, the types of physiological disturbances that are prone to occur in the excitable, emotional child, usually but not invariably of superior intelligence.

At first it was supposed that such symptoms were the result of a hypoglycæmia or glycopenia, and Cameron, in his *Nervous Child*, has ingeniously sketched the biochemical processes supposed to be involved. The over-active and emotionally excitable child was supposed to deplete its store of carbohydrate so much by activity during the day, that by the end of it there was not sufficient carbohydrate to allow of the complete combustion of fat. Hence the appearance of ketone bodies in the blood and consequent acid intoxication of the tissues. But Osman has

shown that the biochemical basis is not the one just described. There is rarely an actual hypoglycæmia in the children in question—not even immediately before an attack of cyclical vomiting. There is, however, a lowering of the plasma bicarbonate, which is responsible for the acidosis which exists in the " debilitated " child, whether " nervous " or not. It can only be supposed at present that the prophylactic effect of glucose depends on the fact that, in the emotionally unstable and physically debilitated child, the facilely aroused emotions cause a too rapid depletion of the glycogen stored in the liver, which depletion in turn allows the characteristic symptoms to appear.

The amount of dextrose given should be about ʒiv. three times a day between meals and at bedtime also. The usual error is not to give enough. In the case of night terrors, as well as other disturbances occurring in sleep, a dose of ʒiv. at bedtime is sufficient. Milk, or drinks made with milk, should be avoided during the last part of the day. The dextrose can be given as a warm drink flavoured with lemon. Barley sugar or boiled sweets do quite as well as dextrose, and are more convenient and more attractive to the child.

The following is a typical instance :

CASE 87.—John H., age 9, was brought to hospital in December 1930 by his mother, who said he was very excitable and frequently became pale, complaining of feeling sick and of headache. These attacks occurred usually when he was excited, *e.g.* before a party, but might occur apparently spontaneously. He also suffered from urticaria. He was reported to be afraid of the dark, and in consequence to hide his head under the bedclothes. The parents were both sensible and intelligent people, and no special errors in attitude or upbringing were noticeable. His elder brother was away from home at a college.

Examination showed a bright and cheerful youngster who said he " felt fine ", but admitted nightmares in which he dreamed he crashed in an aeroplane. His school report stated that his intelligence was distinctly above the average, especially in arithmetic and English. He did not display much energy in games and preferred to hold himself aloof from his schoolfellows, preferring the company of adults. His headmaster considered that he took his work too seriously.

His intelligence test confirmed these impressions, giving him a mental age of 10.4/12 and an I.Q. therefore of 114, while in performance tests his capacity ranged from 6 (Porteous) to 13 (Dearborn and Kohs) years. He was fidgety during the tests, and often gave a wrong answer first and then corrected himself and was distractible.

Physically he was thin, but there was no sign of organic disease. He was left-handed. The child presented a good picture of the type more prone than others to " glycopenic " disorders. He was thin, of asthenic physical type, above the average in intelligence, rapid and impulsive in his reactions, and timid.

On giving glucose (ʒiv. t.d.s.) his attacks of pallor, vomiting and headache ceased. Recommendations regarding increased participation in games were given to the school and the boy himself was encouraged along these lines. It was advocated that he join the Cubs so as to give him more chance of companionship with his coevals.

Night Terrors.

Night terrors are distinct from nightmares. In the latter, a dreamer, who may be child or adult, wakes from the dream in fear, with recollection as a rule of part of the dream content. In night terrors, which are almost confined to childhood, the child sits up in bed in fright, but evidently unconscious of his surroundings. He does not wake spontaneously, and in the morning has rarely any recollection of the occurrence. Where recollection does occur it is of a terrifying but indescribable and unformed visual hallucination.

Night terrors are physiological disturbances on an emotional basis and are not susceptible to treatment by psychological symbolic interpretation. They are practically confined to the over-active, intelligent, anxious type of child, and they seldom recur if care is taken to ensure that a meal of easily assimilated carbohydrate is given at bedtime.

Psychoneuroses

Hysteria.

Hysterical symptoms in children appear to be determined largely by the influence of suggestion, coupled with the desire for self-assertion or sympathy, or for evasion. Gross hysterical symptoms of the type of paralysis of limbs are not a common reaction but may appear nevertheless early. Hysterical symptoms of the type of somatic complaints (headache, bodily aches and pains and nausea) are frequent enough.

The influence of environmental example in determining the nature of the symptoms, not only in the hysterical type of reactions but in the anxiety type as well, is demonstrated by E. Richards, who pointed out that " their symptom-pictures of distress are strangely similar to those of the adult invalid types —palpitation ; shaking in stomach, headaches ; pain in chest,

abdomen and legs; giddy spells; fullness in the epigastrium; 'I feel all played out'; 'Sometimes I vomit a lot, too'. Here we see children who expressed complaints that they had absorbed from an atmosphere charged with hypochondriacal utterance and fear of disease, objectively reinforced by numerous prescriptions, patent medicines and the medical folk-lore of neighbourhood gossip. With the pattern of these reactions well established through the daily contact of actual behaviour, it needed but the catalysing agent of some unusual circumstance or emotional strain to produce a symptom-picture quite baffling to the ordinary approaches of clinical procedure."

Disregard of the symptom and care that nothing merely invalidish is gained by the child in having it, coupled with the means already advocated for the treatment of the expression of psychological distress in children, are the necessary therapeutic methods in the hysteria of childhood.

In addition to hysterical symptoms it is possible to find in some children all the makings of a so-called hysterical personality. It is only necessary to encounter such a case to realise how wrong it is to regard the hysterical type of personality as "child-like". "Childish" it is, but not "child-like".

Rose V. furnishes a crude example of a hysterical reaction.

CASE 88.—Rose V., age 9½, was referred by the District Organiser of Children's Care (L.C.C.). The child was reported to have attacks in school, in which she called out that she was going blind and was going to die, and that people were after her. She had refused some of her meals and would baulk at certain kinds of food.

Family History.—The father, age 41, of Cornish descent, had been a sign-writer, then a stable-man, and had now been unemployed for two years. He felt that he had come down in the world, but did not give the impression of being fit for much except labouring.

He had met his wife during the War, and after a few weeks' acquaintance married her, partly out of pity. She was neglected by her parents, who were addicted to drink, and she was often without food or shelter. The mother was a very unstable person. During the previous year she had had attacks in which she would get up in the night, dress and go out, followed by her husband. About the same time she had attacks of trembling and said that she was dying. These episodes occurred intermittently over a period of six months. She made a great fuss over her child's behaviour, which was her stock subject of gossip. She called on the headmistress of Rose's school and was excessively voluble. She even called at the private address of Rose's class teacher.

The mother was practically illiterate and the more apt in consequence to think she was being imposed upon. There was one other child, a boy, age 6, who was lively and pugnacious, but got on well with his sister with only occasional quarrels.

Home Conditions.—The home consisted of two rooms in a tenement scantily furnished and not very clean. The children slept in the parent's bedroom.

History of the Child.—During the mother's pregnancy the father lost his employment, and circumstances became so reduced that part of the home had to be sold to pay expenses. Food was inadequate in consequence, both before and after Rose's birth.

Rose came under hospital care in 1928 when the mother complained that she screamed at night. Impetigo and bad teeth were also noted and treated at that time. No further special difficulty was noted until she was referred to Guy's Hospital for the complaints noted above. It was also reported from the school that Rose had had a peculiar "fit" in school, in which she said she was going to die, and frightened the teachers considerably on her account. On her way to hospital she had an attack of shrieking. Subsequently the class teacher concluded that she was given to "acting" to escape work. If the teacher paid special attention to her she would begin to pay unnecessary services to the teacher, showing her pictures and so on.

Psychiatric Examination.—No abnormality emerged in conversation. She was willing enough to talk about impersonal topics, but her illness was touched on only in a general way.

Her *intelligence rating* was 92·8 on the Binet-Simon scale, but she succeeded in getting into the low-average group mainly on the basis of her memory. After the eighth year she succeeded in four tests. Two of them were in age 10 and were both memory tests. Of the other two in year nine, one was repetition of digits backwards. In performance tests there was a scatter from 0 (Healy form board) to 10 (Porteous).

Her school report regarded her as average for her age. She was bad at arithmetic, but improving.

Physically there was no evidence of organic disease.

Treatment.—The mother was instructed to ignore the attacks and the difficulty about food. If the child refused some article of food, nothing was to be said and nothing was to be substituted in its place. The mother was also asked to conceal her own symptoms, as far as possible, in the child's presence, and was encouraged to come for treatment herself. At the same time, she was asked to understand that Rose's symptoms probably betokened a desire for some display of affection as well as for attention, and that she could let her have this in the ordinary course of events. A similar line has already been taken by the school. The child herself was simply told that she would soon be quite well. An attempt was made to deal with the mother's own symptoms, but she did not co-operate in that respect.

The course of action taken with Rose was rapidly followed by an improvement, and by October 1930 she was reported as having been free from symptoms for the past four months.

Anxiety States.

Psychoneurotic anxiety states are frequently the result of conscious or unconscious imitation of an atmosphere of anxiety in the home. The anxious mother especially is apt to produce an anxious child, and later an anxious adult. But whereas the treatment of an adult of this kind is a long process of investigation and recapitulation of a life history, too frequently with a final result that is still unsatisfactory, in children the re-education of the parents, together with the provision of healthy contacts and outlets for the child, can result in a product that is robustly happy and promises well for future stability. If resort is made to the (in some ways feeble) expedient of removing the child from the home, the symptoms are apt to disappear with characteristic rapidity and finality. The symptoms are the same as in adults and the causes are in part identical. Parental over-solicitude, motivated not infrequently by dissatisfactions in the parents' own love-life, is by far the commonest cause. The exceptionally strong attachment of the child to the parent that usually results is not invariably to the parent of the opposite sex. Worrying fathers can produce anxious sons.

Some of these anxiety states may be dependent on an Œdipus situation in the Freudian sense. So far, such children's psychoneuroses as we have treated have not suggested that the proportion so determined is high, and the effect of such treatment suggests that such an explanation is not by any means always the most far-reaching or practical. It might, of course, be assumed that in treatment of this kind the external readjustments, which are made automatically, bring about a redirection of libido within the patient, but we prefer to work with the ascertainable facts and to reserve possible interpretations of a Freudian kind for the rare cases that do not respond to our usual measures, and to wait until the play technique had been used repeatedly by persons with a sound psychiatric and scientific training.

Phobias are much more difficult to treat than the other symptoms of psychoneurotic anxiety. The special origin of the more usual phobias, such as fear of the dark, often remains undetermined. Probably some will never be further analysable and may be regarded as primitive or instinctive fears. Others can probably be produced in the manner of conditioned reflexes, by

some accidental association, after the pattern of Watson's experiments on the effect of noise on infants. Some are produced by parental example, like the other symptoms of psychoneurotic anxiety, while a residuum have the symbolic value of a symptom in the Freudian sense.

CASE 89.—Kenneth C. is an example of an anxiety state which illustrates the above remarks.

Kenneth C., æt. 12, was brought to Guy's Hospital by his mother on 27th August 1927. His mother said that he slept badly, had terrifying dreams and twitchings of the limbs. He was not going to school on account of these symptoms and spent his time moping at home. He complained also of pain behind the ears and of headache. He was afraid of being left alone; out of doors he was terrified of traffic.

From his mother it was learned that he did not play with other boys, that his only recreation was reading, and that he was so scared of the dark that his mother had to allow him to sleep with her. She had felt obliged to make a fuss of him because of his "nervousness", and to show preference for him over her younger son. She tried to arrange special conditions for him in school, and kept him away from it often for trifling ailments. He attended an elementary school and was in Standard 5, but his work was not up to that standard. He had of course been frequently absent on account of his symptoms.

Family History.—His father was said to be "nervous", *i.e.* anxious, unstable and impatient, sometimes striking the boy when he refused to go to school. His mother admitted that she also was "nervous", *i.e.* apprehensive, but claimed that she could conquer this. The paternal grandfather died in an asylum. The mother, who married at 30, had three pregnancies. The first resulted in a miscarriage, the patient is the second, and the youngest boy, now 10 years of age, is reported healthy. The patient was born when his mother was 32. The boys slept together in their parents' room. When the latter proposed moving to a room downstairs, Kenneth refused to be parted from his mother at night.

Early History.—His mother said that he had been a very quiet baby, that he was late in walking, but that he talked at about one year and cut his teeth at the normal age. His quietness and lack of spontaneity were the only abnormal signs in infancy. His only acute physical illnesses had been measles and rheumatic fever.

Mental Condition on Examination.—He wept and shrank away when spoken to, and clung to his mother's skirts. At the first interview he would not answer at all. He looked terrified and altogether miserable. No information was to be obtained from him on this first occasion. Subsequently a Binet-Simon rating was done, and gave him an I.Q. of 97. The psychologist's report was as follows:

"No specific defects in elementary processes were detected except (*a*) a slight reduction in visual discrimination and retention of forms, which possibly influenced spelling ability; (*b*) some lowering of normal power in auditory retention (immediate and distant).

"Motor response was good, suggestions were resisted and association was good. Reasoning showed badly on tests (mental age, 10 years) but was probably influenced by emotional factors.

"The main mental characteristics revealed in the boy's whole work and attitude were:

"(*a*) a marked distrust of his own capacity;

"(*b*) inability to make efforts in the face of difficulty or adverse criticism.

"The test results are probably not a true indication of his native intelligence, but show the operation of intelligence, in many ways above the average, hampered by emotional and temperamental factors. Failure in school work may be largely attributable to similar causes."

Physical Status.—There was no physical abnormality. He was fairly well grown and developed.

Treatment.—In view of the exceptional difficulty of the boy's disposition, it was decided to give him the benefit of a period away from home among other boys. This was done and seemed to be meeting with a fair measure of success, when he became very depressed and threatened to take his own life if he were not allowed home. He was found in a dark pantry with an open penknife. He walked on one occasion in his sleep, and was reported to have narrowly escaped falling downstairs. His parents were instructed in the necessity of encouraging him to emancipate himself from them, especially from his mother. They were to encourage him to play football and to join the Scouts. It was arranged that he should sleep with his brother, in a bedroom of their own. His brother undertook to teach him to box.

On his return home he walked once in his sleep and frequently talked in it; he slept and ate better and expressed a desire to join a football club, which he had never done before. Also he played more readily with his brother.

On 20/11/28 a letter was received from his mother, stating that he was much better, had been chosen to play for his school at football, and mixed well with other boys.

We might have preferred to consider this as an example principally of timidity, induced and fostered principally by the mother's attitude, rather than of an anxiety psychoneurosis in a child, because the former hypothesis is simpler and covers all the facts without making the invocation of hypothetical factors necessary, and forms a successful basis for treatment.

Obsessive-compulsive conditions as they occur in children

have been discussed briefly in the chapter on psychoneuroses. It is only necessary to add here that in children they seldom by themselves constitute a condition that is brought for treatment.

Some **delinquent acts** are produced in a way precisely analogous with the mode of production of psychoneurotic symptoms. They are the outcome of conflict, or a substitute or compromise between opposing tendencies, and are symbolic, while the delinquent is unaware of their real source and suffers from psychoneurotic symptoms in the ordinary sense at the same time.

Thus, reporting instances of incendiarism in children, H. Y. Yarnell (*American Journal of Orthopsychiatry*, 1940, 10, 272) observed the following characteristics: (1) They set the fires with accompanying daydreams of burning some member of the family who had either withheld his affection from the child or become too serious a rival for the parental love. (2) The fires were made in or around their own homes, causing little damage and being usually put out by the child himself, a sign therefore, as Yarnell points out, that the act was chiefly symbolic. (3) The children showed anxiety and suffered from terrifying dreams at night and terrifying phantasies in the day-time. (4) All the children had some recent mental conflict.

One of the most striking things about this study was the similarity of the children's thoughts to what is found in Biblical writings. Thus, they felt that anyone bad was doomed to destruction by fire, but in the end everything became new and perfect by the purifying effect of fire. They seemed to feel that killing by fire would render the object of their act good, and that he would then be restored to life or " reborn ".

All the children had suffered from deprivation of love from parents or their substitutes, and many had lacked even food and economic security; in fact, what seemed to distinguish them from psychoneurotic children and made them delinquent rather than merely psychoneurotic in the ordinary sense was the intensity of their deprivation.

Psychoses

In childhood are very rare. Parents commonly fear that any oddity of behaviour in their children may be a sign of insanity; but it is very unusual for the psychiatrist to have to confirm their fears. It is axiomatic that behaviour which would be psychotic in an adult may be normal in a child. This does not mean that certain trends of behaviour in childhood are not significant, if left uncorrected, in the development of a psychosis

in adult life. Even if patients up to 16 are included, the numbers remain small.

Adding together the figures for several large series of admissions to mental hospitals in various parts of the world, it was found that only 1 per cent of 21,000 admissions were of children or young adolescents (Gillespie, in *A Survey of Child Psychiatry*, London, 1939). Even this figure implies the use of the word psychotic in a wide sense.

At least four types of illness with a schizophrenic appearance have been described in children. Kraepelin described schizophrenia with features similar to those found in adults. An attempt was made by de Sanctis (*Folie Neurobiologica*, 1908, ii, 127) to differentiate a group occurring early in childhood (before puberty) which he called " dementia præcocissima ", but this differentiation does not appear to be valid clinically and is bound up with a now outworn conception of dementia præcox as the result of intoxication arising in the sex glands.

The prognosis is usually considered to be worse in prepubertal than in adult schizophrenia. Ciampi (*Riv. ital. di neuropat.*, 1919, xii, 174) found no improvement in two-thirds of 50 cases, and in only one-seventh did he find a lasting improvement. On the other hand, Seeling found that half the schizophrenic cases under 14 seen at Munich between 1904 and 1912 made a social recovery.

Dementia infantilis is a condition resembling schizophrenia but characterised by a specially rapid and profound disturbance of speech, leading to its almost complete loss, by extreme restlessness, and by a uniformly unfavourable outcome in a state of dementia, which is reached in a few months. There are no neurological signs, no convulsions or other evidence of infection of the central nervous system, and the onset is usually in the third or fourth year. The facial expression remains intelligent, in appearance, and the physical health is well maintained. Stereotyped and tic-like movements, episodes of anxiety, apparently hallucinatory experiences, and cruel and aggressive behaviour are described. Only one case has been reported as improving. The pathological basis has been described occasionally as an acute lipoid neurolysis, as inflammatory, and as a diffuse cerebral schlerosis. The deterioration differs from a schizophrenic one in that there is retention of the emotional response to joy or shock, and of anxiety at an elementary level. The condition is probably relatively commoner than is usually reported (Lay, *Jour. Mental Science*, 1938, lxxxiv, 105).

Hyperkinetic disease is characterised by extreme restlessness and by the fact that most cases improve considerably or recover completely. The onset is about the fourth year: the restlessness reaches its height by the sixth year and then diminishes. The activity of such children has been well described by Kramer and Polnow as chaotic—there is no continuity except occasionally for a brief period in some simple repetitive movement like hammering. There is no aim other than immediate motor response to any passing stimulus. Speech is disordered—there is little spontaneous speech, and sentence formation is lacking. Even if at the age of 6 or 7 speech is restored to normal, some individual sounds are hardly articulated. In cases where speech has been well developed, the prognosis is said to be less favourable; these are apt to show some residual general mental defect.

Of 15 cases followed up by Kramer and Polnow, one died, three showed mental defect, five slighter defect and two were completely well: while four were still under 7 and hyperkinetic. Chronic inflammatory damage has been reported in the brain stem.

Manic-Depressive Psychoses.—Clinical experience suggests that these are rarer in children than schizophrenic psychoses, unless one includes any transient mood disorder under this heading. Esquirol reported a manic excitement in a boy of 8, a "mixed" manic-depressive psychosis (to use the Kraepelinian term) in a boy of 7, and one other boy of 11 with "melancholic" symptoms.

Such observations, however, are very unusual. Occasionally in the history of a manic-depressive psychosis in an adult, one finds evidence of a depressive phase having occurred within the first ten years of life. States of depression of a transient kind with self-accusation are probably common enough, but they very rarely attain psychotic form or intensity. That depressions of the clinical form of psychotic depression are rare in childhood is borne out by the experience of Schilder and Bender (*Amer. Jour. Orthopsychiat.*, 1937, vii, 225), who in an investigation of 65 child patients with suicidal preoccupations do not appear to have encountered any who were suffering from a manic-depressive form of illness. They studied 18 children under the age of 13 (this being the total under 13 out of 2000 patients). These children either came from very unhappy homes, or were themselves psychopathic — reacting to frustration, real or imagined, of their affectionate impulses with intolerance and vengeful phantasies of suicide. The fact that among actual

suicides in young people below 15 only about one-fifth occur before 13 and four-fifths occur between 13 and 15 (*i.e.* in early adolescence) points in the same direction. The few attempted suicides in children that we have encountered have been in children from very unhappy homes.

Mental Deficiency

(feeble-mindedness, imbecility and idiocy) has been described in another chapter. Reference may be made here to the large number of the dull and backward group—those who are intellectually subnormal but not sufficiently so to be regarded as feeble-minded. They furnish many of the problems prevalent in child clinics. Often such children have gone through school unsuspected of any such scholastic handicap. We have known them sent up for scholarship exams. It is not until they begin to play truant or to behave badly in some way as the result of their difficulty in school work that an opportunity is given for a precise assessment of their intelligence. The disturbances they exhibit are not, however, different in kind from those elsewhere described in this chapter.

It is important to distinguish intrinsic from accidental retardation. A child may be backward at school and also score badly on intelligence tests as the result of emotional difficulties, or of faulty attitudes on the part of his teachers, or from lack of stimulation such as occurs in the institutionalised child, or from a local deficit such as word blindness with which some children struggle through school undiagnosed. We have known an intelligence quotient rise considerably in a few months when such difficulties had been dealt with along the lines indicated by the diagnostic conclusions.

The relation between mental defect and psychosis in children is more complicated than it first appears. A few cases classed as mentally defective are probably states of defect following a psychotic process. If certain schizophrenic symptoms be held to represent a constitutionally determined pattern of reaction, then what produces defect in one person might produce schizophrenic symptoms in another. Differentiation is often difficult clinically and depends a great deal on the history.

A psychosis may be superimposed in one who is already mentally defective (the condition called propfhebephrenia by Kraepelin).

Disorders associated with Physical Disease

Epidemic encephalitis in children has already been dealt with under organic-reaction types, and the emotional instability associated with chorea is well known. Regarding trauma, it is difficult to assess the effects of head trauma on subsequent behaviour and the nervous disorders of children. Head trauma of some kind is almost invariably present, and great weight is laid upon it by the parents, so that of all incidents in the history it is likely to be singled out for special attention by them.

Our impression, however, in all cases where there has been undoubted brain trauma, sometimes of a severe kind, is that the prolonged after-effects in children are surprisingly few and slight. There are rare cases in which injury has been so severe as to lead to permanent mental defect. In one case in our experience the only prolonged residuum of a severe head trauma (which produced delirium in a girl of 9 for several weeks immediately following an accident) was a slight defect in immediate memory (retention). Epileptiform fits and irritability can also occur.

Results like this are rare. More usually it is disorders of behaviour and psychoneuroses which are attributed to head trauma. Investigation in these cases nearly always shows that the symptom existed before or otherwise independently of the head injury. It not infrequently happens that the extra consideration given to the child who has had a head injury, and the additional allowances made for it, lead to spoiling, and it is this spoiling and not the injury which is responsible for most of the after-effects of which the parents subsequently complain.

Nervousness is often associated with rheumatism but the association is, more often than is commonly supposed, an unreal one (Winnicott, *A Survey of Child Psychiatry*, London, 1939) since the diagnosis " rheumatic " is often applied to vague aches and pains where no objective evidence of rheumatism is forthcoming, and the term " chorea " when the movements are impulsive or, at most, fidgety. In such cases the " neurosis " and the " rheumatic " manifestations may alike be indicative of mental conflict associated with unconscious phantasies of the type alluded to under " Play therapy ".

Endocrine Disease.

This has influences that are mainly indirect. The more direct associations between endocrine disease and personality remain somewhat conjectural just as in adults.

As regards indirect effects, precocity of physical development or immaturity or abnormality produce obvious difficulties of adjustment to other children, who in any case are not sufficiently developed in social sentiments to attempt to make life easier for those who are in any way conspicuously different from the rest.

The direct effects of endocrine disease are the physical urges, which, like the excessive appetite of some patients with pituitary disease, or the excessive sexual urge of those having a precocious development of the gonads, will tend to produce behaviour disorders rather than deviations of personality. It is important on the other hand not to jump to conclusions that just because a child is sluggish and indolent and has, say, a Fröhlich syndrome there is a necessary causal connection between the two, since we have encountered children with Fröhlich's syndrome in whom such characteristics were not well marked.

CHAPTER XIX

OCCUPATIONAL THERAPY

In the treatment of any mental case time is the essential factor. Progress can be helped by good nursing, dieting, the careful use of drugs, and psychotherapy, and among these, occupational therapy should take a very prominent place. The value of organised occupational work lies in the fact that the patient is made to realise that there are still some things which he can do successfully. Even although he may have failed outside, it is important for him to recognise that he can succeed under hospital conditions. For instance :

Case 90.—A married man, 50 years old, was recently admitted to the Glasgow Royal Mental Hospital in a state of great agitation and depression, with a history of several determined attempts at suicide. He had been worried both in regard to his family life and his business. He was treated at home under the care of private nurses, and then in a nursing home, but these methods were unavailing. His depression was so intense that he felt his life was ruined, considered himself unworthy, thought that every one looked down upon him, and complained especially of lack of concentration and application. In the course of ten days, after the acute period had subsided, he was sent to the occupational division with a special nurse. This was a new opportunity for him. He was interested in seeing others employed, was persuaded to do some simple joinery work himself, at which he rapidly became accomplished, and a day or two later he confessed with great joy that he now had more concentration than he had thought possible. Since that time he has continued to make a steady improvement. There is no doubt that he would have regained his confidence in time, but his recovery has been accelerated.

The Value of Work in an Institution

This case emphasises in a concrete way the importance of work in relation to health. Every one realises that the happiest

people are those who lead useful, purposeful lives, and who, by their example, stimulate others to do likewise. This factor has been widely recognised and made use of in prisons, in homes for the mentally defective and incurable, in the war hospitals for wounded and disabled soldiers ; in fact, it can be said that in any institution or hospital where men and women are gathered together it is essential to have as many as possible employed in work which is interesting to them ; otherwise there is apt to be irritation, friction, disorder, boredom and introspection. This is nowhere more evident than in mental hospitals, for it is well known that the wards where the working patients live are the quietest, the happiest and the best conducted in the hospital. Mental hospitals, therefore, have always employed large numbers of patients, male and female, and for evidence of this one need not go farther than the annual reports of the Glasgow Royal Mental Hospital, which date back for well over 100 years. In the report for 1820 it is stated :

" Sociality has often been promoted, while the irksomeness of confinement has been alleviated by various occupations and amusements. Bowls and billiards have been favourite games, and reading, music, drawing, have often served to arrest attention and to dispel illusion. Some write letters or poems, one solves mathematical problems, and another has long been busily engaged in composing the history of a voyage round the world. . . . Some have laboured in the garden or shrubbery grounds ; shoes have been made and cloth woven by various individuals, and one patient is at present very useful as a joiner. Some of the females have knitted and sewed diligently, and so many of them have been industriously employed in spinning that almost all the bed and table linen now used in the asylum is the product of their labour."

All this was excellent, but it did not go far enough. Indirectly no doubt it led to betterment or recovery, but the tendency was to consider such work from the institutional and economic viewpoint rather than from the individual and curative. It was a haphazard method ; those who would work were sent to a department where they were most needed, and it was no great matter whether it was the sewing-room, laundry, or kitchen, the piggery, garden, or master of works' department. Such work helped in the management and administration of the institution, but often it was mere drudgery, and sometimes must have antagonised rather than helped the patient. All these departments are essential, and there are many patients who prefer to

be so employed, rather than at more artistic jobs; but more forethought should be exercised in apportioning such work, and the curative aspect should not be lost sight of. Under the old system there were large numbers of patients who for one reason or another—inefficiency, helplessness or poor general state of health—remained unemployed. The new system sets out to appeal to those who never previously have been employed, and to stimulate anew those who have been looked upon as failures. This is not an easy task. It is one which demands almost endless patience and good organisation.

The thin edge of the wedge towards specialised treatment was applied by Lady Brabazon, who in 1880 formulated a scheme to employ the infirm and crippled inmates of workhouses. She offered a grant of money to any workhouse or infirmary that would try it. The superintendent of Barnhill Poorhouse, Scotland, in 1895, started this method of treatment; in 1898 it was introduced into the Glasgow District Asylum, Woodilee, and in 1899 Dr. H. C. Marr commented favourably on it. According to this scheme a number of ladies held a meeting in the asylum once a week, at which a variety of occupations was taught to patients of both sexes. Meanwhile, in the United States of America, a number of psychiatrists, among them Dr. W. R. Dunton and the late Dr. Hall, were realising the importance of this method of treatment, and attempting to organise it on a wider and more detailed basis. The results produced were so beneficial that practically every mental hospital in the United States doing progressive work has now its occupational division.

The Occupational Division

In December 1922 an occupational division was organised in the Glasgow Royal Mental Hospital along the following lines. An instructor was appointed to take charge of the department, and later a male assistant was provided. In addition, the nurses, male and female, set in charge of groups of patients were encouraged to take an interest in what was being taught, so that they in turn might introduce the simpler types of handicraft into the wards. The question has not infrequently been raised whether the person in charge of such a division should be some one who primarily has been trained as a mental nurse, or whether he should be a person who has specialised exclusively in handicrafts. Taking everything into consideration, we favour the latter. In any case the instructor should be

well trained, with an ability to transmit knowledge to others, with a sympathetic personality, and with a natural aptitude for dealing with patients mentally disordered. The head of the department should understand clearly that too much must not be expected, and that there is likely to be always a proportion of failures. Every effort should be directed to produce work of a high standard, but it must never be forgotten that work *per se* is not the main thing. The essential feature is that the patient receives individual treatment and cultivates interests which formerly have not been touched. In order to ensure really good work there should be the closest co-operation between the occupational department and the medical and nursing staffs. This can be accomplished by frequent discussions in regard to the progress, or lack of it, of individual patients; by the medical officer sending a note to the department with each new case, and by his instructing the director about any special point which should be kept in mind. Co-operation between the occupational department and the nursing staff is often rather more difficult, because a spirit of rivalry is apt to enter in; one side is apt to think that some patients could be more usefully employed in one department than elsewhere, and the question of housekeeping versus curative training is often a source of friction. A satisfactory way to deal with this matter is for the occupational instructor to give a series of lectures and demonstrations to the nurses, so that the principles and value of the work can be clearly pointed out.

Such an occupational division does not need any elaborate accommodation, but it should be housed entirely separately from the institution, so as to create a more definite feeling of change. When we started our department at Gartnavel we selected a pleasant part of the grounds, and put up a pavilion very much of the type of an army hut, but subdivided into three divisions, two large and one small. In the course of a few months this pavilion was found to be inadequate; it was not large enough, and there were drawbacks inherent in the mixing of male and female patients. So another pavilion of a similar type was provided, one to be used by the men and the other by the women. Owing to the success of this scheme, these two pavilions have now been joined by a large central hall. The idea of the central hall is to display the completed work, and also for recreational purposes. Just as there should be a work centre, so also should there be a play centre, where simple games and physical exercises can be indulged in. It is best, where possible,

to combine these two under the same instructor.

The actual working of the department means the grading of patients in any number of different groups, depending partly on the number of patients to choose from, and partly on the amount of help available for teaching purposes. It is our custom to have three separate classes both for the women and for the men—the efficient and interested, the less efficient, the dull and apathetic. In the first group, and to a lesser degree in the second group, there are possibilities of recovery; the greater number in the second group, and almost all of the third group, are persons who can possibly be brought up to a better level, but where recovery is more or less out of the question. These groups can of course be more and more subdivided, depending upon the amount of assistance available. As a general rule, the classes are each of one and a half to two hours' duration, but they may be longer or shorter in accordance with the effect. Some patients to begin with will not work at all, others only spasmodically, while others enter into it whole-heartedly, and may spend the greater part of the day in the occupational division. Where there is no contra-indication, they are allowed to do so. It is certain that better results could be obtained if the personnel of the department were increased, but so far it has been impossible to enlist the services of voluntary helpers. It should, however, be possible to get people willing to learn methods of work and of administration with the object eventually of obtaining salaried positions.

We have often been asked whether we have found one type of work more suited to a special form of mental disorder than another. The answer is in the negative. Every case is a law unto itself, and with each new patient a different interest has to be found. Some patients work better with bright colours, others prefer some purely mechanical type of work, others again respond to the delicacy of china painting or hammered brass. For the most part, when a patient first goes to the department, the work should be simple and not too large, so that a result can be obtained quickly, and then later more difficult and larger pieces of work can be given. The types of work which we have found of most value are raffia-work, cane-work, basket-making, chair-making, rug-weaving, simple joinery, repoussé, china painting, embroidery, the use of the fret-saw for toy-making, and more intricate work, such as batik and barbola. With such a variety it is usually possible to appeal to practically every one. There are, however, quite a number of patients who cannot

attain any of these crafts. Such patients can still be used in the department to sandpaper articles that have been made, both of wood and brass, to varnish, to wind wool, etc. They act as part of the team.

The Purposes of the Division

The organisation, then, of an occupational division in a mental hospital serves many useful purposes, some of which we would like to elaborate.

1. Such a division affords an additional outlet for a great variety of interests, and offers real facilities for constructive work, not only during the hospital period, but also after return to home conditions. A good example of this is :

Case 91.—A single man, 40 years old, who for one year previous to his admission had shown mental symptoms, and had received treatment in other mental hospitals. His condition was characterised by great emotional instability, depression and an attitude of suspicion. At first he was most hostile, maintained that he was unlawfully detained, that it was a "frame-up" on the part of his relatives. He suffered from hallucinations of hearing and of taste and smell. For several months his condition continued unchanged; he paced the floor continuously, he was loath to answer questions, he thought the other patients were laughing at him, he slept poorly, and looked ill both physically and mentally. After a great deal of persuasion he was induced to visit the occupational division, where he was immediately attracted by the activity, and said that he would like to learn rug-making. He proved a diligent, capable worker, who got great pleasure out of the different designs, and forthwith he proceeded to make a satisfactory recovery. Since his discharge he has continued rug-making as a hobby, and adds considerably to his income.

Another case which contained a valuable lesson was that of :

Case 92.—A young man, 20 years old, who at home had been idle and lazy. Following an episode of friction with his father, he was certified as of unsound mind, and was admitted to the Glasgow Royal Mental Hospital. He was sullen, perverse and antagonistic. At first he refused to dress himself, said that he would not shave nor wash himself, and that he would do everything in his power to make things unpleasant for his parents and those who had to do with his certification. The patient was quite clear mentally, but morose, antagonistic and defiant. The occupational division served as an outlet for him at a most critical time. While there he saw some patients engaged in china painting; he expressed a wish to try it and was given a bowl on which he drew his own design, and worked at it with

such success that he was awarded a first prize at an arts and crafts exhibit held in the city. In his case the occupational division made his temporary stay in the hospital more pleasant to him, and helped him to see his problem in a better balanced way.

2. An occupational division creates a new series of contacts ; it means that patients are brought into touch with teachers whose *whole* time is spent in appealing to their practical interests, and who have not the same relation to them as doctor or nurse. We have known many patients whose antagonistic attitude has been modified by the occupational teacher, who naturally has approached them in a less professional way. Let us take the case of a male patient, formerly a clerk, who has been in the hospital for over forty years. This man had been a " wall-flower " throughout his hospital residence, and when it was suggested that he should go to the occupational department the male nurses said that the thing was impossible, that attempts had been made to get him to work, but that it had always been quite useless. What was the result ? He was started with cane-weaving, and slowly, but surely, completed a number of baskets. He was then given a more difficult weave, so as to make seats for stools and chairs, and now he is learning how to weave rugs. This man has been rescued. He has been given an interest which he has never previously had, life has become pleasanter and more profitable for him than heretofore. The case is undoubtedly one of schizophrenia, and, although recovery is out of the question, the monotony of his hospital residence has been greatly alleviated.

3. Such a division creates a work-atmosphere ; it means competition, and it indicates to newcomers that an attempt is being made to suit the needs of different individuals.

All these varied factors work in together and appeal to the patient in such a way that they create a spirit of hope and new interest which means much. The patient is given a chance to prove himself capable and successful, and not necessarily a failure. Every type of mental case can be appealed to. Many cases of mental deficiency are taught orderly habits and ways of work which stand them in good stead, and it means the substitution of good habits for bad ones. Cases of depression feel that life has still something in store, the manic is shown how to direct his energy in a more constructive way, the paranoiac is side-tracked from his phantasies, and those organically ill have an aid in maintaining their rapidly dwindling intellectual

faculties. In connection with this last observation we might instance the case of a man of 50 years, who at the time of his admission suffered from a series of convulsive attacks, resulting in a right-sided hemiplegia with aphasia. When this patient was able to get up he was sent to the occupational division, where he was taught how to weave a rug on a loom. At first he found it very difficult, and he was not allowed to work for more than short periods of time, but gradually he became more and more interested in this, and we believe it helped his concentration and intellectual power, and helped him to come up to a better level than he would otherwise have attained.

Occupational Therapy in the Home

Moreover, many of the simple handicrafts practised in institutions can equally well be taught to patients under single care or at their own homes. The spirit of competition will be lacking, but the fascination of acquiring a craft may be a potent factor in accelerating recovery, in retarding dementia, or in giving self-confidence. Nearly every type of work available for patients in institutions is also suitable for patients nursed at home. Raffia-work, rug-making and china painting are examples of suitable occupations, whereas more mechanical work such as polishing brass or silver may be enjoyed by those incapable of learning crafts.

Occupation as an Instrument of Prevention

Occupational therapy may be not merely ameliorative and curative, but it may be used as an instrument of prevention. The practitioner more than any one else should be familiar with the family circumstances, the resources of the home, and the potentialities of further development. Every day it seems to become more important that a person should be fitted into his proper niche ; the day of square pegs and round holes should be past. The National Institute of Industrial Psychology has this matter well in hand, and employers of labour are exercising greater discrimination in choosing their employees. The man not contented with his job, nor suited for his job, is not a good workman. The physician has not sufficiently recognised this. He has usually considered such conditions as irritability, restlessness, discontent and faulty habits of life generally as being due to physical factors, and has not clearly enough understood that all of these symptoms mentioned, and many more, may be due

to faulty training, to unwise leadership, and to a lack of proper balance between work and rest and play. The recent investigations of the Industrial Fatigue Research Board emphasise the importance of avoiding monotony, and of improving the conditions of work generally. Where such difficulties are actually met with, the advice and guidance of the physician are likely to be of more value and of greater weight than those of the parents. Even in physical illness the psychological factors must not be lost sight of, and not infrequently it is more important to treat the man rather than his organs. A careful survey of the whole problem, and the guidance into satisfactory work channels will usually under such circumstances accomplish more than all the drugs in the pharmacopœia. Half the battle is to maintain the patient's hopefulness and his faith in himself. Every boy and every girl, the tired, harassed business man, the busy housewife, must be encouraged to develop for themselves healthy outside interests, otherwise there is apt to be discontent and friction. The husband very often does not care to do what his wife is interested in; the wife cannot get sufficient distraction from her daily round, and where such is the case trouble is not far away. This aspect of medical treatment is, however, of vast importance in getting people to lead better balanced lives, and in certain cases it may play a definite part in warding off attacks of nervous and mental illness.

When we speak about occupational therapy we do not necessarily confine the term to what we mean by handicrafts; it may be widened so as to include all forms of activity—games, dancing, theatre-going, participation in sports, and crafts of all kinds. It should be used as a means of socialising people and of widening interests in every possible direction. It is not possible to give hard-and-fast rules how this may be accomplished, because the particulars not only depend on the individuals themselves, but are largely dependent on the environment.

Although occupational therapy has been utilised, it has never been fully organised, and its great value has never been thoroughly appreciated. We have no hesitation whatever in stating that it is one of the most useful agents we possess in promoting improvement and recovery. Every mental hospital should have some such department, varied to suit the individual needs of the institution, private or parochial, rural or urban. The mental hospitals which utilise such a division tend to create among their patients a spirit of hopefulness and of happiness, which is largely lacking in those others that have no such department.

CHAPTER XX

RELATIONS OF PSYCHIATRY AND LAW

WHEN called to examine a mental patient the doctor should at once satisfy himself of the *bona fides* of the whole matter, and should have an interview with a near relative or friend from whom he should obtain a detailed account of the history. As a general rule, the relatives are no more anxious for the removal of a patient to a mental hospital than the doctor is to recommend such a step, but when the relatives feel that treatment in a mental hospital is necessary, then the doctor should ascertain from the relatives why they deem such a step advisable. Not infrequently the patient may have stated that he does not need or desire a medical man, and the relatives may suggest that the medical man should be introduced by subterfuge—that he should allow himself to be called other than by his proper name and title, masquerading as simply a casual visitor. When the consultant is called in the family doctor not infrequently suggests that he will introduce him merely as a friend of his, or he attempts to cloak the situation in some other way. Neither the doctor nor the consultant should consent to this; they must insist that the situation be fairly met, and that the patient be treated as they would themselves prefer under similar circumstances. If any deception is practised it is impossible to make an adequate mental examination. There is no need to be offensive or brusque. If the patient inquires the object of the visit, he should be told that his relatives have been concerned about the state of his mental health, and that they have asked the examiner to guide them in regard to the proper line of treatment. The doctor should emphasise the fact that he has no desire or wish to advise mental hospital treatment, but that if he thinks such is necessary he will tell him so. If it is possible, notes should be taken at the time of the interview, or else immediately afterwards, so as to indicate clearly the scope of the examina-

tion and its duration. Verbatim samples of what the patient has actually said should be incorporated. The examination should be conducted on the lines already indicated—and, as Clouston said, special attention should be paid to "what he looks like, what he says, what he does". A careful physical examination should always be included. The necessity for taking notes—and preserving them—of every case which one certifies seems to be shown very clearly by the strictures of the judge upon Dr. Fisher in the recent case of Harnett *v.* Fisher. Dr. Fisher certified Harnett to be insane in 1912, and Mr. Harnett brought an action for negligence resulting in wrongous certification in 1926—fourteen years later. The judge asked, "Tell me one single question you asked him". Dr. Fisher replied, "I must have asked him something, but I do not remember what the phrases were". The judge said, "I should have thought you would have told us the questions you asked him", and commented: "He says he put such small questions he cannot tell what they were". It is obvious that if one is going to be sued for damages fourteen years after the act, only the taking of notes at the time, and the preservation of them, are going to make it possible to defend oneself.

If, as a result of his examination, the doctor is convinced that mental hospital treatment is the best method of dealing with the patient, he can advise the relatives (and perhaps also the patient) that there are two methods of procedure:

(1) Voluntary application.

(2) Certification.

Voluntary Application

This method requires, in Scotland, that the patient himself shall sign two letters, one addressed to the Board of Control, the other to the medical superintendent of the institution to which he wishes to go, saying that he wants to place himself under care and treatment as a voluntary boarder. No other formality is necessary. This is the method of choice, and every patient who is capable of appreciating the significance of such a form of admission should be given the opportunity of utilising it. A voluntary patient can leave the institution on giving three days' notice, in writing, of his desire to do so. If a patient has been admitted on a voluntary basis, and insists upon leaving, even though he is obviously unfit and still mentally ill, he should never be certified in the mental hospital. He should be allowed to leave in the care of his friends, and, if necessary, his friends can

have him certified and returned. If a patient enters voluntarily and is then certified later in the institution, he is apt to think that he has been tricked, and his trust in the institution is so shaken that further treatment is a matter of the greatest difficulty. This voluntary method in Scotland applies not only to private patients, but to most of the rate-aided institutions, whose Committees have recognised the humanity and hopefulness of such a scheme. A voluntary patient retains his civic rights, can sign cheques and legal documents, and advise in the management of his affairs. This procedure is being used more frequently, and in the royal asylums of Scotland over 50 per cent of the admissions are now voluntary patients.

In **England,** the passing of the Mental Treatment Act, 1930 (20 & 21 Geo. V. cap. 23), marks a definite advance, for the new Act recognises the possible benefit of early treatment for incipient cases of mental disorder, and emphasises the principle of prevention rather than detention. The main provisions of the Act are as follows:

(1) Any person who is desirous of voluntarily submitting himself to treatment may make a written application to the person in charge and be received as a voluntary patient in an institution within the meaning of the Act, or in any hospital, nursing home or place approved for the purpose by the Board of Control, or into the charge, as a single patient, of a person so approved.

(2) Any person under the age of sixteen years whose parent or guardian is desirous of submitting him to treatment for mental illness, may, if the parent or guardian makes to the person in charge a written application for the purpose, accompanied by a medical recommendation, be received as a voluntary patient; but such person shall not be received on his own application.

A voluntary patient may leave the institution or home on giving the person in charge three days' notice in writing of his intention to do so. In the case of a person under the age of sixteen, this notice must be given by the parent or guardian.

A notice of the reception, death or departure of the voluntary patient must be sent to the Board of Control. A further provision is that, if the Board of Control are of opinion that a voluntary patient is unfit to remain on such a basis, they may order the person in charge either to discharge the patient or to take steps to deal with him either as a person of unsound mind or as a person who is likely to benefit by temporary treatment. This is an unnecessary complication, and leads often to distress and ill-feeling, because it means that the patient is dealt with in one way at the time of admission, and in a totally different way

while undergoing treatment; the patient is penalised for the progress of his illness, which he cannot help. A further unfortunate and unnecessary provision is that any relative or friend of the person who is received as a patient may be received and lodged as a boarder in any registered hospital or licensed house as long as the patient is resident therein.

United States of America.—There is great diversity of practice. Thirty-four States allow voluntary admission, eighteen permit commitment in an emergency, fifteen provide for temporary care without formal commitment, and seven provide for commitment for the purpose of observation. In addition, psychiatric clinics receive patients willing to co-operate in their treatment, without any formality, and have special provisions for cases referred for observation. The procedure is for the voluntary patient to make application to the medical superintendent, and a copy of this application is sent to the State Department. Following admission, the patient must be discharged, on request, at a period ranging from two days (*e.g.* Vermont) to thirty days (*e.g.* Oregon); the more usual period is from three to ten days. While the above is the usual practice, various anomalies exist which are difficult to reconcile with modern standards, and are contrary to the voluntary principle. For instance, in Mississippi the voluntary patient requires to have medical certificates from two physicians and a citizen, while in the district of Columbia a certificate is required from two physicians, and a request from the nearest relative or friend. In Minnesota, voluntary patients may be detained by the medical superintendent as though committed, unless otherwise discharged by the Court; if the mental condition of the patient becomes aggravated or unsafe, the County Court is petitioned, and commitment takes place in the usual way. In South Dakota, the medical superintendent of the institution may retain a voluntary patient at his discretion; in Florida, voluntary patients are admitted on the Order of a Board of Commissioners, when expenses are guaranteed.

The period of voluntary admission in some States is specifically stated—*e.g.* Oregon, thirty-one days; Ohio, ninety days; Vermont, a period to be determined by the medical superintendent. With the above exceptions, the procedure for the admission and discharge of voluntary patients is essentially the same as exists in other countries. Those States which do not have provision for voluntary patients usually have some arrangement for temporary care or observation.

Other Countries.—In Austria, Czecho-Slovakia, Sweden, the

voluntary form has to be signed by the patient before witnesses. In Belgium, voluntary patients are admitted, but only under regular commitment provisions. In France, voluntary patients are admitted only to the Henri Rousselle Hospital. In Italy, voluntary admission is for a specified period of fifteen days. In Germany, a person who is of age, and who has not been declared incapable of managing his own affairs, may be admitted to a public or private institution at his own request, provided he seems eligible and provides security for maintenance expenses.

Certification

If the patient refuses to sign the voluntary application, some other way must be sought, and two main points must be considered carefully before certification is proceeded with :

1. Is it advisable to certify ?
2. Is it possible to certify ?

1. The medical man and relatives may believe that mental hospital treatment would be best, but the social and economic circumstances may be such that certification as a person of unsound mind may not be advisable. A compromise has to be effected either by employing specially trained nurses in the patient's own house or by removal to a nursing home.

The deliria associated with any toxic or infective-exhaustive process, mild affective states, psychoses associated with senility, and certain paranoid states are examples of groups of cases technically of unsound mind, yet able to be cared for satisfactorily under outside conditions.

Apart from the purely medical side, the social and economic circumstances are often deciding factors for and against certification. Certification is desirable where no adequate accommodation at home or in a special nursing home is available, or where money is a consideration. Certification is unnecessary where adequate arrangements for treatment can be made outside of mental hospitals, and undesirable where the patient occupies an important public position, *e.g.* director of company, partnership, etc.

2. It may be impossible to certify the patient owing to the fact that he is thoroughly on his guard, and has sufficient understanding to enable him to rise to the occasion. In such instances, although the statements of the patient's relatives may be convincing in themselves, there may not be sufficient direct evidence to justify certification, *e.g.* in hypomanics, paranoiacs,

alcoholics and epileptics. It is not justifiable to certify a patient while in an epileptic fit, or while under the influence of alcohol, as these may be merely episodes.

When the doctor has satisfied himself fully regarding the good faith of those concerned, and when he feels that the patient has had every possible chance under the best circumstances, he is justified, without further delay, in recommending mental hospital treatment under certificates. The tendency is to delay such treatment far too long. The doctor must explain clearly to the relatives his reasons for advising it, and must inform them that his certificate is only one part of the formality, and that it is of no value unless the nearest relative is willing to sign the petition, which, along with the medical certificates, has to be placed before the legal authority for sanction. The law in England differs from that in Scotland. In England the law differs regarding the certification of private and rate-aided patients respectively, in that the private patient requires two medical certificates, the rate-aided patient only one. In Scotland no such distinction is made, every patient, private or parochial, requiring two medical certificates.

Law in England.—In England a patient may be committed to a mental hospital under the provisions of the Lunacy Act of 1890 by one of four methods. The Mental Treatment Act (1930) has provided a further method (*vide* 5 *infra*).

1. By **Reception Order on Petition.** This applies only to private patients who have been living in their family or with their friends.

2. **Summary Reception Order.** This method applies to rate-aided patients, and also to private patients who are (*a*) not under proper control and care, (*b*) are cruelly treated or neglected by their relatives, or (*c*) are wandering at large. A pauper patient, or a lunatic at large, may be placed in the observation ward of an infirmary by a relieving officer or a constable, and visited by a justice, who may issue a detention order detaining the patient there for fourteen days. In the first group mentioned—private patients living with relatives or friends—the application for certification is made by petition of the nearest relative (with certain exceptions). In all the other possible conditions of non-pauper patients, and in all rate-aided cases, the application is made to the proper judicial authority (a magistrate or justice of the peace) by the civic authority—the constable, relieving officer, or overseer of the parish in which the alleged lunatic is found.

For the complete legal process of certification in the cases of a private patient living with his family or friends, five separate documents are required.

(1) The petition of the nearest relative, or some one empowered to act, but the reason why the nearest relative does not act must be stated.
(2) A statement of particulars, *e.g.* age, length of illness, etc.
(3) and (4) Two medical certificates.
(5) The reception order signed by the appropriate judicial authority, authorising the patient's reception to a recognised mental hospital or licensed house.

In procedure by Summary Reception Order the necessary documents are similar, but there is no petition even in non-pauper cases, since the relatives and friends are not available. The statement of particulars is signed by the parish officer.

In the case of private patients one of the medical certificates must be signed by the patient's usual medical attendant, unless some valid reason is mentioned in the petition.

A third method is by **Urgency Order.**

This method is adopted where for the welfare of the patient, or for the public safety, it is necessary to act forthwith. The urgency order must be signed by the nearest relative available, who must have seen the patient within two days of the date of the order. There must be a statement of particulars, and one medical certificate. The order may be signed before or after the medical certificate. But the patient cannot be received into a mental hospital on the strength of it after two clear days from the date of the medical certificate. An urgency order remains in force for seven days. By the Act of 1930 this method has been extended to rate-aided patients, for whom the order must be signed by the public assistance officer.

4. By **Inquisition.** This is an expensive method, now used only in certain cases, especially when a large estate is concerned.

5. The introduction of **temporary treatment** (Mental Treatment Act, 1930) without certification brings forward a new principle, and allows for the treatment of the so-called non-volitional case. This is effected by an application being made by the husband or wife or by a relative. The application must be accompanied by a recommendation signed by two registered medical practitioners, of whom one shall be a medical practitioner approved by the Board of Control, and the other shall be, if practicable, the usual medical attendant of the person to whom the

application relates. The medical practitioners may examine the patient either separately or in conjunction, and action must be taken within a period of fourteen days. Notice must be sent to the Board of Control, along with a copy of the application on which he was received and of the recommendations accompanying the application. A temporary patient may be detained for a period not exceeding six months. If a person who has been received as a temporary patient becomes capable of expressing himself as willing or unwilling to continue to receive treatment, he shall not thereafter be detained for more than twenty-eight days, unless in the meantime he has again become incapable of so expressing himself. If a patient under such circumstances has not recovered within the period of six months, but his early recovery appears reasonable, then the period may be extended for further periods, not exceeding six months in all. The above methods are a step in the right direction, and may help appreciably in the prevention and treatment of the graver stages of mental disorder.

There are certain *statutory prohibitions* with which the doctor should be familiar. These are slightly different in England and in Scotland. In England a medical practitioner signing the certificate :

(*a*) Must not be related to the petitioner, as father, father-in-law, son, son-in-law, brother, or brother-in-law.
(*b*) He must not be a partner or assistant to the other signatory.
(*c*) He must not be the person under whose charge the patient is being placed ; nor can he be the usual medical attendant of an insane person in a " single " patient house, if he has signed the medical certificate upon which the reception order or urgency order is based.
(*d*) He must not be interested in the payments on account of the patient.
(*e*) The examination must be made within a period of seven clear days before the presentation of the petition, or within two clear days where an urgency order is used.

Law in Scotland.—In Scotland the law is considerably less cumbersome in dealing with the certification of people suffering from mental illness. Apart from certification and commitment to a mental hospital (Lunacy Act, 1887), provision is made for the *admission of patients suffering from mental disorder and defect to*

private nursing homes and private dwellings. These nursing homes are specially licensed by the General Board of Control for Scotland. Two forms of certificate are in use: (1) Schedule G (1857) enables a medical practitioner to certify that the patient's malady is unconfirmed, and that it is considered expedient, with a view to his recovery, that he should be placed in a nursing home for a temporary residence not exceeding six months. On admission this certificate is handed to the Matron or other person in charge of the nursing home and is authority for the patient's detention. (2) Form F 2 is a medical certificate corresponding to the ordinary certification form in which has to be incorporated the facts indicating insanity, and also the statement that the patient is a proper person to reside in a private nursing home or dwelling under care and treatment. Sanction for detention is granted by the General Board of Control for Scotland; the Sheriff's Order is not required.

Boarding Out.—Certain persons who may be considered incurable, harmless and easily managed may be boarded out under guardianship. The majority of those so dealt with have already been certified as mentally unsound or mentally defective, but when it is desired to board them out the sanction of the General Board of Control for Scotland must be obtained beforehand, and a statement regarding the case, and medical certificates, must be submitted for consideration. If the case should prove unsuitable, sanction is withdrawn, and the patient is transferred to the mental hospital, or colony for defectives. A boarded-out patient is visited four times a year by the district medical officer, twice a year by a public assistance officer, and once a year by a deputy commissioner or commissioner of the General Board of Control for Scotland. A record of visits is required to be kept. Patients under private care are either placed singly or in numbers not exceeding four in any one house.

In every case in Scotland, whether private or parochial, two medical certificates are required, but these two certificates together with the petition signed by the nearest relative, and the sheriff's order for detention, are all embodied in one document. If the case is one of emergency, then the patient may be brought to the mental hospital on a *certificate of emergency* (one medical certificate and a petition), and retained for a period not exceeding three days. During that period the usual two medical certificates should be obtained, and the petition placed before the sheriff. The medical practitioner who signs the certificate must conform to the following regulations:

(*a*) He must not be related to the superintendent of the hospital or house into which the patient is to be placed, as son, brother, or father.

(*b*) He must not have any pecuniary or patrimonial interest in the establishment.

(*c*) He must grant his certificate of lunacy within fourteen days preceding date of petition to the sheriff.

In both England and Scotland the examination of the patient must be made separately from any other medical practitioner except, in England, for "temporary recommendation". Mr. Justice Hawkins, in Weldon *v.* Semple, said: "The statute requires separate examinations by the medical men, and here they both go together—as gross an evasion of the Act as could be conceived". "Anything more calculated to excite suspicion could not be supposed than both the doctors meeting and going together." The absence, or the semblance of the absence, of a separate examination by the two medical practitioners concerned would not only vitiate their certificates but render them liable to action for damages for false certification (Glaister). But where one of the certifying doctors has not previously seen the patient—as is usually the case, since both cannot be the patient's "usual medical attendant"—it is obvious that he must be made acquainted with the previous and present conditions before he proceeds to his examination. It is therefore suggested that to conform to the law in the letter as well as in the spirit, a certain interval—say of a day, or at least of several hours—should be allowed to elapse between the visit of the consultant and the visit for purposes of certification of the usual medical attendant.

The form of the certificate is practically the same in both countries. The certificate must be filled up with meticulous care not only to satisfy the medical man and the Commissioners of the Board of Control, but so as to stand the scrutiny of the lawyer.

Careful attention must be paid to the notes on the margin of the certificate—for example, the full name, address and designation of the patient must be given, as these are of importance for identification purposes. The patient may then be designated as a "lunatic", an "insane person", an "idiot", or a "person of unsound mind", and also "a proper person to be detained under care and treatment".

Sir Claude Schuster has summarised the reasons for certification as follows: (1) To protect the public from injury; (2) to

protect the patient from self-injury ; (3) to give treatment with a view to cure or amelioration which cannot otherwise be given ; and/or (4) to protect the patient from injury due to want of care.

The certifier must then state his reasons for coming to the above opinion, and for this purpose the certificate has two main headings : (1) " Facts observed by myself " ; (2) " Facts communicated to me by others ".

(1) "*Facts observed by myself.*"—These should be of a positive nature, expressed in non-ambiguous terms, and so obviously descriptive of mental disorder as to carry conviction to a person of ordinary intelligence. Statements couched in negative terms—" His memory is unimpaired ", " he has no delusions ", are of no value whatsoever.

A good general plan to follow is to describe the appearance of the patient, whether he is depressed, elated, agitated, noisy, dull and vacant looking, or unduly suspicious. A short description should then be given of any abnormality of conduct observed, whether he has attempted to injure himself or others, whether he is unduly restless, destructive, mutters to himself, or talks incessantly, drifting rapidly from one topic to another ; or, on the other hand, whether he is mute, totally inactive, occupying given positions for indefinite periods of time, and needing everything to be done for him. He should be closely observed for reactions to auditory or visual hallucinations. This will be evident by his appearing to listen to voices, or by his suddenly describing imaginary occurrences. In any case, it is important to incorporate in the certificate a verbatim statement of any remarks of an abnormal nature uttered by the patient. If he expresses ideas which the certifier assures himself are delusions, these are valuable evidence of mental disorder ; but it is often important for the examiner to state that the idea expressed by the patient is a delusion. Statements of fact of this kind should form the bulk of the certificate. Important corroborative evidence of the inability of the patient to care for himself or his interests may be shown by a grossly disordered memory, or by undue facility and suggestibility, so that it is obvious that care and treatment in a mental hospital are the only satisfactory ways to deal with him. There are certain cases, *e.g.* some schizophrenic states, where there are no very gross signs of mental disorder, and where a certificate must be built up in a cumulative way. Such patients must usually be seen over an extended period of time before the medical practitioner feels fully justified

in giving a certificate of mental disorder. A diagnosis should never be placed on a certificate (*v.* de Freville *v.* Dill, *Times*, May 19, 1927). It may be wrong, or at least arguable, and it is not a "fact observed", but an inference.

(2) "*Facts communicated by others.*"—This part of the certificate may not be necessary, and is frequently omitted, but the wiser course is to complete it, because by so doing the medical practitioner shows that in addition to the personal examination of the patient he has inquired carefully into the details of the patient's illness from those who have been intimately associated with the patient. The name and address of the person giving the information should be given in full, along with a simple statement of the abnormalities noticed. The practitioner should take steps to ascertain, as far as possible, the truth of the "facts communicated by others", and especially to question the patient about them. Otherwise the practitioner may put down as delusions what turns out later to be true (*v.* Hume-Spry *v.* Smith and Another, *Times*, March 12, 1927).

The medical practitioner signing the certificate must be in actual practice, as well as being registered.

Law in United States of America.—Certification requires usually two medical certificates and some form of legal sanction, but in certain States, *e.g.* Alabama, Idaho, Iowa, one medical certificate is sufficient. The arrangements leading up to certification are often unnecessarily complicated. In some States it is statutory that a Lunacy Commission, consisting of one or two physicians and a layman, be appointed to examine the patient, after which a judicial hearing, or even a jury trial, is held (*e.g.* Illinois, Kansas, Kentucky), at which the patient must be present to answer the charge of insanity. In all States, whether or not a jury trial is required, the right of Habeas Corpus is preserved, and may be petitioned for by the patient, or by any friend or relative on his behalf. In California, an even more specialised procedure is in use, as an official termed the psychopathic probation officer of a county has power to make inquiries regarding the antecedents, character, history, etc., of the alleged insane person, on which he bases a report to the judge. Furthermore, the probation officer, in his discretion, may apprehend insane persons and bring them before the court for further action. Persons found to be mentally ill, but not dangerously insane, may be committed to the care and custody of the probation officer, and allowed to remain in their own homes, or may be committed to some suitable sanatorium, home or rest-haven, subject to the

supervision of the probation officer. Such patients remain subject to the further order of the Court. This psychopathic probation officer, be it noted, is nominated and appointed by a judge of the Superior Court, requires no special qualifications and is merely a glorified probation officer. In Delaware, two physicians of five years' standing file certificates with the superintendent of the State Hospital, and the patient is then taken to the Psychiatric Observation Clinic of the Delaware State Hospital. While there, the Board of Trustees appoints a Commission of two physicians to examine the patient, and, if requested by the relatives or friends, a jury may be impanelled for this purpose. If found insane, and fit for admission to the State Hospital, the report of the commission or jury is sufficient to admit him. The insane person must be present at the investigation of the jury or commission. Maine has the extraordinary provision that " the municipal officers of a town shall constitute a Board of Examiners, and before them shall all Insanity Hearings be heard ". If the municipal officers refuse to act within three days, then any two Justices of the Peace may do so. There is a further provision that " insanity hearings may be heard before the Probate Judge of a County, who shall issue his order committing the insane person to a State Institution when convinced of the insanity of such person ". In Massachusetts the insane person may be apprehended on a warrant issued by the judge, and confined in a suitable place for medical attention, or in a jail, prison or lock-up pending determination of his mental status. His insanity may be determined by the judge of the Lower or Superior Court without a hearing, with a hearing ordered by the judge, or, in the discretion of the judge, by a jury trial. In Rhode Island, on application an insane person may be apprehended and examined by a judge of the District Court, and be committed to a State institution or to the Butler Hospital. If this insane person cannot be brought into court owing to his condition, the judge of the District Court shall examine him at such time and place as is best suited to his condition, but cannot in such case commit him without the testimony of two physicians.

The law in New York State, in addition to demanding a certificate of lunacy by two qualified examiners, accompanied by a verified petition, has also provision whereby the superintendent of any State Hospital or licensed private institution may receive and care for a patient for a period not exceeding thirty days when requested to do so by a health officer. Furthermore, any person may be admitted to any State Hospital or licensed private

institution on application made by any interested person, accompanied by a certificate of insanity from a qualified examiner. Such a person cannot be detained for more than ten days after request for release. If, however, the superintendent deems further detention necessary, he can secure an order for commitment from a judge of a Court of Record.

These short abstracts give an indication of the varying procedure common throughout the United States, and indicate that in many respects the determination of mental disorder rests often more with the judicial authorities than with the medical profession.

Law in Other Countries.—In Austria an application for commitment must be accompanied by a birth certificate, and a certificate of one physician describing the patient's ailment. In Belgium also one medical certificate is sufficient. Cuba has the useful provision that, after a judge has approved of the application for commitment, the patient is observed for thirty days in a suitable place, after which, if he is declared insane by suitable medical authority, he may be removed to the State Insane Hospital. In Czecho-Slovakia, commitment is for a three months' period of observation and treatment, after which it may be prolonged indefinitely. In Finland, a written application to the chief physician of the institution must be accompanied by the physician's certificate, the opinion of the mayor and the certificate of the clergyman as to the personal data of the patient. In Germany there is no federal law, but each State regulates the admission of mentally ill patients by decrees, of which Baden is said to possess the most exemplary. In Baden, a person who is of age, and who has not been declared incapable of managing his affairs, may be admitted to a public or private institution at his own request, provided he seems eligible and provides security for maintenance expenses. There are three types of admission for temporary care and study:

(1) Admission by request of a relative, legal representative or competent functionary of an institution for social care or place of work. This petition must be accompanied by the certificate of a physician and by a statement from the District Official. This is the normal legal way of admission.

(2) The District Official (similar to a County Clerk) may order a person into a public institution who appears dangerous to himself or others, or is neglected. This really amounts to a police order in the interests of the public.

(3) Emergency admission may be provided at the request of

a social institution, provided that the need is an immediate one, and that this is confirmed by the District Physician or the physician of the institution into which the patient is admitted. It is stated that this latter form of admission has become the one most frequently used, as it allows of the admission of acute cases without delay or formality.

France.—In France the care of the mentally disordered is still regulated by the law of 1838, introduced by Ferrus. According to this law it is ordained that every *département* must have a public establishment to receive and take care of the insane, and these establishments for the insane come under the direction of the Public Authority. Three papers are required for admission:

(1) Request for admission.

(2) A medical certificate stating the mental condition, particulars concerning the disorder, and that it is necessary to have the patient treated and retained. (This certificate must be acted on within fourteen days.)

(3) A certificate of identification.

Otherwise patients may be admitted by order of Prefects in respect to any one who endangers public order or the safety of others. This, of course, is the ordinary emergency provision which is common in most countries. In the case of a private asylum, the Prefect must send one or two medical men in the course of three days to ascertain whether the patient is really insane.

Legal Liability of Certifying Practitioner

It must be clearly understood that the granting of a certificate in lunacy carries with it very serious legal obligations; for the person certified may, in his indignation at being deprived of his liberty, ask for a trial by jury as to his alleged insanity. Furthermore, he may demand an examination by two independent medical men. If these medical men should by any chance grant a certificate of sanity, the patient may feel justified in bringing an action of damages for wrongous certification.

In Scotland an action such as this cannot be brought after the patient has been discharged from the institution for one year. It must further be remarked that certification of this kind deals with a class of patient who is inclined to be litigious, and who is apt to feel that the medical man who has certified him has acted as an *agent provocateur*. In the Adams, Bond

and Harnett case in 1923, for example, damages were awarded to Harnett amounting to £25,000. These damages were given for alleged illegal detention and not for wrongous certification. This finding was fortunately reversed in a higher court, but one of the doctors who originally certified the patient was subsequently mulcted in £500 damages for negligence in certifying the patient. The action, however, was annulled on account of a technical point in law (Statute of Limitations, which in England makes an action invalid if brought later than six years after the alleged event).

The practitioner, therefore, should be quite certain of his ground, and should make a detailed examination of the patient in order to prove that he has acted in good faith and with reasonable care.

In England, Section 330 of the principal Act provides that persons doing certain acts under the statute shall not be liable to proceedings if they have "acted in good faith and with reasonable care"; and secondly, that any proceedings taken under the section may be stayed if the Court is satisfied that there is no ground for alleging want of good faith or reasonable care.

The onus of proof in such circumstances lies on the defendant to show that he has acted in good faith and with reasonable care. Subsection (1) of Section 16 of the Mental Treatment Act, 1930, transfers the onus of proof from the defendant to the plaintiff, Section 330 of the principal Act being amended so as to provide that an action will not lie unless the defendant has acted in bad faith or without reasonable care, *i.e.* in future the onus will be upon the plaintiff to show that the defendant has acted in bad faith or without reasonable care.

Secondly, whereas Section 330 (2) permitted the defendant to take out a summons to stay the action, the revised form enacted by subsection (1) of Section 16 requires the plaintiff to take out a summons for leave to proceed before he can commence his action; and such leave may not be given unless the Court is satisfied that there is substantial ground for alleging that the defendant has acted in bad faith or without reasonable care.

When there is any doubt in the practitioner's mind as to the desirability of certification, a second visit to the patient may be helpful, and will forestall any allegation of want of reasonable care.

Mental Defectives

These are dealt with in England and in Scotland[1] under the Act of 1913, called the Mental Deficiency Act, 1913 (3 & 4 Geo. V.), which applies to classes of people having this in common, that their mental defect has existed from birth or from an early age. The Education (England) Act of 1921 also deals with defectives in special schools.

1. *Idiots.*—"Persons so deeply defective in mind from birth, or from an early age, as to be unable to guard themselves against common physical dangers."

2. *Imbeciles.*—"Persons in whose case there exists from birth or from an early age mental defectiveness not amounting to idiocy, yet so pronounced that they are incapable of managing themselves or their affairs, or, in the case of children, of being taught to do so."

3. *Feeble-minded or Morons.*—"Persons in whose case there exists from birth or from an early age mental defectiveness not amounting to imbecility, yet so pronounced that they require care, supervision and control for their own protection or for the protection of others, or, in the case of children, that they by reason of such defectiveness appear to be permanently incapable of receiving benefit from the instruction in ordinary schools."

4. *Moral Imbeciles.*—"Persons who from an early age display some permanent mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect."

The Act deals with the above classes of persons if

(1) He is an idiot or imbecile of any age, at the instance of his parent or guardian.

(2) He is a feeble-minded or a moral imbecile and under the age of 21, at the instance of his parent (after the age of 21 such an individual comes under the Lunacy Act if his behaviour makes it necessary to certify him).

(3) He is a defective of any class or age under special circumstances—as (*a*) neglected, abandoned, without visible means of support, or cruelly treated, or (*b*) found guilty of any criminal offence, or ordered or liable to be ordered to be sent to a certified industrial school, or (*c*) undergoing imprisonment or detention,

[1] England and Scotland have each a separate Act, but the Acts are substantially in agreement. The 1927 Act applies only to England, and according to it the defectiveness need no longer have existed from birth or from an early age but may have arisen at any time during the first 18 years of life; and may have been brought about by disease or injury.

or in an institution for lunatics, or (*d*) is a habitual drunkard, and some other provisos, or (*e*) has been notified by the Local Education Authority.

Methods of Committal under Certificate.—*Idiots and Imbeciles.*—Two medical certificates plus a statement of particulars. One of these certificates must be by a medical practitioner approved for the purpose by the local authority or by the Board of Control. Wherever possible, the other certificate should be by the usual medical attendant, although this is not specified by the Act.

Feeble-minded Persons and Moral Imbeciles under the Age of 21.—Two medical certificates, plus a statement of particulars and a certificate from a judicial authority.

All classes of special circumstances as detailed above :

(1) By petition with two medical certificates, one of which must be by a medical man specially approved by the local authority or Board, with a statement of particulars, a statutory declaration by the petitioner, and a judicial order.

(2) By order of the Court, on being found guilty of a criminal offence, or (in a juvenile) on being found liable to go to an industrial school.

(3) By order of the Home Secretary (on imprisonment, detention in a reformatory or in a criminal lunatic asylum) on two medical certificates.

In certification for this class of patient, the precautions and forms to be observed are very similar to those in lunacy certification, but there must be stated also the class to which the defective belongs. General statements such as " he is lacking in judgment " must be supplemented by the mention of actions or statements of the patient making them.

In England the placing of feeble-minded children in special schools is effected under the Education Act of 1921, which makes it obligatory (sec. 55, 1*a*) upon Local Education Authorities to ascertain what children are mentally defective and incapable of benefiting by instruction in ordinary schools, but not incapable of benefit by instruction in special schools and classes. The certifying officer must be one duly approved by the Board of Education, and is usually the school medical officer of the area or one of his assistants. He must consult the head teacher about the child. The parents can be compelled to cause the child to attend for examination, and subsequently to attend the special

school unless the latter is not " within reach of the child's residence ". In the latter case, if a residential school is advised the parent's consent must be obtained in writing. If this is withheld, the Court may make an order ; but not if the parent's consent is withheld " with the *bona fide* intention of benefiting the child ", a provision which, as Herd points out, makes it almost impossible to send a defective child to a residential school.

By Section 56 (1) Local Education Authorities are required to provide for defectives over 7 years of age, by certified day-schools, certified classes in elementary schools or by boarding out near a special school or class. Education of such defectives is continued up to 16, and they must be re-examined from " time to time ", usually at least once a year.

Legal Responsibility of the Insane

Evidence

Mental disorder is usually a bar to appearance in the witness-box. An insane or a mentally defective person may, however, sometimes be allowed to give evidence ; an idiot never. It is for the judge to determine whether the insane or defective individual understands the nature and obligations of an oath. Before he is sworn he may be examined, and evidence given of the state of his mind. If he is admitted as a witness, it is for the jury to decide what weight should be given to his evidence. Before an affidavit (written evidence) is sworn there is a similar inquiry.

Contract

The general theory of contract is that there must be free and full consent of each of the contracting parties, and the consent must be an act of reason accompanied by due deliberation. In the case of a contract made by an insane person during his insanity, the contract is void. With the object, however, of preventing the insane person from benefiting from his act, he is required to make restitution to the other party, if the latter has suffered. A contract made during a " lucid " interval is as binding as if made by a person of sound mind. The certified insane are permitted to execute deeds and similar documents, if the chief medical officer of the asylum in which they are certifies that the nature of the act is understood by the patient.

In the case of " necessaries " there is an exception to the above general rule. " Necessaries " are such articles as clothing

and whatever other articles the Court may decide in a particular case. They include, for example, all expenses necessarily incurred in caring for the insane person. An obligation rests upon an insane person, whether already found to be a " lunatic " or not, to repay a person who has supplied necessaries to him, if these necessaries are suitable to his position in life. The same holds for contracts made by a drunk person.

Marriage is a type of contract. Marriage with a person who is a " lunatic " by legal inquisition is null and void, even if celebrated during a " lucid " interval. In the case of an insane person not a lunatic by inquisition, the marriage is invalidated by the incapacity (proved in court of law) of either contracting party to comprehend the nature and to fulfil the physical conditions of the marriage contract. The incapacity must be such that the party was at the time of marriage incapable either of understanding the nature of the contract and the duties and responsibilities it creates, or of taking care of his own person or property. Only a modest degree of understanding is necessary to comprehend the marriage contract. Hence weakness of intellect, as distinguished from actual insanity or pronounced mental defect, does not invalidate a marriage unless fraud by the other party is proved. An insane person who marries during his insanity may sue for divorce on his recovery ; while he is still insane he may not sue, but his friends may do so. (See also under " Matrimonial Causes Act ", p. 683.)

Contract of Insurance and Suicide.—When a person who insured his life while sane dies by his own hand, and the coroner's jury return a verdict of *felo de se*, the contract of insurance is void, since the death arose from the criminal act of the deceased ; but where the verdict is " suicide whilst of unsound mind " the contract stands, unless the policy contained a special clause designed to meet the contingency of suicide.

Insanity supervening after a contract has been made does not release either party from his obligations under the contract, unless the nature of the insanity makes fulfilment impossible. Insanity supervening after marriage does not *per se* entitle either party to a divorce or to a judicial separation. Insanity, on the other hand, is not a sufficient defence to proceedings for divorce or separation by the partner of the marriage on the ground of cruelty or misconduct, unless it can be shown that the insanity was such as to make the insane person incapable of appreciating the character and consequences of the acts which lead the partner to seek divorce or separation, and unless it can

be shown that the insanity is lasting, and not merely transitory or intermittent.

Torts consist in wrongs done to the person, reputation, or estate of an individual, and render the offender liable under the civil but not under the criminal law. The chief forms of tort are trespass, libel, slander, fraud, nuisance and negligence. In all kinds of tort the common law of England regards a "lunatic" as incapable of committing a tort, unless it can be shown to the satisfaction of the court that the insanity did not preclude the lunatic from understanding the nature and probable consequences of the act complained of.

Receiver (England), Judicial Factor or Curator Bonis (Scotland)

A patient who has been certified as being of unsound mind is deprived of his civil rights, and in consequence, to safeguard his interests, especially where disagreement exists in the family, in England a "committee of the person" (in "lunatics" so found by inquisition), or more commonly in persons certified in other ways a "receiver", is appointed under Section 116 of the Act of 1890 (see below) by a Judge in Lunacy upon application being made by the petitioner. In Scotland a *curator bonis* or judicial factor is appointed. The procedure in Scotland is by petition to the Junior Lord Ordinary of the Court of Session. Application may also be made in the Sheriff Court when the estate in question does not exceed £100 per annum. The petition may be presented by:

(*a*) The nearest relative, failing whom, any party having an interest.

(*b*) The patient himself if capable of understanding the effect of his doing so.

(In the latter case the patient usually prefers to sign a Power of Attorney.) In addition, two medical certificates are required. The certificate in Scotland is given on Soul and Conscience, and it is sufficient to state that the patient's mental state is such that he is incapable of managing his affairs or of giving directions to others for their management. The petition must be served on the patient. In addition, the petition is intimated on the walls and in the minute-book of the Court, and any person writing to oppose it must do so within a statutory period, usually eight days. The curator makes an inventory of the estate, and renders

annual accounts to the accountant of court under whose supervision he acts.

Appointment of Receiver (England) or Curator Bonis (Scotland) in the case of a Mentally Infirm Person living at Home

In England, under Section 116 of the Lunacy Act of 1890, an affidavit may be sworn on a special form by the regular medical attendant of the patient, to the effect that the latter is, " by reason of mental infirmity arising from disease or age ", incapable of managing his affairs. This method can be used where the patient is not ill enough or is not so circumstanced as to require certification, and yet cannot or will not give a Power of Attorney. A receiver is appointed accordingly by the Judge in Lunacy. In Scotland the procedure in these circumstances is for a *curator bonis*, as above.

Certificate of Sanity

A certificate of sanity may be required in a variety of cases ; for instance, a patient who has been certified as of unsound mind may maintain that there is no justification for his detention in a mental hospital, and may demand an examination by two independent medical men, whom he is at liberty to name. If these two medical men are willing to grant certificates stating that the patient has recovered, and the Board of Control (in England and Scotland) or the sheriff (in Scotland) approves of such certificates, then the sheriff or the Board of Control as the case may be has power to order the patient to be discharged. If the Board of Control is satisfied that a patient has recovered, it has power to order his discharge. In any case, eight days' notice in writing is given to the person at whose instance the patient is detained, or, failing such, to the nearest relative, and in the case of a parochial patient to the parish by whom the expense of his maintenance is defrayed.

When a patient has been certified as of unsound mind, and has been discharged either as relieved or recovered, a certificate of sanity may be required as presumptive evidence of his capacity to make a will or sign a legal document. Furthermore, certificates of sanity are required to set aside a *curator bonis*, or a committee of the person and estate. In every such case the medical practitioner should satisfy himself fully regarding every aspect of the case, and should insist upon seeing the patient on several occasions.

Testamentary Capacity

The point in this matter is to determine not whether the testator is sane or insane, but whether his mental capacity is adequate to the testamentary act. This matter was put very clearly by Lord Chief Justice Cockburn in Banks *v.* Goodfellow, 1870, when he said :

" It is essential to the exercise of the powers of making a will that the testator shall understand the nature of the act and its effects ; shall understand the extent of the property of which he is disposing ; shall be able to comprehend and appreciate the claims to which he ought to give effect ; and, with a view to the latter object, that no disorder of the mind shall poison the affections, pervert his sense of right, or prevent the exercise of his natural faculties ; that no insane delusion shall influence his will in disposing of his property and bring about a disposal of it which, if the mind had been sound, would not have been made." He said further : " No doubt when the fact that a testator has been subject to any insane delusion is established, a will should be regarded with great distrust, and every presumption should in the first instance be made against it. When an insane delusion has ever been shown to have existed it may be difficult to say whether the mental disorder may not possibly have extended beyond the particular form or instance in which it has manifested itself. It may be equally difficult to say how far the delusion may not have influenced the testator in the particular disposal of his property, and the presumption against a will made under such circumstances becomes additionally strong when the will is an inofficious one, that is to say, one in which natural affection and the claims of near relationship have been disregarded."

It may be seen then that testamentary capacity can be interpreted within very wide limits, and that it may be consistent with insanity. Each case has to be decided on its merits, but there are certain points which the testator should be thoroughly cognisant of. He must be able at the time when he makes his will to recall and to keep clearly before his mind

(*a*) the nature and extent of his property ;

(*b*) the persons who have claims upon his bounty ; and

(*c*) his judgment and will must be so unclouded and free as to enable him to determine the relative strength of these claims.

Furthermore, it is essential that a will to maintain its validity should be made by " a person of full age and sound disposing mind, executed in due form ". " A sound disposing mind " is not necessarily synonymous with perfect sanity as there are

persons who are mentally ill who may even be certified patients in a mental hospital, and yet are capable of making a satisfactory will. The most usual types of mental illness in which testamentary capacity may be questioned are those associated with the mental enfeeblement of old age, delusional states, delirium, and other conditions in which the mind of the testator may be easily influenced, *e.g.* feeble-mindedness. In addition to any information and opinion we may have regarding the testator's appreciation of his act, the extent of his property, and the nature and effect of his act, it is advisable to inquire regarding the behaviour and conversation of the testator as known to his friends, relatives and business associates. His entire life history should be passed under review and especially his ability to transact business. The case of Thoms and Others *v.* Thoms' Trustee and Others (reported by Glaister) contains many instructive points ; it shows how gross eccentricity may be combined with business acumen. The actual writing, in the case of a holograph will, both from the point of view of expression and writing, may prove important. Spelling, tremors, ambiguous and involved statements have all to be taken into account. It should also be remembered that a person may be capable of making a simple will but not an involved one ; it is only the actual will, however, which can be taken into account. In a case of physical disease it requires to be shown that there is a correlation between the physical and mental health leading to mental impairment. If the will can be proved not to be capricious or frivolous or venomous, even though it may appear so, but is really the expression of the person's real mind and intention, it should stand.

The same principles which govern the making of a will also hold good to enable it to be revoked.

It should be noted that in the judgment in Banks *v.* Goodfellow, quoted above, it has recently been held that the clauses must be read conjunctively and not disjunctively, *i.e.* " no disorder of the mind shall poison the affections " (and) " that no insane delusion shall influence his will " (Mr. Justice Langton in Bohrman *v.* Bohrman).

The Matrimonial Causes Act, 1937 (England), and the corresponding Act in Scotland have introduced some new problems into psychiatric practice. The problems are partly clinical and partly social. The outstanding clinical question is the prognostic one : how definitely may a patient who has exhibited a certain type of mental illness for at least five years be said to

be irrecoverable ? Socially, these acts tend to add, in our view, to the " stigma " of certification : and while we believe them to be humane in certain respects, from that aspect they do not represent an advance.

The relevant sections of the Act in England are as follows :

1. No petition for divorce shall be presented to the High Court unless at the date of the presentation of the petition three years have elapsed since the date of the marriage.

An exception is made in the case of exceptional hardship suffered by the petitioner, or of exceptional depravity on the part of the respondent.

2. A petition for divorce may be presented to the High Court (in this part of the Act referred to as 'The Court') either by the husband or the wife on the ground that the respondent—

(*a*) has since the celebration of the marriage committed adultery ; or

(*b*) has deserted the petitioner without cause for a period of at least three years immediately preceding the presentation of the petition ; or

(*c*) has since the celebration of the marriage treated the petitioner with cruelty ; or

(*d*) is incurably of unsound mind and has been continuously under care and treatment for a period of at least five years preceding the presentation of the petition ;

and by the wife on the ground that her husband has, since the celebration of the marriage, been guilty of rape, sodomy or bestiality."

3. For the purposes of Section 176 of the principal Act, as amended by this Act, a person of unsound mind shall be deemed to be under care and treatment—

(*a*) while he is detained in pursuance of any order or inquisition under the Lunacy and Mental Treatment Acts, 1890 to 1930, or of any order or warrant under the Army Act, the Air Force Act, the Naval Discipline Act, the Naval Enlistment Act, 1884, or the Yarmouth Naval Hospital Act, 1931, or is being detained as a criminal lunatic or in pursuance of an order made under the Criminal Lunatics Act, 1884 ;

(*b*) while he is receiving treatment as a voluntary patient under the Mental Treatment Act, 1930, being treat-

ment which follows without any interval a period of such detention aforesaid ;
and not otherwise.

These are the new grounds for divorce. In addition there are new grounds for declaration of nullity :

7. In addition to any other grounds on which a marriage is by law void or voidable, a marriage shall be voidable on the ground :

(*a*) that the marriage has not been consummated owing to the wilful refusal of the respondent to consummate the marriage ;

(*b*) that either party to the marriage was at the time of the marriage of unsound mind or a mental defective within the meaning of the Mental Deficiency Acts, 1913 to 1937, or subject to recurrent fits of insanity or epilepsy ; or

(*c*) that the respondent was at the time of the marriage suffering from venereal disease in a communicable form ; or

(*d*) that the respondent was at the time of the marriage pregnant by some person other than the petitioner.

Provided that in the cases specified in paragraphs (*b*), (*c*) and (*d*) of this subsection, the court shall not grant a decree unless it is satisfied—

(i) that the petitioner was at the time of the marriage ignorant of the facts alleged ;

(ii) that the proceedings were instituted within a year from the date of the marriage ;

(iii) that marital intercourse with the consent of the petitioner has not taken place since the discovery by the petitioner of the existence of the grounds for a decree.

One of the first legal points that arose was the meaning of " incurably of unsound mind ". The interpretation proved quite simple. It means irrecoverable by any means whatever—whether in the course of nature, or in consequence of medical treatment.

" Recoverable " means that degree of recovery which would enable the patient (respondent) to undertake again the ordinary responsibilities of marriage. It does not mean capable of improvement to the extent merely of being able to live outside of

a mental hospital, or of being released from certificate while still being under some kind of supervision.

A very important point for the medical witness is what degree of certainty must attach to the statement that a patient is irrecoverable; must he be absolutely irrecoverable, as in the case of some of the organic dementias? or must recovery be only extremely improbable? Rulings in these cases show that the latter is the legal view. There must be a reasonable certainty that the patient will not recover, but it is not necessary to be able to say that recovery is utterly inconceivable. Thus where the case was one of a chronic schizophrenic type of reaction and the chances were stated to be at least 30-1 against recovery, a decree was granted.

The medical problem of the prognosis after five years' continuous mental illness is an interesting one, and one of which few statistical studies appear to have been made. In organic dementias, once the diagnosis is definitely established, the problem is, of course, simple. A patient with an alcoholic or syphilitic or arteriosclerotic dementia, who has been under certificate for that reason for five years or more, may safely be regarded as incurable. A very rare case of recovery from a long-standing epileptic type of dementia has been recorded, but this is so rare that for the purposes of this Act, the knowledge of its occurrence could not influence the Judge.

The problem is more difficult with the chronic forms of manic depressive and schizophrenic illness, especially the former. Of the "late recoveries" that have been recorded in the literature, most cases have been designated "chronic mania". The medical witness should therefore beware of emphasising too greatly the impossibility of recovery in a case of this sort. Examples of recovery in chronic mania have been recorded after five or seven or even more years; but they are, of course, very rare, the aggregate of such cases being small anyhow.

Recovery from chronic depression, whether manic depressive or involutional in type, can be said to be very exceptional after five years; and this statement applies even more to the chronic schizophrenic reactions. O. Briner has claimed by means of cardiazol to be able to produce a recovery rate in schizophrenia of over five years' duration of 5 per cent, but this is not borne out by the experience of others so far. With insulin also the recoveries claimed in cases of over five years' duration are just under 5 per cent (Sakel, *Jour. Ment. Sci.*, 1938, 84, 626).

The introduction of prefrontal leucotomy has produced an

additional possibility of recovery even after many years. It is too early to assess its value in statistical fashion.

The other matters connected with these Acts are mainly of a legal kind. " Continuous detention " means not only that the patient must be under certificate continuously, but that he must be uninterruptedly under care and control. Thus if the patient be allowed home on leave for a few days this will invalidate subsequent proceedings. But if the sojourn outside of the mental hospital occurs under certain conditions of supervision, *e.g.* in a home run specially for mental invalids, as those conducted by the Mental After Care Committee, then this ranks as part of the continuous detention—provided at least that it is only for a short period and still with certification in force.

Criminal Responsibility

The determination of the criminal responsibility of an individual suffering from mental disease is still an unsolved problem. If unanimity of opinion existed between lawyers and doctors a satisfactory solution might be found, but medicine and law stand widely apart. The doctor of medicine is trained to deal not so much with symptoms of a disorder but with the personality of the individual as a whole, whereas the student of law studies crime as crime. The former concerns himself with the welfare of the individual, the latter with the safety of society. The difference, however, goes even deeper. The legal concept is of mind dominated by reason and freewill, the medical concept is of functions actuated by emotion, and determined by intrinsic factors. In the legal mind everything is consciously known ; in the medical mind much is unconscious and unknown. Hence come certain differences in medical and legal criteria of responsibility.

It is conservative to state that 10 to 15 per cent of criminals suffer from some degree of mental disorder or mental defect, but rarely is this taken into consideration. The criminal is convicted, sentenced and released, only to reappear on a similar or other charge in the course of a few weeks or months. There is thus more than an element of truth in the statement that far more mentally disordered people are convicted and sent to prison than there are sane people who escape the rigour of the law on the plea of mental disorder. We are not among those who believe that the plea of mental disorder in bar of trial or sentence in criminal cases is overdone, but we are of opinion

that enough discrimination has not been used in deciding when such a plea should be put forward. In minor cases of crime it is not used freely enough ; in capital cases it is employed too often.

When we consider mental disorder in relation to crime, we refer to two distinct classes of case : (1) cases of minor crime, where accused persons can be certified under Section XV. of the Lunacy Act, 1862; (2) cases of murder or grave crime in which a plea of mental unsoundness in bar of trial or sentence is raised. The law presumes that every person is innocent until he is proved guilty, and likewise that every person is sane until he is proved insane. The burden of proof therefore must rest on the defence.

It must be clearly understood that the criminal suffers from exactly the same forms of mental illness as the average member of the community. The various forms of mental disorder may not be fully understood, but they have been fairly well defined and described, and when a plea of mental disorder is put forward, the type of disorder should be definitely specified. A great deal of the difficulty and dissatisfaction which exists regarding medical expert evidence arises from the fact that the medical man is too apt to theorise. He should speak solely in reference to the medical facts, and should be on well-established ground. Theories and hypotheses which have not been generally accepted by the medical profession are constantly put forward as an explanation for crime. This has been particularly the case where the crime has been the first indication of mental abnormality. Mental disorder does not start suddenly without warning ; usually there is a history extending over a period of weeks, months or years, of odd, strange conduct which has attracted the attention of the relatives or friends, and on account of which medical advice may already have been sought. If a doctor has not been consulted, the probability is that the individual's conduct has never been so far different from that of his neighbours as to raise any question of mental unsoundness. Therefore when a crime is committed by some one who up to the moment of the crime was looked upon by the majority of his fellow-men as an ordinary individual, it is fair to assume in the first place, at least, that the criminal act was that of a sane and responsible individual. We would therefore strongly urge all medical men to resist in these matters the guidance of their sentiments and feelings, and to be ruled instead by their common sense and their duty to society.

In minor crime, *e.g.* thieving, indecent sex practices, and so on, the defence of mental disorder is rarely put forward. This seems to us to arise from the fact that the criminal, even the insane one, prefers to serve a term of imprisonment and be released than be certified to a mental hospital for an indefinite period of time. There is little doubt, however, that mental disorder and mental defect play a large part in determining the conduct of criminals of this class. They are easily led, suggestible, readily become the tools of the more cunning, and are more sinned against than sinning. When the mental disorder is obvious, the practice is to certify such cases to one of the ordinary mental hospitals, from which he may either make his escape or be discharged in a comparatively short period of time.

The divergence of medical and legal opinion is well instanced by two cases :

CASE 93.—A middle-aged man was charged with sending a letter to his sister-in-law which bore words of an indecent and offensive character. The facts of the case are of considerable interest. The prisoner was a man of good education, who after being steadily employed for a period of twenty years, suddenly gave up his work. He complained of being tired, of lacking concentration, and for a period of thirteen years, up until the time of his arrest, he had not worked. At first he lived with his mother, but after her death he lived by himself (for a period of eight years), did his own cooking, etc., and retired from the society of his fellow-men. He was, however, attached to one of his brothers, and after his brother married he developed the idea that his brother's wife and her family had set out to capture the affections of his brother, and to alienate his brother from himself. There was no real basis for his belief, but because of it he wrote a series of indecent and offensive letters to his sister-in-law. In addition to his disordered mental state, a physical examination showed that his pupils were irregular and unequal ; the left pupil did not respond to light, the right reacted only slightly ; he had exaggerated tendon reflexes ; and there was a positive Wassermann reaction of his blood. He was considered to be suffering from a paranoid state, together with a syphilitic involvement of his nervous system, and to be irresponsible, but the court rejected the medical evidence and fined him £10, with the option of thirty days' imprisonment.

CASE 94.—In contrast to the above there was the case of a young man, 36 years old, who was arrested on a charge of lewd practices. This man had developed normally, and during his adult years had never had to consult a doctor. He had been an average scholar, had reached Standard VI., and had been in

regular employment until 1920, since when he had been employed on casual labour. His unemployment, however, was much more due to industrial conditions than to any defect on his own part. He did not show any abnormal emotional state, had a good realisation of his position and of the gravity of the offence with which he was charged. He stated that in 1922, three years previous to his present charge, he had been accused and found guilty of a similar offence, for which he had served a sentence of three months' imprisonment. On the present occasion, however, the doctors for the defence brought in a plea of insanity, which was sustained, and he was certified and sent to a mental institution.

These two cases show clearly both the divergence of medical opinion and the divergence of legal opinion. The first case was one in which all the facts pointed to a grave state of mental disorder, and yet he was sentenced. In the second case the facts pointed much more to a criminal act, and yet the plea of mental disorder was accepted and he was certified.

In cases like the last we would advance a plea for an indeterminate sentence. Such a sentence should be served neither in the prison nor in the mental hospital, but in some form of penal colony, administered by a medical man, under prison regulations. Such an institution could be made an economic success. The labour could be made productive; and society, the prisons and the mental hospitals would be protected from a class of individual who is unresponsive to the ordinary measures. Under a system of this kind the prisoner would have a better chance to readjust himself than he has at present. To make the plan effective it would be necessary for a psychiatrist to be attached to the criminal courts so that difficult and doubtful cases could be readily referred to him.

In cases of capital crime the position is even more difficult. The current law on this subject was formulated in 1843 in connection with the McNaghten case. McNaghten was tried for the wilful murder of Mr. Edward Drummond, the private secretary of Sir Robert Peel. For several years McNaghten had suffered from delusions of persecution. He had attempted to escape from his persecutors by leaving Scotland and going to England, and on another occasion to France, and not infrequently he passed his nights in the fields with the same object. On many occasions he had complained to his father and to various public authorities, but little interest was taken in him. He became embittered, and determined to right his

imaginary wrongs by killing Sir Robert Peel. With this object he watched Sir Robert Peel's house. Seeing Mr. Drummond coming out, he followed him and shot him, under the belief that he was shooting Sir Robert Peel. In this case the defence brought forward a plea of "partial insanity" (homicidal monomania). He was certified of unsound mind and sent to a criminal lunatic asylum.

This case caused a great sensation, and the plea of "partial insanity" was freely criticised. A few days after the trial a discussion took place in the House of Lords, and the diversity of opinion among the judges themselves is well seen by the opposing views expressed by Lord Brougham and Lord Cottenham. Lord Brougham said, "If the perpetrator knew what he was doing, if he had taken precautions to accomplish his purpose, if he knew at the time of doing the desperate act that it was forbidden by the law, that was his test of sanity; he cared not what judge gave another test, he should go to his grave in the belief that it was the real, sound and consistent test".

On the other hand, Lord Cottenham thought that it was "wrong to listen to any doctrine which proposed the punishment of persons labouring under insane delusions. It was inconceivable that the man who was incapable of judging between right and wrong, of knowing whether an act were good or bad, ought to be made accountable for his actions; such a man had not that within him which formed the foundation of accountability, either from a moral or legal point of view. He considered it strange that any person should labour under a delusion and yet be aware that it was a delusion; in fact, if they were aware of their state there could be no delusion."

As a result of this discussion the House of Lords resolved to put certain questions to the judges. These questions were as follows:

(1) What is the law respecting alleged crimes committed by persons afflicted with insane delusions in respect of one or more particular subjects or persons; as, for instance, where at the time of the commission of the alleged crime the accused knew he was acting contrary to law, but did the act complained of, with a view, under the influence of insane delusion, of redressing or revenging some supposed grievance or injury or of producing some supposed public benefit?

(2) What are the proper questions to be submitted to the jury when a person afflicted with insane delusions respecting one or more particular subjects or persons is charged with the

commission of a crime (murder, for instance) and insanity is set up as a defence ?

(3) In what terms ought the question to be left to the jury as to the prisoner's state of mind at the time when the act was committed ?

(4) If a person under an insane delusion as to existing facts commits an offence in consequence thereof, is he thereby excused ?

(The fifth question asked is extraneous to the subject, and therefore need not be mentioned.)

The following answers were given :

(It is not necessary to give the answers in detail, but we shall give the gist of them.)

In reply to the first question, the judges were of the opinion that if the accused person did the act complained of under the influence of an insane delusion, but with a view to redress or revenge some supposed grievance or injury, or to produce some public benefit, he was nevertheless punishable according to the nature of the crime committed, if he knew at the time of committing such crime that he was acting contrary to law.

In reply to the fourth question, the judges stated that a great deal depended on the nature of the delusion, but they stressed the fact that if the delusion was only a partial delusion, and if otherwise the individual was not insane, that he should then be considered responsible for the act. They stated that if, under the influence of his delusion, he supposed another man to be in the act of attempting to take his life, and he killed that man, as he supposed in self-defence, he would be exempt from punishment. If his delusion was that the deceased had inflicted a serious injury to his character and fortune, and he killed him in revenge for such supposed injury, he would be liable to punishment. According to this reasoning, an insane person may then kill a man with impunity if he believes he is doing it in self-defence, while he is punished by death for a homicidal act which results from the belief that the victim was reading his thoughts, tampering with his genitals, or spreading slanderous stories about him.

In the second and third questions the judges held that in order to establish a defence on the ground of insanity it must be clearly proved that at the time of the committing of the act the accused was labouring under such a defect of reason from disease of the mind as not to know the nature and quality of the act he was doing ; or if he did know it, that he did not know he was doing what was wrong.

These answers (the so-called **McNaghten rules**) have been criticised both by medical writers and by lawyers. Lord Bramwell, for instance, stated that " Nobody is hardly ever really mad enough

to be within the definition of madness laid down in the judges' answers". Lord Coleridge, the Lord Chief Justice of England, in 1888, stated that he considered "the judicial decisions on questions of insanity were bound by an old authority which, by the light of modern science, was altogether unsound and wrong". In 1891 Lord Coleridge said, "It was said by a legal authority when he was a young man that 'if a person was found guilty of murder he should be hanged whether he was insane or not, for if he was sane he deserved it, and if he was mad it was to him no harm'. That seemed to him to be a horrible doctrine, and he was glad that it was no longer held." Another high legal authority, Sir James Fitzjames Stephen, said that "the man's power of controlling his actions should be the test. The proposition which I have to maintain and explain is that if it is not it ought to be the law of England that no act is a crime if the person who does it is at the time when it is done prevented either by defective mental power or by any disease affecting his mind from controlling his own conduct, unless the absence of the power to control has been produced by his own default."

Lord Blackburn stated that he had never been able to find an accurate definition of responsibility. "You must take it that in every individual case you must look at the circumstances, and do the best you can to say whether it was the disease of the mind which was the cause of the crime, or the party's criminal will."

These extracts show clearly how even the highest legal opinion has very great difficulty in reconciling the answers given by the judges in the McNaghten case to present-day conditions. The McNaghten rules smack of the ancient and medically out-of-date doctrine of the mental faculties, the mind being regarded as divided up into a series of independent compartments, the cognitive faculty being one of the large subdivisions. With this doctrine there flourished almost inevitably the belief in the existence of partial insanities in which one mental compartment and faculty was affected, and not any other. Medical views have changed, but the law has not advanced *pari passu*. Medicine has come to recognise that the mind is a whole, one and indivisible. There is no mental disorder, however partial in appearance, that does not have its reverberations throughout the rest of the affected mind. Consequently the purely intellectual criterion of responsibility falls to the ground, for the intellect as intellect may be unimpaired, but an emotional disturbance will alter or impede or nullify its effect on conduct. Conversely, intellectual defect means deficient emotional control.

There is no allowance made at all for such phenomena as are well known to psychiatrists—the intra-psychic ataxia of schizophrenia, post-hypnotic and epileptic automatisms, and the overwhelming influence of affective disorder, which may, for example, cause a depressed parent to murder his children whom he loves, and whom he knows full well it is morally wrong to kill.

The practical issue is this, that whereas it is nominally required in the trial of a person pleading insanity in extenuation of the crime that evidence be taken bearing both on his general state of mind at the time of commission of the crime and on his particular knowledge of the moral nature of the act, it is to the latter—the knowledge of the criminal act—that attention is particularly or entirely devoted by the court. Consequently, it not infrequently happens that a person who from a general survey of his mental state was undoubtedly insane at the time is found sane in respect of the commission of the criminal act. It follows that a man can legally be hanged for murder, and yet be regarded by the same court as unfit to take care of himself or his property.

Fortunately for the insane criminal under sentence of death, but inconsistently in law, there is a proviso in the Criminal Lunatics Act (1884, Section 11, Subsection IV.) that when the Secretary of State is informed by any means that there is reason to believe that a person under sentence of death is insane, he shall appoint two or more legally qualified practitioners to examine such prisoner, and to inquire as to his insanity. If the medical men, or a majority of them, find he is insane, the Secretary of State may, if he thinks fit, direct the prisoner's removal to an asylum for criminal lunatics. The prisoner, therefore, may be judged at his trial " insane, but worthy of punishment ", only to be exempted while awaiting execution of his sentence. This proviso was made use of in the case of Ronald True, who was tried at the Old Bailey, London, in May 1922. Justice McCardie, in his summing up, stated that all the doctors who had examined True considered that he was certifiably insane now and when the crime was committed, but the jury had to consider whether he was insane at the time of committing the offence within the meaning of the Criminal Law. He pointed out that insanity from the medical point of view was one thing, and from the point of view of the Criminal Law was another. The jury found the prisoner guilty of " wilful murder ", and he was sentenced to death. The judgment was appealed to the Court of Criminal Appeal, when the finding of the jury was confirmed. It was

then represented to the Home Secretary that True was insane, whereupon he called upon three experienced medical men to examine True and to report. Their report was that True was an insane person, that they had so certified him, whereupon True was removed to a criminal lunatic asylum, on the ground of non-responsibility.

In 1922 the Lord Chancellor appointed a Legal Committee, presided over by Justice Atkin, to consider and report upon what changes, if any, were desirable in the existing law, practice and procedure relating to criminal trials in which the plea of insanity as a defence is raised. This Committee approved of the rules which had been formulated in McNaghten's case, and held that they should be maintained. They made one addition, and recommended that it should be recognised that " a person charged criminally with an offence is irresponsible for his act when the act is committed under an impulse which the prisoner was by mental disease in substance deprived of any power to resist ". It seems to us that the plea of uncontrollable impulse makes the situation even more complicated than what it was before. After all, every criminal act is an impulsive act, and the plea of impulse could be set up in every criminal trial. A good instance of this occurred recently. An asylum attendant was convicted for the rape and murder of a young female nurse. The facts may be stated quite simply. The prisoner and the nurse had attended a picnic, and on the way home he assaulted her sexually and killed her. The prisoner was a young man, 22 years old, who had always been in good health, and had never shown any obvious signs of mental illness. An attempt was made at the trial by the defence to emphasise the fact that two paternal cousins had been mentally ill, and also that on one occasion when unemployed he had seemed moody and depressed. The bulk of the witnesses, however, who had been closely associated with him had never seen any indication of any abnormality. The defence likewise attempted to prove that the crime was a matter of impulse, and brought forward the theory of sadism. The plea of mental disorder was not sustained, but, no doubt owing to the conflicting medical evidence, the charge was reduced to culpable homicide, and the prisoner was sentenced to a term of penal servitude.

A plea of insanity may be entered in bar of sentence and the charge may be reduced from murder to manslaughter or (in Scotland) to culpable homicide. This is a return to the doctrine of " partial " responsibility, but now the term " partial " does not

refer to a form of insanity (monomania) but to mitigating circumstances. Such a mitigation is being sought constantly in Scottish law courts. The unwritten law in relation thereto was stated by Lord Alness in the case of Rex *v.* Savage as follows :

" Formerly there were only two classes of prisoner, those who were completely responsible, and those who were completely irresponsible. Our law has now come to recognise in murder cases a third class, those who, while they may not merit the description of being insane, are nevertheless in such a condition as to reduce the quality of their act from murder to culpable homicide . . . there must be aberration or weakness of mind ; there must be some form of mental unsoundness ; there must be a state of mind bordering on, though not amounting to, insanity ; there must be a mind so affected that responsibility is diminished from full responsibility to partial responsibility ; the prisoner in question must be only partially responsible for his action."

The above ruling opens the door very wide indeed—some think too wide—because in many cases an investigation of the accused's life history discloses evidence of extenuating circumstances which indirectly may have had a bearing on the crime. The matter, however, goes back much further than the dictum of Lord Alness, because in 1863 Lord Justice Clerk Inglis informed the jury that if they were satisfied that the murderer was suffering from insane delusions at the time of the offence they did not need to inquire whether he knew right from wrong, or whether he knew what was murder in the eyes of the law, or what was a punishable act.

" In a strictly legal sense there is no insane criminal. Concede insanity and the homicidal act is not criminal. The act of the insane, which in the sane would be criminal, lacks every element of crime."

is clearly evident, therefore, that the McNaghten rules, in Scotland at least, are in considerable abeyance, and when followed are interpreted very broadly.

It is most unfortunate that in criminal trials there should be so much difference of opinion, and it would be a great step if some means could be devised of avoiding the public discussion of difficult medical questions. It has been suggested more than once that it would be much better to appoint two medical men to make a complete examination of all the facts in the case, and, if a difference of opinion existed, that a third medical man should be appointed to act as arbitrator. A medical report

should then be submitted, embodying all the facts, and, where the difference of medical opinion was so great that no definite conclusion could be come to, that fact should be unequivocally stated, and the case should be decided on its merits, apart altogether from the medical evidence. The usual criticism, as Weihofen points out, of the procedure of appointing a defending expert is that the psychiatric experts will overstate their case and claim too much. Another objection urged is the likelihood of the opposition of counsel for the defence. This question, like many others, can only be answered by seeing how the procedure works in actual practice. It has been found in Massachusetts that defendant's counsel have co-operated to an extent that the most hopeful supporters of the innovation had not expected. It is very rare for counsel to raise objections to having clients examined by the official experts. Furthermore, counsel have in almost every instance recognised the fairness of the examiners' report and have not attempted to contradict their findings by putting other experts in the witness-box. Their report is usually accepted by both sides ; no other expert testimony is produced.

In order to satisfy the lawyers, it was suggested by Carlos F. Macdonald that in criminal cases, especially capital ones in which insanity is pleaded as a defence, it would be better to keep the question of insanity entirely out of the case during the trial. A jury would pass verdict only on the guilt or innocence of the accused, irrespective of his mental condition. If convicted, the court might then appoint a commission of competent psychiatrists to determine the defendant's mental state, and sentence should be passed according to whether mental disease was present.

In conclusion, we would utter a protest against the unprofessional practice of certain medical men who not only act as medical adviser to counsel but as expert witness. In reference to this, Carlos F. Macdonald has stated, "If a physician is to appear as an expert witness he should keep away from counsel while in court, and take no part in the conduct of the case which would put him in the attitude of assistant counsel or of a biased or interested party. A medical man may act as medical adviser to the counsel, but under these circumstances should not also appear as an expert witness."

The Infanticide Act of 1922 provides (Section I.) that where a woman, mentally deranged after childbirth, kills her newly born child, she may be convicted of infanticide, instead of murder where the circumstances would otherwise have demanded

the latter. " When a woman by a wilful act or omission, causes the death of her newly born child, but at the same time of the act or omission has not fully recovered from the effects of giving birth to such child, and by reason thereof the balance of her mind is disturbed, she shall, notwithstanding that the circumstances were such that but for this Act the offence would then have amounted to murder, be guilty of felony, to wit, infanticide, and may for such offence be dealt with and punished as if she had been guilty of the offence of manslaughter of such child."

No definition is given of the term "newly born". In November 1927 the Court of Criminal Appeal decided that a child more than a month old was not newly born within the meaning of the Act. Hence, if a mother suffering from some form of puerperal psychosis kills her child in the first week of the puerperium, she is guilty only of infanticide; whilst if she waits till the sixth week, she is guilty of murder, unless it can be shown that her state of mind was such that she did not know the nature and quality of her act, or did not know that it was wrong. Yet many puerperal psychoses—and those of the more ominous type—do not develop till the mother is well into the lactational period.

United States of America.—The practice in the majority of the States is based on the McNaghten rules, which have been detailed above. A strong body of opinion is in favour of attempting to widen the issue, so as to make allowance for grades of mental disorder which need not necessarily come under the criterion of certifiability, *e.g.* psychoneuroses, psychopathic personalities. It has been suggested that in such cases there should be a compromise verdict, because although the proof falls short of irresponsibility, yet there often has been sufficient evidence of a certain degree of mental disorder. This, it seems to us, is dangerous doctrine. When psychopathy or psychoneurosis has been truly in evidence it is rare indeed to find that a capital crime has been the first outcome of it; and when the medical evidence of illness or abnormality is clear, no judge or jury is likely to impose the maximum sentence. The estimation of varying degrees of guilt, of punishment or of dangerousness merely tends to continue the mechanical administration of the law, which we all so greatly deplore. Too much diversity of opinion and too many sharp contrasts exist to allow a uniform point of view. For instance, in Florida, temporary insanity due to emotional disturbance or intoxication is not accepted as a defence, and persons classed as psychopathic inferiors are held

to be responsible. In Georgia, it is said that the defence of insanity is seldom sustained unless the average man coming in contact with the accused would observe his abnormality. On the other hand, in Illinois, psychopathic inferiors may be declared insane, and are treated in the same way as insane patients, while in Iowa, Mass., Pennsylvania, Connecticut, Montana and Ohio, the plea of irresistible impulse is considered an adequate defence. The best and most comprehensive scheme has been developed by the State of Massachusetts, where the Briggs law is in operation. According to this law, the Department of Mental Disease examines into the mental condition of all persons indicted by a grand jury for a capital offence, or habitual criminals; but, while this is so, the Supreme Court of the State has laid it down that constitutional inferiority does not lessen responsibility in criminal matters. Furthermore, the county jail law provides for the psychiatric examination of all convicted prisoners serving a sentence of more than thirty days, except those sentenced for non-payment of fine, or of fine and expenses, and of all convicted prisoners who have previously been committed to a penal institution. Provision is made for defective delinquents, so that they can be dealt with on the basis of indeterminate commitment; drug addicts and inebriates may be committed for a period not exceeding two years. The above arrangements are far in advance of the practice in most of the other States, and indicate that the close relationship between mental disorder and crime is thoroughly appreciated. A scheme such as the above is one which might with advantage be adopted in other countries.

Many of the States have an excellent arrangement whereby doubtful cases are referred to the State Psychiatrist for examination before trial, and the defendant instead of being examined in prison may be sent to a state or psychiatric hospital for a period of observation not exceeding one month, and, while there, two or more physicians may be detailed to make a report.

Law in Other Countries. — A few only of the more salient features need be mentioned.

Austria.—When any doubt arises as to the mental condition of the accused, two physicians make a report with particular reference to the mental and emotional condition of the defendant and its connection with his crime. If the delinquent is feeble-minded, or has been poorly educated, the sentence is reduced.

Czecho-Slovakia.—A deed is not considered a penal offence if the person is either entirely or temporarily deprived of his mental faculties. Mental deficiency not amounting to total irresponsi-

bility is considered to be an extenuating circumstance.

France.—The penal code states that there is neither crime nor misdemeanour when the author of the act was in a state of mental alienation (*démence*) at the time it was committed, or if he was constrained by a force which he could not resist. In cases where a plea of lessened responsibility is entered, there is usually a modified punishment.

Germany.—The delinquent suspected of mental illness is observed and treated by the prison physician in the prison hospital. The delinquent is not punished if in a state of unconsciousness or of morbid disturbance of the mental faculties, including full determination of will. It is stated that seven prisons, *e.g.* the prison at Cologne, have special departments for mentally diseased criminals, who are there treated by expert psychiatrists. Those prisoners who are considered to be incurable have their terms cancelled and are placed in mental hospitals, often in special departments.

Hungary.—The law provides for a psychiatric examination, both before and after trial, by two physicians appointed by the Court, and a third who may be appointed by the defendant if he so wishes. If the opinions come to are not in agreement, the final decision rests with the State Judicial Institute of Mental Observation and Hygiene. It is of interest to note that all pertinent facts and circumstances may be emphasised, even although they are not symptoms of mental disease, but may be thought to lessen the responsibility of the defendant. Such facts may be considered as extenuating circumstances.

Italy.—In a doubtful case, either the judge or the defendant may apply for an examination by experts, and in the former case an alienist is selected by the judge and another by the defendant. Should there be agreement, the reports are filed together, but if there is a difference of opinion the case is referred to a third alienist for final decision. If the prisoner is found to be insane he is discharged and sent to a mental hospital. The Ferri Commission have recently elaborated a plan to correlate the degree of punishment and dangerousness.

Norway.—When the medico-legal experts cannot agree as to the mental state of the accused, he is placed in a mental hospital for three months' observation. A psychiatrist is usually the medical officer in all the big prisons.

Switzerland.—The magistrate decides regarding the examination of the prisoner, but each canton has its own penal code. The city cantons are stated to be infinitely more liberal in their

interpretation of mental disorder and irresponsibility than the rural ones.

A Federal law has been suggested which would absolve from responsibility all those incapable of acting rationally, and particularly those whose mental health or consciousness was seriously disturbed at the time of the act. (Oppenheimer.)

Every civilised country has made provision in its penal code whereby persons mentally affected are treated with consideration. Some of us believe that the law does not go far enough, and would like to see greater elasticity in its administration and interpretation, a broadening and development of penal methods, and a spirit of investigation into the factors productive of crime.

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