A British Medical Association Lecture

ON

PSYCHOLOGY AND MEDICINE.

DELIVERED TO THE BROMSGROVE AND DUDLEY DIVISIONS
ON NOVEMBER 30TH, 1922,

BY

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MR. PRESIDENT AND GENTLEMEN,—Permit me to thank you for the honour you have done me in asking me to address you on the subject of Mental Hygiene. It is especially a pleasant task for me, inasmuch as the City of Birmingham and the University have shown by their recent action how much they are interested in research into the causation, prevention, and remedial treatment of disorders and diseases of the mind. A Research Board will be established, and I have been asked to act as Honorary Director of Research and Lecturer at the University.

BODY AND MIND.

The fundamental basis of mind is begotten with the body. There can be no mind without memory; there can be no memory without body. All psychic processes are subordinate to and dependent upon physiological processes.

No progress was possible in the advancement of our knowledge of mental disease until we had shaken off the spell of metaphysical speculation and the tradition of doctrine of the mind as an invisible intangible spirit with a separate existence in the body. We now generally recognize the brain as the seat of the psyche, but the functions of mind are dependent upon the whole body, and the harmonious interaction of all its parts.

The time-worn dictum, *Mens sana in corpore sano*, implies that if the body is healthy, then the mind is healthy, but there are numbers of people who suffer with bodily disease who nevertheless have a healthy mind; and again, there are numbers of people who have a disordered or diseased mind, but, so far as we can discover, have a healthy body—for example, various types of neuroses and psychoses, and of moral feeble-mindedness. But because we can by our present methods of investigation find no material cause for abnormality, it does not follow that subtle biochemical and biophysical changes, which are dependent upon inborn functional or bodily defects, are not there. Especially do I refer to the latest structures of evolutionary development—for example, the cerebral cortex.

Pathological Processes in Relation to Body and Mind.

Pathological processes occurring in the brain may serve as a magnifying glass and help or point the way to the study of mind from a physiological point of view. At present we do not know the complex physiological processes underlying mental processes; but we do know that without oxygen, which is essential for all vital activities of the body, mental processes cease. The biophysical and biochemical processes are fundamentally the same in a simple reflex, the first term of a series, as in volition, which is the last. We now know how important are the internal secretions of the endocrine glands for vital activities of body and mind. Thus the adrenal acts as a reservoir of energenic substance which in emergency can be called upon automatically to discharge adrenaline into the circulation to excite through the sympathetic nerve the bodily reactions required for fight or flight in response to the emotions of fear and anger. The thyroid secretion, we know, is essential for the development of the organ of mind, for when this gland is absent cretinous idiocy is the result. If the cretin is fed upon thyroid the brain develops and with it the mind. Again, we know that mental energy is dependent upon thyro-iodin, for slowness of thought and action are associated with hypothyroidism and myxoedema. Administration of the gland cures the myxoedema and restores the mental energy.

There is definite clinico-anatomical evidence of the inseparability of body and mind. Thus mental deficiency is associated with, and proportional to, the arrest of development of the supragranular layer of pyramidal cells of the cerebral cortex. In dementia paralytica the dementia is proportional to the extent and degree of destruction of the

cortex cerebri which is due to the colonization of the *Spirochaeta pallida* in the brain; therefore, its cause being known, it is a preventable disease, and if preventable why not prevented? Every measure, whether educational, prophylactic, or remedial, which tends to diminish the spread of syphilis will tend to diminish enormously the proportion of cases admitted to asylums, hospitals, institutions for the blind, the deaf, and the dumb, and for mental deficiency due to congenital syphilis.

I do not see anything like the number of cases of congenital syphilis that I formerly did, and this diminution is the general opinion of physicians. If it had not been for the war I have no doubt there would have been a great fall in the incidence of syphilis among the population, but the war, unfortunately, has led to a great recrudescence of infection. Still, education, the Report of the Royal Commission, the change in attitude of the press regarding publicity, the introduction and knowledge of new and more efficient methods of diagnosis and treatment, will certainly diminish the number of infections. Again, the enormous number of men of all ranks in the army who were incapacitated for service at a critical period of the war has aroused public opinion in Britain and the colonies to the necessity of taking effective steps to mitigate this great peril. The campaign of two societies and the public interest aroused in the divergent views regarding the desirability of advocating self-disinfection for the civil population have also done much to awaken the interest of all classes of people. This public interest has stirred the Ministry of Health, and a Commission is at present sitting to investigate the best methods to be adopted for the prevention of the spread of venereal infection. Unfortunately the lowest stratum of society is incapable of appreciating the dangers of communicating infection to others, especially innocent women and children, by neglect of treatment. Yet there can be no doubt the establishment of free treatment centres throughout the country will, together with a wider distribution of knowledge of the causes of the spread of these diseases, and how they may be prevented and cured, lead to an increasing reduction of constitutional syphilis and all the various organic diseases of the nervous system for which it is directly responsible. Statistics indicate that about 10 per cent. of syphilized individuals subsequently die of organic disease of the nervous system, of which about 5 per cent. are general paralytics. A cure has not yet been found for general paralysis, and this makes it all the more imperative to adopt all measures which will lead to the prevention of infection.

THE PSYCHO-NEUROSES, PSYCHOSES, AND MENTAL DEFICIENCIES.

But let us leave these acquired organic brain diseases and turn our attention to those psycho-neuroses, psychoses, and mental defects which we rightly regard as more or less due to inborn dispositions or defects. The last two classes—the insane and mentally deficient—are, owing to their antisocial tendencies or conduct, segregated for economy, with few exceptions, in huge institutions; these so called mental hospitals have as a general rule no separate buildings for acute recoverable and convalescent cases. This mixing of acute, and possibly recoverable, cases with the chronic incurable is now being recognized as a thoroughly bad system, for it leads to a prevailing idea not only of hopelessness in the patients, but of helpless despair, even in those who have the care of them, of employing any medical aid towards assisting them to recover and preventing a relapse.

We may well turn, therefore, to what Francis Bacon said regarding supposed incurable diseases:

"A work therefore is wanting upon the cures of reputed incurable diseases, that physicians of eminence and resolution may be encouraged and excited to pursue this matter, as far as the nature of things will permit, since to pronounce disease incurable is to establish negligence and carelessness as it were, by a law, and screen ignorance from reproach."

Psychology in Relation to the Study of Individual Characters.

Bacon thus advocated a treatise on the mind so that "better knowledge may lead to rules for the treatment of Mind."

"Wherefore out of these materials (which are surely rich and abundant) let a full and careful treatise be constructed. Not, however, that I would have their characters presented in Ethics, as we find them in history, or poetry, or even in common discourse, in the shape of complete individual portraits, but rather the several features and simple lineaments of which they are composed, and the various combinations and arrangements of which all characters whatever are made up, showing how many and of

what nature these are, and how connected and subordinated to one another, so that we may have a scientific and accurate dissection of minds and characters, and the secret dispositions of particular men may be revealed; and that from a knowledge thereof better rules may be framed for the treatment of the mind. And not only should the characters of dispositions which are impressed by nature be received into this treatise, but those also which are imposed upon the mind by sex, by region, by health and sickness, by beauty, deformity, and the like; and again those which are caused by fortune as sovereignty, nobility, magistracy, privateness, prosperity and the like."—*De Augmentis*.

Bacon is here advocating a work upon character founded upon "dispositions impressed by nature" and those which are imposed upon the mind by nurture. Really this is a study of what an individual was born with and what happened after birth.

Psychology in its Application to Medicine.

The late Dr. Mercier, in the preface to his work on insanity, said that he had studied academic psychology as taught in the schools, and it may be remarked there were few who knew it better; yet he states that he found it as useful in practice as the cuneiform language. He asserted that it was disorders of conduct which should be studied.

We can only judge a man's mental state by what he says and what he does, and by the bodily expression of the emotions and passions, which often indicate the thoughts and secret dispositions of men more surely than speech, which, in many instances, is given to man to hide his thoughts.

Dr. Jung, in his remarkable work on analytical psychology, thus expresses his views upon the same subject:

"Modern experimental psychology is very far from being able to afford him any connected insight into the most vital psychic processes—that is not its aim. As far as possible it tries to isolate those simple elementary phenomena which border on the physiological, and then study them in an isolated state. It quite ignores the infinite variation and movement of the mental life of the individual, and, accordingly, its knowledge and its facts are so many isolated details, uninspired by any comprehensive idea capable of bringing them into co-ordination. Hence it comes about that the inquirer after the secrets of the human soul learns rather less than nothing from experimental psychology. He would be better advised to abandon exact science, take off his scholar's gown, say farewell to his study, and then, strong in manly courage, set out to wander through the world; alike through the horrors of prisons, lunatic asylums and hospitals, through dreary outlying taverns, through brothels and gambling halls, into elegant drawing-rooms, the Stock Exchange, socialist meetings, churches, revival gatherings of strange religious sects, experiencing in his own person love and hate and every kind of suffering. He would return laden with richer knowledge than his yard-long textbooks could ever have given him, and thus equipped he can indeed be a physician to his patients, for he understands the soul of man. He may be pardoned if his respect for the 'corner-stones' of experimental psychology is no longer very considerable. There is a great gulf fixed between what science calls 'psychology,' on the one hand, and what the practice of everyday life expects from psychology on the other."

The medical practitioner, much less the student of medicine, is unable to follow Jung's prescription to obtain the knowledge of psychology which will fit him best to understand human nature in all its varied characters and phases. Yet one must admit that this psychology of experience will be of infinitely more use to him than the academic psychology of the schools.

It may be asked, Where can we find the psychology of human character better portrayed than in the dramas of Shakespeare?—for as Schlegel, the great student and translator of Shakespeare into German, in his lectures on the drama says:

"Never perhaps was there so comprehensive a talent for the delineation of character as Shakespeare's. It not only groups the diversities of rank, sex, and age down to the dawns of infancy; and not only do the king and the beggar, the hero and the pick-pocket, the sage and the idiot, speak with equal truth." Then he goes on to say: "If Shakespeare deserves our admiration for his characters, he is equally deserving of it for his exhibition of the passions, taking this word in its widest signification as including every mental condition, every tone from indifference or peculiar mirth to the wildest rage and despair. He gives us the history of minds, he lays open to us in a single word a whole series of preceding conditions. His passions do not at first stand displayed to us in all their height, as in the case of so many tragic poets, who, in the language of Lessing, are thorough masters of the legal style of love. He paints, in a most inimitable manner, the gradual progress from the first origin. 'He gives,' as Lessing says, 'a living picture of all the most minute and secret artifices by which a feeling steals into our souls; of all the imperceptible advantages which it there gains, of all the other stratagems by which every other passion is made subservient to it, till it becomes the sole tyrant of our desires and our aversions.'

"Of all poets, perhaps, he alone has portrayed the mental diseases—melancholy, delirium, lunacy—with such inexpressible, and in every respect definite truth, that the physician may enrich his observations from them in the same manner as from real cases."

In Shakespeare we find the psychology of character revealed in all its aspects, the knowledge of which is so important for the success of a medical man.

Recently a valuable and philosophical work on character, by Mr. Hugh Elliot, has appeared; it is the first attempt which has been made (with the exception of Mr. Shand's *Foundations of Character*) to deal with the subject. He admits that the study of character is not and cannot for a long time be in a state which would justify the introduction of any name ending in "ology." It cannot begin to be a science until we can explain the cause of variations in characters. He remarks that wide knowledge is essential, and yet mere knowledge by itself avails little towards an understanding of character. Some of the most learned men in the world are as children in the comprehension of their fellow men; it is experience, as Jung has said, of the world from many and varied points of view that counts, combined with an intuitive sense.

Intuitive Knowledge of Character.

In all grades of society individuals exist who largely owe their success in life to an intuitive ability to read the motives and secret dispositions of men, and especially is this faculty of importance in the learned professions of Law, Medicine, and the Church. Most intelligent people in all ranks of life are more or less practical psychologists, for they judge of the conduct of their fellow men by analogy of their own thoughts and feelings which would be associated with that conduct; but although they may have practised this intuitive psychology all their life, they would be as surprised as the *bourgeois gentilhomme* in Molière's play was when told he had spoken prose all his life. By study and application this intuitive knowledge can be improved where it is present, and acquired where it is only feebly represented. Our object should be to develop this practical psychology.

THE TEACHING OF PSYCHOLOGY APPLIED TO MEDICINE.

I have been leading up to a thorny question, and that is, whether it is right to introduce any fresh instruction in the medical curriculum; the adage, *Ars longa, vita brevis*, is too true for the medical student to-day. Yet I am constrained, owing to the experience of the war and its aftermath, to support a proposition—namely, that a short course on psychology in its application to medicine should follow a student's teaching in physiology—which I made to the Dean of the Faculty of Medicine of the Victoria University, Manchester, and which has been carried into effect. A letter to me from the Dean of the Medical Faculty states:

"Professor Pear gives four to six lectures in the second or third year as an introduction to psychology, in the course of lectures on the physiology of the nervous system, prior to the Second M.B. In the summer of the third year a short course of six or eight lectures is given on the psychology of human behaviour, and in the Lent Term of the fifth year a similar short course on morbid psychology as an introduction to the lectures on mental diseases, which the students take in the fifth summer."

Sir J. H. Parsons, in a valuable address on medicine and psychology, points out that "the scientific study of the behaviour of human beings has been neglected by the medical profession." Medical students are compelled to spend years in acquiring a knowledge of the structure and functions of the human body, but are left with little or no instruction in the activities of the mind which the body subserves. No one would dream of teaching pathology without a preliminary course of physiology, yet every doctor is daily called upon to treat neuroses and psychoses with inadequate training. If medical students are taught psychology it should be by a more real and vital psychology based upon behaviouristic, biological, physiological, psycho-pathological, and sociological foundations, and the teacher should be a medical man who has acquired a thorough theoretical and practical knowledge of these subjects.

Formerly the subject-matter of psychology was almost entirely limited to what was called the content of "consciousness"—that is, to the thoughts and feelings of which we are fully conscious; its methods consisted of analysing our feelings and thoughts, and from them generalizing the feelings and thoughts of the human mind generally. This is the introspective method of analysis of mind; more and more

it is being realized that the behaviouristic method, applied primarily to animals and secondly to man, affords a far more sound approach to the vital problems awaiting solution. It must be admitted that introspective psychology is the final court of appeal, because, as Stout² says:

"All depends on accurate resolution of his own complex consciousness into its constituents and on recompounding these in such a way and in such proportions as to explain the nature and order of the signs which indicate to him the mental processes of others."

But consciousness is too narrow, for, owing to Freud and Jung's researches, the great importance of the unconscious in the study of mental processes has been demonstrated. This new psychology of psycho-analysis has created a widespread demand for instruction in psycho-pathology, but, as Sir J. H. Parsons truly says, "Freudism has been elevated into a cult, its truths have been overlaid with speculation, and the unconscious usurped an autonomy which it is scarcely likely to maintain."

THE INBORN FOUNDATIONS OF CHARACTER.

The dispositions impressed by nature are, in their order of evolution, species, sex, race, and family ancestry. Their ontogenesis is in great measure a recapitulation of their phylogenesis.

1. Dispositions Impressed by Species.

"The life of a species is relatively continuous; from generation to generation it animates a fresh collection of individuals. They are the vessels of life, always being renewed, the old ones passing away, the new ones rising into existence; the life of the species is the only life that lasts. The lives of individuals are but passing phases of it." I may here remark that the grasping reflex of the newborn child is an illustration of a pre-organized neuro-muscular reflex mechanism reminiscent of its ape-like ancestry.

2. Dispositions Impressed by Sex.

Human motives and conduct originate not only in the desires necessary for self-preservation but also in great measure from the depths of the passion engendered by the natural attraction of the sexes necessary for the procreation of the species.

In respect to the dispositions impressed by sex we know that every cell of the body possesses both male and female characters, but the male characters are dominant; Nature provides in the internal secretion of the interstitial gland of each sex a means of determining the specific characters of body and mind for either sex. Before birth and for some months after, the testis contains the interstitial cells; they, having fulfilled their function of fixing the male characters, disappear until the period of puberty, when they reappear. Observation and experiment show that the secretion of these cells determines the secondary physical and mental male sexual characters. In the female soon after birth Graafian follicles develop from the primordial follicles, and though these follicles do not undergo delisescence their formation leads to the development of the internal thecal cells, the secretion of which maintains the dominance of the female characters in the cells of the body. Removal of the ovaries in hen pullets shows that the male characters are dominant, for these birds thus operated upon grow up so as to be indistinguishable from cockerels, with spurs and comb; moreover, they behave as cockerels. Again, the effects in behaviour by numbers of experiments on animals and castration in man show the important influence of the sexual organs in the development of body and mind.

The specialization of the difference in sex characters becomes evident as the reproductive organs gradually mature after puberty. The various devices impressed by Nature, for example, display characteristics of each sex leading to attraction of the sexes. The evolution of the specific sex characters is all-important in the development of the sentiments and passions. The sex instinct is the great urge of adolescence; it is the *élan vital* of Bergson; or, as the Freudians term it, the "libido," found throughout organic nature. The *joie de vivre* accompanying it is poetically expressed by Romeo when the love of Juliet urges him to say:

"My bosom's lord sits lightly in his throne;
And, all this day, an unaccustomed spirit
Lifts me above the ground with cheerful thoughts."

We may contrast this with the soliloquy of the intellectual but melancholic, introspective Hamlet, who says:

"I have of late (but wherefore I know not) lost all my mirth, foregone all custom of exercises; and indeed it goes so heavily with my disposition that this goodly frame, the earth, seems to me a sterile promontory; this most excellent canopy, the air, look you, this brave overhanging firmament, this majestical roof fretted with golden fire, why it appears no other thing to me than a foul and pestilent congregation of vapours."

3. Dispositions Impressed by Race.

Everyone knows the great influence race has upon character; and McDougall in a recent interesting work has shown how very little fundamental racial dispositions are influenced by environment. The great difficulty in determining whether racial characters can be modified by environment is that few races are pure; another difficulty is to find a pure race that has been subjected to similar environmental conditions for a sufficient period of time to impress by natural selection and survival of the fittest a change in disposition. The Jews afford the best instance of a pure race whose history is known since they were an agricultural, pastoral, and warlike people. The remarkable description of the Jew by Nietzsche in *The Dawn of Day*, which I will quote, affords an explanation.

"One of the spectacles which the next century will invite us to witness is the decision regarding the fate of the European Jews. It is quite obvious now they have cast their die and crossed their Rubicon; the only thing that remains for them is either to become masters of Europe or to lose Europe as they once centuries ago lost Egypt, where they were confronted by similar alternatives. In Europe, however, they have gone through a schooling of eighteen centuries such as no other nation has ever undergone, and the experiences of this dreadful probation have benefited not only the Jewish community, but even to a greater extent the individual. As a consequence of this the resourcefulness of the modern Jews, both in mind and soul is extraordinary. Amongst all the inhabitants of Europe it is the Jews least of all who try to escape from any deep distress by recourse to drink or to suicide, as other less gifted people are prone to do. Every Jew can find in the history of his own family a long record of instances of the greatest coolness and perseverance amid difficulties and dreadful situations, an artful cunning in fighting with misfortune and hazard. And above all, it is their bravery under the cloak of wretched submission, their heroic *sperrere se sperrn* that surpasses the virtues of all the saints. People wished to make them contemptible by treating them contemptibly for nearly twenty centuries, and refusing them access to all honourable positions and dignities, and by pushing them further down into the meaner trades, and under this process indeed they have not become any cleaner, but not contemptible. They have never ceased for a moment from believing themselves qualified for the very highest functions, nor have the virtues of their sufferings ever ceased to adorn them. Their manner of honouring their parents and their children, the rationality of their marriages and marriage customs, distinguish them amongst all Europeans. Besides this, they have been able to create for themselves a sense of power and eternal vengeance from the very trades that were left to them (or to which they were abandoned). Even in palliation of their usury we cannot help saying that without this occasional, pleasant, and useful torture inflicted on their scorners, they would have experienced difficulty in preserving their self-respect for so long. For our self-respect depends upon our ability in making reprisals in both good and evil things. Nevertheless, their revenge never urges them on too far, for they all have that liberty of mind, and even of soul, produced in men by frequent change of place, climate, and customs, of neighbours or oppressors; they possess by far the greatest experience in all human intercourse, and even in their passions they exercise the caution which this experience has developed in them. They are so certain of their intellectual versatility and shrewdness that they never, even when reduced to the direst straits, have to earn their bread by manual labour as common workmen, porters, or farm hands. In their manners we can still see they have never been inspired by chivalrous and noble feelings, or that their bodies have ever been girt with fine weapons; a certain obtrusiveness alternates with a submissiveness which is often tender and almost always painful. . . . Europe may some day fall into their hands like a ripe fruit, if they do not clutch at it too eagerly."

It appears as if Nietzsche's prophecy is likely soon to come true.

We cannot think that even twenty centuries have changed the bodily condition of the Jew or even his mentality in its fundamental characters, but the highest psychic level of the brain which has been latest developed evolutionally (being the most plastic) is the most capable therefore of being modified in its modes of adjustment to environment. Only those Jews who were possessed of the highest mental faculties and capacity of making new adjustments in the struggle for existence during this long period of adversity have survived. It may be assumed that quickness of apperception

and readiness to seize opportunities have developed a high degree of racial plasticity of the cerebral cortex in connexion with its evolutionarily latest functions associated with the social instinct—an instinct which by natural selection and survival of the fittest in the course of eighteen centuries of persecution has taken on certain specific racial characters described by Nietzsche. But this high degree of plasticity is necessarily associated with a greater liability to mental instability, and I believe this more than intermarriage is responsible for the high percentage of psycho-neuroses and psychoses in Jewish stocks, often, however, associated with genius or great talents in the arts and sciences.

4. Dispositions Impressed by Familial Ancestry.

"Like tends to beget like."

All the broad facts concerning dispositions impressed by familial ancestry were known to the ancients, as is clearly shown by the poet and philosopher Lucretius, who in *De Rerum Natura* says:

"Sometimes, too, the children may spring up like the grandfathers, and often resemble the forms of their grandfathers' fathers, because the parents often keep concealed in their bodies many first beginnings mixed in many ways, which first proceeding from the original stock, one father hands down to the next father, and then proceeding from these, Venus produces forms after a manifold chance, and repeats not only the features but the voice and hair of the forefathers; and the female sex equally springs from the father's, and males go forth equally from the mother's body, since these distinctions no more proceed from the fixed seed of one or other parent than our face and bodies and limbs. Again, we perceive that the mind is begotten along with the body and grows old along with it."

It was the custom, you remember, of noble Romans to carry in their triumphant processions the masks of their ancestors, consequently many of these facts became apparent to them.

A study of numbers of pedigrees has clearly demonstrated the fact that it is necessary in the study of hereditary mental dispositions to ascertain the presence or absence of a neuropathic tendency in all the members of the parental stocks. A neuropathic tendency may show itself in many ways—for example, eccentricity, genius, insanity, hysteria, epilepsy, neurasthenia. These mental dispositions may, like bodily conditions, be transmitted. It follows, therefore, that fundamental mental dispositions are likewise inherited.

The Raw Material of Character.

The raw material of character is a complex of dispositions impressed upon the individual by sex, species, race, and ancestry, giving each individual a specific predetermined plasticity to receive and store certain impressions and react to them in a particular way. This raw material of inheritance, upon which psycho-physical energy, durability, educability, imagination, temper (for example, sanguine, phlegmatic, irascible, timorous, melancholic), emotivity, moral sense and aesthetic sense, upon which personality so largely depends, is inborn. That these fundamental dispositions of mind are begotten with the body, and predetermine in great measure character and conduct, was clearly proved by the results of Francis Galton's inquiry into the history of similar and dissimilar twins, which showed that dissimilar twins remained dissimilar in mental and bodily characters although brought up together under the same conditions, while similar twins brought up in different environment remained similar in mental and bodily characters.

A good raw material inheritance requisite for survival in the struggle for existence postulates an adequate combination of mental energy and mental sagacity. Nurture can exercise a marked influence on the development of mental energy by ensuring bodily health and strength during development, and by education and upbringing in a healthy mental environment it can develop, without wasting mental energy, the inborn potentialities essential for efficiency in the struggle for existence. Nurture, however favourable, cannot give mental sagacity if it is not inborn, nor can it do more than bring out the good qualities that the raw material of inheritance has provided; but it must be remembered that nurture plays an all-important part in the preservation or the spoiling of good raw material in all classes and grades of society. However paradoxical it may seem, nevertheless it is true that the inborn virtue of an unselfish, confiding, amiable, and optimistic nature may be the cause of an acquired vicious character under the influence of evil suggestion and imitation; whereas a calcu-

lating, suspicious, and selfish nature under similar circumstances would escape contamination.

"Virtue itself turns vice, being misapplied,
And vice sometime 's by action dignified."

Romeo and Juliet.

Inborn Qualities in Relation to Mental and Nervous Diseases.

If inborn good qualities are deficient or absent there will be, in spite of favourable environment after birth, intellectual, aesthetic, or moral feeble-mindedness of various forms and gradations, which in extreme cases, can be shown by defective development of the brain, the organ of mind. If there be inherited a disproportion and lack of harmony and integration of these inborn factors of the raw material in a family or stock, upon which mentality is based, an unbalanced mind is likely to develop in one or more members of the family or stock, which will show itself in various departures in conduct from that of the normal stable individual; it may be in the form of eccentricity, of fanaticism, of mysticism, of insanity, of genius, for, as Dryden said,

"Great wits are sure to madness near allied,
And thin partitions do their bounds divide."

Again, the unbalanced mind may show itself in the form of such neuroses as hysteria, neurasthenia, epilepsy, or in one of the forms of the true insanities. The etiology of the psycho-neuroses and psychoses and their clinical symptomatology point to the fact that they belong to one great group.

The Neuropathic Inheritance.

There are individuals born of sound stocks that no acquired conditions—for example, drink, poisons engendered within the body or taken from without, head injuries, emotional shock, distress, and even profound misery and destitution combined—can render insane. A striking fact of this was shown in a report of Bonhoeffer, who had charge of 10,000 Serbian prisoners who had been subjected to every form of stress from disease, famine, and hardships of every kind, yet there were only five insane among them. There are others, generally from a neuropathic stock, whose mental equilibrium may be disturbed by any one of these conditions of stress, or, very frequently, without any apparent cause except the conditions appertaining to the sexual functions and reproduction in adolescence, and the puerperium and the climacteric period in women.

A careful inquiry into the family histories of the progenitors and the collateral members of ancestral stocks will in the great majority of cases show that a child born sound in mind and body is begotten by parents sound in mind and body themselves, whose stocks are free from any neuropathic or physical taint. Such a child with a good inheritance is very unlikely to suffer in later life with feeble-mindedness, epilepsy, insanity, or functional nervous disease. Occasionally, however, from some inexplicable cause parents of sound stocks may beget an idiot or imbecile child, or a child who in later life becomes insane or epileptic. In some of these cases there is a history of insanity or neurosis in grandparents or in collaterals.

The child may give evidence of mental defect by being dull and backward in learning, or it may exhibit fits of uncontrollable temper without cause, or other signs of nervous irritability, such as convulsive attacks, which may be precursors of true epilepsy or of dementia praecox. If the child escapes any distinct morbid manifestation during childhood there is a danger of its showing vicious tendencies later, or developing insanity or epilepsy at the period of adolescence when the sexual instinct is aroused and new desires and passions stimulate the brain to a new activity.

Natural Selection and Survival of the Fittest.

Dr. John Macpherson³ has shown that the psycho-neuroses and psychoses are found in primitive people, in savages, and in all civilized nations in different parts of the world. The symptoms have a local coloration according to the beliefs, customs, usages, and traditions of the people, but they are essentially similar and doubtless have a similar causation. We may not know what this bodily causal condition is, but the clinical signs and symptoms point to its being some process causing disorder of the latest developed structure of the brain—the cerebral cortex. In cases where the psychosis terminates in a progressive dementia an organic disease of this structure is found, which would account for the symptoms.

In the primary dementia of adolescence there is a degeneration of the cortical neurones which would account for the disintegration of the psychic unity, and I have shown that associated with this is a regressive atrophy of the reproductive organs. These are obvious bodily changes, but it is probable that there is throughout the body a defective vitality—*elan vital*. There is certainly a lowered resistance to disease, as shown by the evidence of deficient oxidation processes.

I have found, by a study of the age of onset of insanity of parents and offspring in over 4,000 relatives who are at present or have been in the London asylums, a signal tendency of the offspring of insane parents to develop signs of insanity in adolescence. The average age of the parents is about 17 years more than that of the offspring. This accords with Darwin's law of Antedating or Anticipation. Those individuals who suffered with dementia in adolescence would have little chance of surviving the struggle for existence among primitive people and savages. Among civilized people insanity leads to segregation, and thus prevents propagation. The regressive atrophy of the testes in males would also interfere with propagation. Again, females predisposed by hereditary tendency break down in adolescence under the stress of normal physiological conditions, such as pregnancy, parturition, or lactation. These cases of so-called puerperal mania often terminate in dementia, and we find in them a regressive atrophy of the ovaries. Only about 10 per cent. of the primary dementia female cases in asylums are married women, and very few of these have had more than one or two children. If it were not for this natural process of preservation from breeding of such unsound members of a stock by bringing the disease on at an earlier age and in an incurable form, racial degeneracy and extinction would be inevitable in a civilization where altruistic sentiment has interfered with the struggle for existence and survival of the mentally and physically fittest.

The Effect on the Individual of the Social Instinct.

The three primal instincts, common to men and animals, of self-preservation, propagation, and the instinct of the herd, are the springs from which the streams and rivers of mental activity have their source. The bond of union of the herd is based upon the willingness of each member to sacrifice self-interest, and even life, for the common good, and by thus doing directly ensuring the preservation of the species, and indirectly the individual. The herd instinct has played a most important part in peace and war; in fact, the history of nations has depended upon it. This gregarious instinct has been the great stabilizing force in the fixation of traditions, customs, and social usages of successive civilizations in the world's history. Patriotism, moral, and discipline have their roots in this instinct, yet every successive age has shown that progress in religions, ethics, the arts and sciences, has originated in men and women with a belief in their individual mentality—so strong, indeed, that they were willing to court death, torture, or exile in their endeavour to overthrow traditional dogma and superstitions, or to incur disapprobation by not conforming to the traditions, customs, and social usages of the herd. Patriots, preachers, prophets, philosophers, artists, and scientists have in all ages and in all civilizations, at one time or another, been regarded by the herd either as bad men or mad men when, inspired by imagination and courage of conviction, they have refused to admit the truth of the accepted doctrines of the society in which they lived. What an inestimable benefit such men have conferred upon mankind, for have they not made the world's history and averted a petrified civilization? A just balance between the influence of the independent original and imaginative mind of the few, and the stabilizing influence of the collective mind of the many, is the secret of social progress and the building up of a sane social heritage. Mental hygiene should, then, be largely concerned in ensuring this just balance by encouraging all those factors and conditions in education which support moral, discipline, self-sacrifice, and esprit de corps, in the home by respect and pride of family, and in schools, universities, in the services, and in industries by respect and pride of such institutions. But it must be effected without repressing or destroying that individual self-control and independent originality in thought and purposive action which is essential for national progress. All games of skill in which the individual plays not for himself, but the side, such as cricket and football, foster the right spirit, and tend to an establishment of a code of honour in which the amour-propre is centred not in the individual, but in the school or university. It must be remembered that

man by this herd instinct is eminently imitative, and therefore suggestible to good or bad influences. We can therefore understand the important part esprit de corps plays in the regiment, the ship, or the factory. The great value of esprit de corps, discipline, and moral was strikingly shown in the retreat from Mons of the Expeditionary Force. Again it was shown by the fact that the proportion of cases of shell shock and war neurosis in great measure directly depended upon the moral, discipline, and esprit de corps of the regiment, because these stabilizing forces of the group mind were always operating against individual fear and collective imitation by suggestion.

PSYCHOTHERAPY IN MEDICAL PRACTICE.

Medical practitioners are now realizing that the successful treatment of a vast number of patients suffering with mental and bodily disease depends largely upon the practical study of individual and social psychology. The war has borne home to us how important it is to know the nature, inborn disposition, upbringing, education, conduct, and nurture of the individual. No one has a better opportunity of acquiring that knowledge and utilizing it than the family practitioner, who by his sympathy and sound judgement has become the friend and adviser of the family. To him the patient can come, not only for the relief of his bodily pains and disease, but for relief of his mental troubles and anxieties, which are so frequently the source of the bodily disorder. I always make it a point of asking, Have you any financial difficulties? Have you any domestic difficulties? Have you anything troubling your mind which prevents natural sleep? Do you have dreams? Are they of a terrifying nature or directly or indirectly related to the sex instinct? It is a matter of experience and tact to obtain the information required, especially in matters relating to a mental conflict with a sexual basis. Great care must be taken not to put into the mind ideas of sexual perversion, although great benefit to an afflicted conscience can be effected by explaining the physiological processes of sex, and calming apprehension relating to masturbation and impotence. A practitioner who has inspired confidence will often do more to cure some of his cases of functional neuroses with attendant bodily ailments by helping to remove anxiety and its attendant depression than by medicines. Moreover, he may be consulted by parents in the upbringing and education of children, not only from the physical but the mental side.

There is an ever-growing disharmony between the physiological conditions of the sex instinct and sociological conditions. The non-gratification of this instinctive desire may be the source of a mental conflict accompanied by fear and anxiety in a large number of men and women, especially the latter. It must be a constant experience of the members of this Association to find in the history and behaviour a sexual basis for the mental trouble of their patients who are suffering from either a psycho-neurosis (for example, hysteria, hypochondriasis, or neurasthenia) or a psychosis (for example, religious mania, manic-depressive insanity, involutional melancholia, or primary dementia).

While fully admitting the fact that the study of dreams and psycho-analysis by word association, or by free association, can lead to the discovery and uprooting of a repressed mental complex of a painful nature, or of a nature which would by society be considered wicked, yet I am of opinion that there are but few doctors who possess, or who can possess, all the necessary qualifications of experience, knowledge of technique, high moral principles, tact, and delicacy of feeling to carry out successfully the psycho-analytical methods of Freud and Jung. Human beings, especially women, are suggestible, and the class of people who seek relief on account of psycho-neuroses are eminently suggestible; consequently, unless the greatest care is taken, instead of the treatment being remedial, new and worse conflicts may be installed in the mind. It has always seemed to me that the literature relating to the truths in the new psychology of the unconscious has been deprived of much of its general practical utility by enshrouding it with mythological, mystical, atavistic speculations, and pornographic and coprologic details. Such literature has been not only eagerly seized upon by pseudo-scientists who practise psycho-analysis after their own fashion, but also seized upon and read by a section of the general public impelled by curiosity regarding sexual matters. The danger thereby arises of perverted sex ideas being implanted in the minds of such people, causing them to become in some instances antisocial in behaviour.

Introversion of the mind accompanied by contemplative

fear causes loss of voluntary attention to the world around and its diversion to the personality of the individual. The result of this is a disorder of the involuntary automatic functions of the body—a disordered coenaesthesia. Such organs as the heart, the lungs, the stomach, and the intestines, which under normal conditions function automatically with phasic or periodic regularity and without the intervention of attention, now, owing to the effects of introspection and contemplative fear, are disordered in function, and consequently obtrude themselves in consciousness. This causes hypochondriasis and various forms of neurosis.

A local colour of deranged organs gives rise to various types of neurasthenia, and obsessional psychasthenia with phobias. But besides these bodily disorders of the vital functions contemplative fear and anxiety upset the delicate poise of the internal secretions of the reproductive and endocrine glands, the functions of which we are only vaguely conscious of by the bodily effects produced.

An intelligent understanding of the influence of mind on body and body on mind—mental hygiene—and its practical application by the doctor, would avoid recourse of the public to faith healing, Christian Science, the Coué cult, and other forms of treatment by suggestion, which now receive so much popular attention and acclamation.

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THE OUTLOOK OF NEPHRITIS IN CHILDREN.*

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As a general rule cases of nephritis in children do better than in adults; one reason, no doubt, being that the cardiovascular system is in good order, and any rise of blood pressure which may take place has less effect.

The examination of urine in infants is often neglected because of the difficulty in obtaining a specimen. The best way to do this is to put the infant on a mackintosh so arranged that the urine runs into a small pool at the end of the bed. Another way is to hold the infant out after a long sleep.

A simple method of estimating how much urine a child (over 4 years of age) should pass in the twenty-four hours is as follows. The age of the child in years multiplied by two and a half gives the amount in ounces. Thus a child of 6 years will pass about 15 oz. ($6 \times 2\frac{1}{2} = 15$); a child of 12 will pass 30 oz. ($12 \times 2\frac{1}{2} = 30$).

Acute inflammation of the kidneys occurs more often as a secondary than as a primary disease in childhood. Scarlet fever is by far the commonest cause, the nephritis coming on at any time from about the fourteenth to the twenty-sixth day of the disease; it is often impossible to determine the exact date of the commencement of the nephritis, and many cases are the result of mild attacks of scarlet fever not recognized at the time. The severity of the attack of scarlet fever plays no part in the occurrence of nephritis, which may come on after severe and mild attacks alike; often, indeed, the most fatal are those which come on after an attack only recognized by the peeling. It is likely that the patient has not been looked after during the convalescence and has been exposed to cold, etc. In any child under 10 years of age who develops nephritis, scarlet fever should be borne in mind and desquamation looked for very carefully.

The occurrence of nephritis after scarlet fever varies in different epidemics, but it may be roughly estimated at about 10 per cent. The outlook is usually good, and it is rare for the nephritis to become chronic. The amount of albumin in the urine does not seem to alter the outlook, for a case with a large amount may get quite well while one with only a small amount may do badly. The worst cases are those which have remained untreated for some days and in those where there is suppression of urine, as uraemia is liable to occur. The preventive treatment consists in the greatest care being taken during the two and three weeks after the acute onset of scarlet fever, especially as regards catching-cold.

Acute nephritis does, however, occur as a primary disease, or at any rate as far as we know. Thus a schoolboy, who had apparently been in good health, was noticed by his parents to be puffy in the face one morning, and on examination a large quantity of albumin was found in the urine.

Unlike the post-scarlatinal nephritis, the outlook is mostly bad in these insidious cases. They run a course of perhaps three months to two years, but complete restoration to health does not often occur. The child may get fairly well, but he is liable to further attacks, which damage the kidneys still more, till he grows waterlogged and dies. Towards the end very little urine is passed, and dyspnoea becomes a very marked feature, so that the patient has to be propped up in bed. Uraemic convulsions are also common.

It is, however, often difficult to give a prognosis, which is what the relatives want to know. The prognosis depends on (1) the general condition of the patient; (2) whether the nephritis is post-scarlatinal or idiopathic; (3) the results of the renal function tests, etc., the chief being for the ordinary man the urea concentration test.

Recently the renal efficiency test has been elaborated by Maclean and de Wesselow, of St. Thomas's Hospital. It is simple, needs no clinical laboratory, and from my own experience gives reliable information as to the state and efficiency of the kidneys. Until lately the condition of the kidneys of patients suffering from nephritis was judged solely by the amount of albumin and by the presence of casts. Now, a large amount of albumin does not necessarily mean that the outlook is bad; nor is the converse true, for a patient with a small amount of albumin may do badly.

This is where the urea concentration test or renal efficiency test is useful. It depends upon the fact that when a large dose of urea is administered to a patient with defective kidneys he is incapable of excreting urine with a high urea concentration. The Ministry of Pensions has used this test to assist in assessing patients for pensions. The details of the test are as follows:

Renal Efficiency Test.

Starting at a convenient time, say 8 a.m., the child empties his bladder and immediately afterwards takes 10 grams of urea (15 grams for an adult) dissolved in about 3 oz. of water, flavoured with tincture of orange. The urea solution is not unpleasant to take, and there is seldom any difficulty.

At 9 a.m., or an hour later, he passes urine.

At 10 a.m., or two hours later, he passes urine again, and this specimen is kept for the estimation of urea.

The test is easily carried out, the urea being estimated by the hypobromite method and an apparatus which gives the volume of gas evolved. The apparatus can be bought complete, or it can be arranged by oneself. The percentage of urea equivalent to the amount of gas evolved may be ascertained from a table.

If the percentage of urea after the test exceeds 2 the kidneys are fairly efficient, but if below 2 their condition is unsatisfactory. The test can be carried out each week during an illness, and we can see how the kidneys improve or otherwise. The general reliability of the test and its ease of application (it takes about three minutes) should make it of great assistance in clinical medicine, and also in certain surgical conditions, such as prostate and kidney cases.

Again, if it is suggested that a patient with chronic nephritis should undergo an operation, we can, after performing the test, say whether the nephritis precludes it. There is also the test where the blood urea is estimated, but the test is beyond the scope of anyone who is not a trained pathologist.

Little need be said of the general treatment of nephritis until we come to the question of diet. It is clear that in the past we have restricted the diet too much, especially in the amount of protein allowed. Everyone needs a certain amount of protein to keep in good health. If very little or no protein is given in the food the body itself will supply waste products, so that we cannot eliminate altogether the work of the kidneys. There is no retention of nitrogenous products in a case passing albumin in the urine, and therefore there is no need to restrict the diet. Again, there is a large loss of protein each day, and all the more reason for giving a liberal supply in the food to make good this loss. When protein is given in the diet the amount of albumin in the urine is not increased and often diminishes.

A high protein diet is the best means we have of relieving a patient who has much dropsy from nephritis, and helps to make him more comfortable. This is most probably to be explained on the ground that the protein diet raises the urea percentage in the blood and so causes a diuresis, for urea is

* A paper read to the Lancashire and Cheshire Branch of the British Medical Association, January, 1923.