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SANE PSYCHOLOGY

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HANDBOOK OF PHYSIOLOGY AND BIOCHEMISTRY

(formerly Kirkes' and later Halliburton's)

SANE PSYCHOLOGY

A Biological Introduction to Psychology

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A REVISED AND ENLARGED EDITION
OF "A BIOLOGICAL INTRODUCTION TO PSYCHOLOGY"

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PREFACE TO THE SECOND EDITION

THIS book was originally put together for students and practitioners of Medicine especially to meet the recommendation of the General Medical Council that instruction in Normal Psychology should be included in pre-clinical teaching. The need for a new edition so soon has indicated that it filled this need. The large number of letters which I have received has, however, shown me that it may have a considerable value not only to Medicine but also to students of Theology and Education, for in the field of Psychology these three subjects have much in common and their teachings and practical activities in the world overlap to a very marked degree. If all three could see their way to build up their training from a common biological basis much benefit and less misunderstanding would result.

The volume is written as a sequel to a very elementary training in Biology and it is hoped that it will be evident that Psychology is much less remote from ordinary subjects than its amazing vocabulary suggests. It seeks to put Psychology in its proper biological perspective, for in so doing it shows how upsets of the brain and mind, like other disturbances, may interfere with normal health and happiness. Although written by a physiologist an undue materialistic flavour has been so avoided that not a single reviewer of the first edition made this complaint. The author is not only cognizant of but is an admirer of great masters who, within living memory, have led their subject out of darkness. The recognized psychological reactions are presented without reference to the dogma of the schools from which they originate as one might present a thesis on good living without reference to the dogma of the various denominations of the Church. The book is an attempt to present the Psychology of the sane for the sane by one who has hitherto been considered sane.

This new edition has been somewhat rearranged largely at the suggestion of Dr. Clifford Allen, who reviewed the book

in *Nature*. A number of new sections have been included, notably those on Learning, Language and Mind, by which the relationship of the subject to Academic Psychology becomes more apparent. The book also contains new sections on the Effects of Mind on Body and the Effects of Body on Mind, since from this aspect much new knowledge of the subject will undoubtedly come in the near future. A short summary of the outlooks of the various Schools of Psychology and a selected bibliography by which the beginner may reach more extensive writings are also added. In the preparation of this edition I am most grateful to Professor E. P. Cathcart, and to Miss Sheila Allan, who were good enough to revise the first edition and make a number of valuable suggestions. In addition, the volume has been subjected to very detailed criticism by Lieut.-Colonel G. E. Malcomson, to whose careful reading and astute mind it owes more than can be adequately recorded. He was also good enough to read the proofs. In this Miss A. S. Cole has also rendered most valuable assistance.

It is hoped that by its use those who read it will be more capable of directing the mental health of those under their control and will have also a fuller understanding of their fellow creatures.

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31*st March*, 1943.

INTRODUCTION

PSYCHOLOGY is the study of the mind and mental processes as a result of which human beings think and act, but the subject may be viewed from several angles and the great divergence of opinion which exists amongst psychologists really depends on the failure to recognize the approaches. It is as if several persons looked at a cone from different points and in different lights and each described what he saw without reference to any other. One might only see a circle, one a triangle, and others various shapes, but all would be quite justified.

(1) In studying Psychology we may approach it **objectively** by observing the behaviour of the individual as we might study the behaviour of a machine. This is the natural view-point of the physiologist who is accustomed to the study of the reactions of the nervous systems of animals. He is prepared to admit that the nervous systems of various animals and even of individual human beings react differently because they are differently constructed as a result of heredity. He knows not only that the nervous system is capable of a very large amount of inherent reaction to given stimuli, but realizes that the nervous system may be educated to give new and non-hereditary responses or conditioned reflexes which become more or less fixed in the individual and for which conscious mental effort is not necessary except in the learning process. Such processes of education obviously are concerned in learning to perform physical acts, and it is also apparent that a great deal of mental activity and behaviour is dependent on similar educable capacity ; indeed, our educational systems depend on it largely for their results. There is, however, a great variability of mental endowment amongst human beings as indicated by various tests for educable capacity which have been designed and are in common use. Individual differences are considered to be the result of different heredities and environments. According to a strict behaviourist view, likes, dislikes and fears are the result of heredity, education and past experiences. This view is known as " behaviourist "

because in it we study essentially the behaviour of others.

The behaviourists would have us believe that all behaviour is based on conditioned reflexes, cold and unemotional, devoid of conscience, ideals, ethics, morals and spiritual values generally. Such a conception of mental activity ignores consciousness and reason except in the learning process, and so belittles human as distinct from animal mentality that most thinkers find it unacceptable.

(2) We may also study mental activity **subjectively** by investigating the feelings of the individual concerned and thereby the content of the mind and the various factors which affect this content. It is evident that many are justified in commencing their study of mental activity with the conscious human being, aware of his existence and his environment, with an independent will, emotional, purposeful and striving, avoiding pain, and seeking power and pleasure, reproducing himself but not necessarily immediately aware of the exact forces which cause him to strive in certain directions. It will be realized that here, too, we reason by analogy. In many cases we must assume that the same emotions occur in the subject as would occur in us in similar circumstances.

The exact source of the emotional drive is a matter of considerable debate, but its existence and its importance in human affairs is beyond dispute. It is in this that the various schools of psychology differ fundamentally.

The outstanding exponents of different instinctive urges have been Freud, McDougall, Adler and Jung, whose views are considered later.

It is, however, quite remarkable how those whose psychology is based solely on emotion and feeling have for the most part ignored the influence of environment and education.

The biologist whose view-point is that of cold science has an outlook which, as far as possible, is unemotional but it is more than physiological in the ordinary sense. In the nature of things he wants evidence or proof acceptable to all whatever their emotional bias.

To him a human being is an animal built physically as animals are, possessed of primitive instinctive urges or emotions, but capable of benefiting from the experiences derived

from its environment. In addition he sees man as the most highly evolved animal living in a highly complex society which has surrounded him with a host of customs and conventions which he cannot escape—and possessed of certain ideals and moral codes which bespeak a spiritual origin and influence his conduct and feelings.

In looking at Psychology as a whole it becomes evident that each school has contributed its quota to our knowledge of the subject, but it is well to remember the famous canon of Lloyd Morgan that we may not interpret any given behaviour as the outcome of higher mental faculties as long as it is possible to explain it in simpler terms. Thus the process of conditioning may coexist with the process of repression, reasoning, and so on.

It becomes increasingly evident, too, that there is no hard and fast line between the activity of the nervous system and the activity of the mind; indeed, it becomes apparent that both work on the same plan and their activities, as described by the foremost physiologists and psychologists, overlap considerably. Any attempt to keep the study of the nervous system and of the mind in two entirely separate compartments becomes, therefore, not only unjustifiable but futile if the biological function of both is realized—namely, the adaptation of man to his environment including the social conditions under which he exists.

This is not, however, to be taken as an acceptance of crude materialistic Behaviourism.

Some psychologists hold that in considering mental processes, the nervous system may be ignored altogether and it is certainly true that many succeed in the practice of psychotherapy with a surprisingly small elementary knowledge of its basal workings. Like so many other subjects, psychology may be studied without detailed reference to the fundamental processes on which it depends. A man may even make a wireless set without knowing the fundamental process involved in the action of a wireless valve. Many good practical electricians know remarkably little about the fundamentals of their craft. In a modern world it is scarcely possible to be complete master of the theory and practice of a craft, but it

is all the more desirable that the theorists and practitioners should get together, otherwise both may go wrong.

It used to be considered that the brain might be looked upon as the organ of the mind, but later knowledge in the field of therapeutics has shown that the structural damage or malfunction of the brain may result in many mental derangements which earlier were considered beyond the reach of physical processes. One of the earliest recognized of these states was general paralysis of the insane in which typically the subjects suffer from remarkable delusions especially those of grandeur and exaltation. Frequently they identify themselves with notable persons. This condition is now known to be produced by the effects of the spirochæte of syphilis on the brain. We now know that tumours of the frontal lobe may produce mental states indistinguishable from other forms of insanity and that removal of such tumours may relieve the disturbed mental state. Striking too is the effect of thyroid extract on the mentality of a cretin child whose thyroid has failed to grow normally. The child which might have been an idiotic dwarf may, through the administration of thyroid extract, become a normal member of society.

More recently cases of schizophrenia or split-personality which hitherto have been considered in the realm of immaterial psychology, have been shown to be cured by causing convulsions in various ways, e.g., by insulin, while cutting of the frontal lobe has been shown to reduce depression.

Since also there is an increasing tendency to stress the importance of heredity in much mental disease, we must assume that those who inherit an inferior nervous structure are less capable than others to adapt themselves to their surroundings.

Finally, some may ask what right has any physiologist to take an interest in Psychology. The answer was given by Sherrington. "Some may ask what right we have to conjoin mental experience with the physiological. No scientific right, only the right of what Keats with that superlative Shakespearean gift dubbed busy common sense. The right which common sense naïve and shrewd often exercises." (Rede Lecture, Cambridge, 1933.)

CHAPTER I

MAN IN RELATION TO ENVIRONMENT

MAN is the supreme being on earth, he stands at the top of the evolutionary scale, but, exalted though he is above the creatures, he remains essentially an animal in an environment and like all animals is at once a creature of his heredity and his environment. When his animal body dies he ceases to exist in the material sense.

In virtue of his heredity he has a certain physical form and is possessed of certain physiological processes, and by means of these he becomes adapted to his environment and to some extent adapts his environment to his needs. Adaptation to environment is characteristic of plants and animals alike, but as we ascend the evolutionary scale we see not only an adaptation of form, but also an adaptation of reaction and a greater power of living in a greater variety of conditions. Thus we see the higher animals have increased amount of movement and are provided with a greater power of absorbing food and oxygen from their environment. The warm-blooded animals can be active at greater ranges of external temperature, while the higher animals not only react rapidly to their environment but have a power of "storing" past sensations and thus benefiting from experience. Man stands out above the lower animals in having this power developed to a much greater extent than they, and he supplements it still further by books and by systems of education through which the young have the advantage of accumulated experiences of past ages.

In virtue of these qualities he has succeeded in subjugating the animal world generally and in so controlling a large number of natural forces that he is to some degree capable of influencing his environment.

In his more immature years, however, the influence of his environment is paramount and his reactions may become so adapted to it, that he ceases to be able to stir much more

than a finger or raise a feeble (?) voice against it. Many never develop beyond this stage, but fortunately there are those upon whom the environment has less influence and whose life is an incessant struggle to mould their surroundings to their needs and ideals.

But, as we have said, man is essentially an animal and although possessed of highly evolved reactions and capable of profound mental activity, cannot escape the thraldom of his ancestry. Like all living things he requires food and drink, he must protect himself from those forces which would destroy him directly or by seizure of his food, and since the days of his life are limited he must reproduce himself or his species would become extinct. It may be emphasized, too, that these principles which govern survival apply not only to individuals but also to communities and nations; indeed, it is essentially such principles which drive nations to war. Again, like all animals, man is possessed of certain reactions which normally drive him towards certain lines of activity and conduct. In the case of some simple reactions, such as those involving the maintenance of posture or concerning protection, the exact mechanisms are accurately known, but of others, such as those concerned in the instincts, we know as yet little.

If we consider the general processes by which the nervous system works, it will be seen that the nature of the processes which occur in quite lowly animals is fundamentally similar to that of higher animals, but they are more elaborate and complicated as they ascend the phylogenetic scale. It also becomes apparent that many human reactions are much more primitive and automatic than at first sight appears. One of the latest activities to be shown to be automatic or reflex has been the movement of the legs in walking, which until quite recently was thought to be an almost wholly voluntary movement. In all, too, we see the general principles of evolution apply. It becomes apparent that nations and communities like individuals slowly evolve from barbarism and seek ideals unknown to primitive man. Some, however, lag behind and some are in the vanguard leading others. It is the lack of appreciation of such facts which leads to so

much trouble in democracy which fails to recognize the hereditary factor which leads to so much inequality in man. It is in the psychological sphere that this inequality is most marked, and it is no mere chance that some are born to be drawers of water or hewers of wood any more than that there are those of all social degrees who will outstrip their fellows in almost any field in which they may find themselves.

Adaptation

Adaptation may be defined as a state of life in harmony with the external environment.

In the plant world we see a vast variety of physical manifestations which indicates adaptation, such as type and size of leaf, presence of hairs, size of plant which facilitate life in wet or dry ground, in sunny or shady places and the like.

Animals are similarly adapted, the goat to its mountain, the tiger to its jungle, the mole to its burrow. Even sheep are adapted to certain kinds of pasture and may die if moved. This is true particularly of older sheep. Young animals become adapted more easily. Certain birds which do not adapt easily, like the swallow, must escape to warmer climes in winter. While in their proper environment animals flourish. If they are *suddenly* moved to another environment their lives may be in danger, especially from inclemencies of climate, from difficulties in securing food and lack of adequate physical means of protection. Just as there is an adaptation of form there is an increasing adaptation of reaction, the animal becoming more and more capable of surviving by adapting itself to changing environments until in the case of man adaptation is remarkably complete. Such matters are taken into consideration by those who are concerned with mass movements of troops or the transfer of animals from one place to another. Animals from the tropics are brought to our zoological gardens in the summer and may at first need artificial heat. The " trooping season " is in autumn and spring for similar reasons. An essential feature of adaptation is that it takes time. If time for slow adaptation is permitted it is quite remarkable to observe the adaptation which animals will show. The monkey, accustomed to a hot climate, will eventually adapt

itself to the rigors of a British winter. Man may live safely at 25,000 feet if he reaches that height slowly, but if he goes rapidly in an aeroplane without a supply of oxygen he may die.

Man can by artificial means, such as warmth and clothing, adapt himself more readily than the lower animals, but under extremes of climate a considerable proportion show themselves less adaptable than others. This is well seen in relation to exposure to heat, cold and high altitudes, but is also applicable to hard physical or mental work.

We recognize also the phenomenon of mental adaptation in a general sense when an individual goes to a new community, notably a child who goes to boarding school. The house-master may report that he is or is not " settling down ", and the same term is used also in regard to adults who adapt themselves well to the conditions of new posts. Some men mellow with age like wine or the bricks of a new house. They strike less harshly the palate or the landscape. All are affected to some extent by their environment. If the animal is in harmony with its environment it lives healthily, happily and long, but if not a series of reactions is seen. The power of mental adaptation varies, however, enormously in different persons. The " good mixers " and the very adaptable people of the world are well recognized, and so too are those who are obviously difficult and will not adapt themselves to enforced surroundings and company. It is common to look upon such persons merely as unfortunates, but it is less often realized that they are really doing their best to adapt themselves but are held back by forces over which they have but partial control, and they may themselves be the subjects of great mental anguish in the effort. Usually it is that in such persons the mental adaptation is a slow process, and this may so seriously interfere with the social reactions of the individual that steps must be taken to accelerate it.

Effect of lack of mental adaptation is dealt with in relation to " Conflict " where it seems that just as excessive heat, cold, high altitude or necessity to work hard or to fight bring about the bodily reactions which we group under the heading of increased sympathetic activity in animals, so also in man lack of mental adaptation brings about *exactly* the same

bodily effects which if continued will have a seriously harmful effect on the happiness and health and length of life of the individual if not lead to his restraint in an asylum.

Thus it becomes evident that general biological principles apply to all living things, plants or animals, and that there must be adaptation or there will be a stunted, unhealthy, unhappy existence and a shortened life. Plants when growing in poor soil tend to flower rapidly and reproduce excessively, bacteria in similar circumstances form spores which are specially resistant to conditions which would kill the parent. Lower animals protect their young to the death, while man when faced with danger to himself such as air raids, makes special provision for the protection of his children. Thus we see a provision for the continuance of the species when adaptation is incomplete as if the living organism never despaired of the world being a better place for its descendants.

It is, however, not to be understood that the best adapted humans are necessarily the most evolved. Those who strive to make the world a better place are constantly in conflict for their ideals are probably on the highest plane.

It is convenient to consider adaptation as taking place at three levels: the reflex, the instinct, and the mental, according to the standing of the animal in the phylogenetic scale.

The reflex is an immediate response which depends on the nervous system and from its study it is possible to obtain some idea of the fundamental processes of the system. Instincts are more elaborate innate reactions of obvious value to the animal while mental activity involves some degree of thought.

These various levels of activity merge insensibly into each other and overlap and, as we shall see, in human mental activity all these levels are involved.

We may then consider the function of the nervous system, the instincts and the mind in relation to adaptation.

" Man—an adaptive mechanism " is described by Crile.

CHAPTER II

PROCESSES OF THE NERVOUS SYSTEM

In the case of the simple animal, reaction to environment is chemical, but with the development of the nervous system much more elaborate adaptations occur. The great benefits which the nervous system confers are speed of reaction, generalized co-ordination and the power to learn, while with the evolution of mind appears the power to form concepts and to reason. For the full understanding of these reactions an elementary knowledge of the processes of the nervous system is necessary.

Reflexes

This section is given in summary but many readers of this volume will have already read more detailed descriptions in text-books of Physiology.

The nervous system is built up of neurones, that is, nerve-cells with their processes which carry messages to and from it. The cells are stationed in the brain, spinal cord and the ganglia of the nervous system, but their processes collected together in bundles form the nerves which are seen as white cords throughout the body. The neurones are the structural units.

The physiological or functional unit of the nervous system of all animals is **the reflex.** A simple example of this type of reaction is seen in the **protective spinal reflex.** If the foot is pricked, it is withdrawn. A nerve impulse is set up in the skin by the prick, is transmitted by afferent nerves to the spinal cord whence another impulse is transmitted to the muscles controlling the leg and foot. That the response is not in any way dependent on the brain is seen by the fact that it takes place in the body of animals whose brain has been removed but whose spinal cord is retained, while its independence of consciousness is seen by its occurrence in a sleeping person.

If the stimulus is sufficiently strong there is spread to other efferent pathways and not only may the leg of the opposite side be removed, but the forelimbs also. It is found also that although one stimulus may be insufficient to provoke a response a repetition of the stimuli may be effective. The usual explanation of these facts is that the strength of the stimulus overcomes resistance at the synapses, i.e., the junctions between neurones, in the same sort of way that an electric current will jump a spark gap, but it may be dependent on the accumulation of chemical substances at the synapses.

A still higher type of reflex is that concerned with posture. By means of **postural reflexes** an animal maintains its normal standing position, its head in relation to the earth and its body in relation to its head.

The impulses concerned in standing arise from the effect of gravity tending to bend the limbs and to stretch certain tendons. This stretching sets up impulses which pass up to the spinal cord to Deiters' nucleus in the upper part of the medulla and impulses are sent back to the muscles to cause them to contract.

The impulses concerned with the position of the head arise from the weight of minute particles of chalk hanging from hair-like processes of certain cells in the otolithic cavities of the internal ear, those relating the body to the head arise in the muscles of the neck. All impulses concerned are co-related in the mid-brain whence they are relayed to the appropriate muscles. These reactions take place in animals deprived of consciousness and conscious activity by removal of their cerebral hemispheres. Such animals not only can maintain the standing posture automatically but will walk, run or gallop if stood on a platform which can be moved at appropriate speeds.

Conditioned Reflexes

A still higher type of reflex involves consciousness and the cerebrum. This is the **conditioned reflex** described by Pavlov who took advantage of the fact that a hungry dog secretes saliva when it is shown food. In the classical experi-

ment a bell was rung each time a dog was fed and eventually it was found that the dog secreted saliva when the bell was rung although the food was not presented. Such reactions are commonly seen in pet dogs when the dinner gong is sounded. The benefit of such reflexes to wild animals in regard to hunting and to the seeking of food is obvious.

The evidence that the response, although it involved consciousness in its initiation, is not eventually one of conscious activity, is that drawn from the experiment of repeatedly ringing the bell half an hour before the food is presented. The dog then secretes saliva half an hour after the ringing of the bell. If, however, during the interval the dog is disturbed by an extraneous stimulus, saliva is at once secreted, showing that there has been some sort of restraining influence or **inhibition** (known as internal inhibition) of the response which is released by the extraneous stimulus. The emptying of the bladder during excitement in a puppy during house training is probably a similar release of an inhibited reflex, the inhibition not yet being very strong.

A dog can be taught also that certain stimuli are associated with no food and it responds accordingly.

In the formation of the conditioned reflexes there is also an association in time, a fact which suggests that when two self-propagating nerve impulses enter the nervous system, simultaneously or at a short interval of time, they tend to meet. We have already noted that when we associate two ideas or happenings it is usually because of a similar coincidence or sequence in time.

By a study of such reflexes in dogs Pavlov uncovered a whole field of mental mechanisms and was able to throw a flood of light on a very large amount of human behaviour.

Repetition and Habit Formation

In the formation of conditioned reflexes repetition is of primary importance; indeed, the experimental study of the ease with which these reflexes may be laid down is based on the number of repetitions which are necessary before the new response becomes fixed. The fixation appears to depend to

some extent on the synapses, for it has been found in relation to spinal reflexes that repetition reduces the time between stimulus and response, although it does not affect nerve conduction. Since a similar reduction is obtained when repeating reaction times (see below), we can almost presume that the beneficial effects of repetition in general are due to a similar reduction of synaptic resistance. We shall see that this effect of repetition makes itself shown in very many reactions not only of the nervous system but also of the mind.

It has been said that a **habit** is simply an act done a hundred times, and it will be realized that our habits have become fixed in our nervous system after the manner of conditioned reflexes. This reflex has been called the fly-wheel of civilization.

Where we put our railway ticket, the way we hold our pen or knife and fork have all been thought out, but eventually, as a result of repetition, the action becomes automatic or reflex. From time to time we have to excuse ourselves for certain actions which have been done "absentmindedly" from "force of habit". For some ten years the author lectured from twelve to one o'clock and thereafter had lunch, but circumstances led to a change of the lecture hour to eleven o'clock. On two occasions in the ensuing three months he found himself an hour too early in the lunch-room at the other end of the building before realizing the mistake.

The training of animals also depends on the formation of similar reflexes. The animal learns that if it acts in a certain way when given a certain stimulus or cue, its action will be approved of and it may receive the tempting morsel, but failure will result in disapproval suitably shown. It is of interest to remark that the process of conditioning in such training is related specially to food and physical comfort.

In Medicine we are interested in some of the less desirable movements or tics. In the first instance the grimace or hand movement may have been purposeful, but eventually it becomes fixed in the nervous system and very difficult to eradicate. Sometimes it is done by causing the movement to produce a disagreeable sensation, such as by putting mustard on the fingers of a child which will not stop sucking them.

In training for games the learning of good movements is well recognized, but unfortunately as yet the need for training of this kind is not fully appreciated in industry, largely because the workers will not be bothered to learn. The evidence is, however, complete that after a variable period of reduced efficiency the learning of proper methods, especially those which reduce the number of movements made and the amount of muscle used, results in an increased output and more leisure. The matter was summed up by Bacon many years ago when he said, " Habit, if wisely and skilfully formed, becomes truly a second nature."

A great biological value of such conditioned reflexes is that they relieve the mind of having to think, and attention can be paid to other things. We have only to recall how learning to skate, ride a bicycle or drive a motor-car absorbed our whole attention, but later we could indulge in conversation as well. For the learning of motor movements it would seem that the cerebellum is of special importance.

It should be pointed out that this taking over of routine tasks by lower parts of the central nervous system is of great importance to mankind, especially those employed on routine operations in industry, by releasing some of the attention. Many repetitive occupations in factories would be more intensely boring but for this. Sometimes the spare attention is devoted to the study of details of the operation, but it may be diverted elsewhere, notably to song, as is seen in well-known songs associated with various occupations which tend to be boring such as marching, cobbling, rowing, and so on. Mental peace is thereby attained.

The most striking example of a conditioned response in man was given by William James. He describes how a well-trained soldier was carrying a pot of beer across the barrack square when a sergeant called out " Attention ". The soldier at once dropped the beer before realizing the joke.

Habit has been much discussed by Pavlov and well summarized by Dunlap. A good comparison of the activities of man and animals from the neurological aspect is given by Herrick.

Voluntary Movement and Reaction Times

It is possible to study certain reflexes with great accuracy, not by observing the muscle response but by recording the electrical changes in the nerve, the time of stimulation and the time of the arrival of the impulse at the muscle. By similar means it is possible to measure the exact speed at which nerve impulses travel along nerves. This varies in different nerves and is from 6 to 120 metres per second. It is found, however, that the time taken in reflexes is appreciably longer and this is accounted for by assuming that there is a delay due to resistance at the synapse or junction between the neurones concerned. It is, moreover, found that if the reflex is repeated several times, the time of response shortens presumably because the delay at the synapse becomes less. This is known as *facilitation* and obviously is of great importance in those reflexes which we acquire and which become very rapid from habitual use.

It is possible to study voluntary responses in a similar way. The time of stimulation and the time of response are recorded and it is found that the time taken to respond is increased the longer the nerves along which the impulses have to pass and the greater the number of neurones involved. It is found too that voluntary responses obey the same laws which have been found to apply to reflexes, not only so, but drugs such as bromides and strychnine which respectively diminish and increase reflex responses have a similar effect on voluntary reaction times.

This similarity between reflexes and voluntary responses suggests that the fundamental processes may be more alike than is generally recognized. We are familiar too with the fact that great skill may be acquired by habitual movements. These observations are of interest in any consideration of the exact nature of voluntary movement. It is usual to consider such movement as commencing with activity of the Betz cells of the motor area of the cerebrum, but what stimulates them is nebulous. It may be that the majority if not all voluntary movements depend for their stimulus on the

external environment. This would account for our making any movement at any given time.

The exact response, however, to the stimulus is profoundly influenced by the introduction of conscious reasoning between the arrival of the stimulus and the execution of the movement.

Speech

There is one movement which is of special interest—namely, vocal speech. Speech is a movement which involves the action of the muscles of respiration, of the larynx and of the mouth. It may, under certain circumstances, be replaced by movements of other parts of the body, such as a nod of the head. We call it a voluntary act.

At the same time it is also agreed that speech may not infrequently be quite involuntary. Certain individuals may respond to certain stimuli by swearing. It is common parlance that a man may speak without thinking. We even find Shakespeare causing Polonius to give advice to his son:

> Give thy thoughts no tongue,
> Nor any unproportioned thought his act.

In the pathological state of aphasia, it is not infrequently found that the individual may be quite unable to answer a question, yet he may still swear when stimulated or repeat poetry which, as we say, he has "learnt by heart" in his early years. Or he may be able to say such words as he might say automatically. There is then evidence that certain speech at least may be quite automatic—and that such speech may be produced in a way which is strictly analogous to the formation of a conditioned reflex.

By repetition speech becomes fixed. It has already been remarked that repetition is of enormous importance in relation to nervous activity, and we are familiar with the importance of repetition in teaching and learning. Many of us remember passages of verse which we learnt at school and still recall the amount of repetition which was necessary to fix them in our memories, but now they seem to be fixed indelibly. We just need one or two key words to make us remember a whole passage.

If rapid speech is analysed as a movement it is often pos-

sible to discover the original stimulus. This is the essence of the value of rapid examination in the witness-box. The witness, we say, gives himself away. What does he give away? He gives an insight, as we say, into his mind, he indicates the habitual paths of previous stimuli. It is as if we were riding a horse and the horse wished to go in a certain direction. By its behaviour we can usually analyse the animal's mind and give good reason for its preference for one way rather than another.

But suppose that we ourselves are about to make a hasty reply. The speech is on the tip of the tongue when we receive another stimulus; we see someone, perhaps. Where is the speech? It remains in our thoughts. We are deterred by what we imagine would be the result of our saying it. We have formed a cycle of thought. (See Appendix, p. 255.)

Such cycles of thought are exactly like any other habit, in that they appear to establish definite pathways. It is indeed generally agreed that there is such a thing as a habit of thought. Systems of memory training, such as Pelmanism, have for their basis the establishment of groups of words or ideas, so that the mention of one word will automatically call up others of the group. We often say that whenever we think of one thing we think of something else, or we say when we are telling stories—"that reminds me of one". Thus it is seen that habits of speech and habits of thought are closely interrelated and are probably playing a larger part in human affairs than is generally realized.

Education as Conditioning Process

However much some may dislike the idea, it will be generally admitted that one of the fruits of education is habit forming. The constant curbing of natural desires leads to the establishment of certain lines of conduct upon which society looks with favour. However much we may covet the food of a neighbour, we do not steal it, or however much he annoys us we do not necessarily fight him. Children are sent to a certain school because of the pattern of boy which it tends to produce. Study along certain lines tends to develop certain types of mind, while those who specialize in child guidance

tell us how the child's whole conduct may be influenced by teaching him to play in certain ways. It is not the purpose of this book to discuss the advantages and disadvantages of universal state education and it is certainly evident that it would tend to level mankind, but in doing so would tend to curb the adventurous spirits who seek to strike out in new paths.

It is a strange trait in human nature that at quite an early age there is a great tendency to establish self-education along certain lines. The newspapers read, the wireless items listened to, show evidence of the desire along certain political, sociological or cultural avenues and disinterestedness in the views of others who may hold the opposite opinion. In more purely educational spheres it would seem that the hereditary aspect, or early parental influences, play a considerable part in determining leanings in certain directions, although it is well recognized that the immature mind may be greatly influenced by certain teachers. The truth of this statement has been amply borne out by the remarkable influence of mass education in totalitarian states.

Conditioned Responses to Instinctive Drives

As we study the responses of man to his animal instincts it will soon become evident that many of the responses are those of our community rather than those of the animal. If someone accidentally bumps into us we find ourselves apologizing, for we have conditioned *toujours la politesse.* In later chapters, particularly that on the herd instinct, we shall see how important these conditioned responses are in human behaviour and thought.

The Conditioning of Symptoms and Suggestion

In disease it is quite usual to see the influence of a conditioning process. This is discussed, however, in a later section on the effect of Mind on Body.

It will be seen, too, that what is commonly called Suggestion is closely allied to establishment of a conditioned habit of thought.

Conditioned Sensation

The phenomenon of conditioning is usually held to apply only to movement or activity, but it is easy to demonstrate that sensation may also be conditioned. In medicine this is very important in relation to pain and the physiological reaction and reflexes thereto. This subject is so important that it is considered in a separate chapter, "The Effect of Mind on Body", later. (See also Appendix, p. 255.)

Rôle of Heredity in Nervous Processes

It is generally agreed that certain traits run in families: bad temper, interest in books, music and the like, and any who have trained horses or dogs are familiar with similar inherited characteristics in animals.

We know, too, that all persons educated alike, in as far as this is possible, have not the same reactions, for we are products not only of our environment and education but also of our heredity.

It is commonly remarked that children have a physical likeness to their parents and this may give rise to a functional likeness, for example, in gait which we know is largely reflex. It is easy to imagine, too, that just as the configuration of the head may approximate to that of the parent so may that of the brain and that detailed cerebral structure may similarly conform. While it is common knowledge that a child may "take after" one or other of his parents it should, however, be pointed out that the functional resemblance may be basal rather than superficial and that many of the qualities of mind required for worldly success are, as pointed out by Keith, also those of a really successful housewife. Similarly, basal deficiencies such as lack of perseverance may lead to failure in otherwise capable persons in any walk of life.

In many cases the individuals of outstanding attainment have become so as the result of their heredity, for as we say, the quality has been "bred in the bone" whether it be art, music or fighting. It is also common experience that great

clowns, acrobats, mathematicians, musicians, soldiers, are descended from ancestry with similar specialized capabilities. Unfortunately we usually only hear of the most distinguished in a particular line. We may be familiar with two musicians Bach, who were father and son, but there were many other musical members of the family; indeed, there was an all Bach instrumental band. But correspondingly some have the greatest difficulty in learning some subjects. Thus mathematics to some are easy, but to others difficult. We may imagine that every individual is more readily educated along certain lines than along others, indeed, vocational testing indicates that this generalization is probably true.

There is some evidence that physical skill has an anatomical basis. It is well known that the area of the cerebral cortex which controls the forelimb of man is very much larger than that concerned with the lower limb. More recently Adrian has demonstrated that the same is true for the sensory cortex of animals which use their forelimbs.

It has, of course, long been recognized that variation of capability may depend on sensorial variability; indeed, many attempts have been made to measure intelligence by testing the various senses, and this is still included in many classes of Practical Psychology. Whatever the value of the tests in this respect, it must certainly be true that we would not expect families of individuals whose hearing apparatus was inadequately developed to be musicians. Similarly, individuals who are naturally clumsy with their hands are probably deficient in the underlying nervous mechanism upon which delicate co-ordinated muscular movements are known to depend. This subject is closely related to the inheritance of personality (*q.v.*).

It must be understood that the nervous structure which is inherited determines only facility, capability or tendency, but does not, so far as the nervous system is concerned, make specialized function inevitable. We know that the nervous system shows a very great power of functional adaptation, and that our predistinction is true only in a very limited sense.

CHAPTER III

LIFE'S MOTIVES AND THE INSTINCTS

CLOSELY allied to the reflexes are the instincts, which may be described as the innate tendencies of animals to behave in certain ways, and are common to all animals, amongst which they may, however, differ in detail. Lloyd Morgan has suggested that a criterion of instinctive behaviour is serviceability on the first occasion for the welfare of the individual and his species, and he has emphasized its dependence on parts of the nervous system lower than the cerebrum, and that intelligence, which depends on the cerebrum, supplies the finishing touches, the net result being a joint product of both in which each remains genetically distinguishable. Subsequent experiments have confirmed this view. A dog whose cerebrum has been removed possesses all its instincts but has not all the apparatus for carrying them out. It cannot find food or a mate. It should perhaps be pointed out that the term instinct is used here in its biological sense. Popularly an instinctive response includes the conditioned learned response.

On the instincts depends the life of the animal world, and on them the preservation of the individual and the preservation of the race to which he belongs. The universal instincts therefore are those concerned with food and drink, protection and reproduction upon which all life depends.

These instincts bear a very striking resemblance to reflexes and are as truly fixed in the nervous system of animals as reflexes. Often instinct and reflex act together towards a common end, and differ only in the speed of the reaction and that the response is not merely a movement or secretion but a complicated action. Thus the protective instincts and protective reflexes are really part of the same mechanism for security. In the case of thirst we know exactly the mechanisms which are concerned in producing the intense desire for fluid. The sensation results from a drying of the specialized nerve-endings of the tongue which is the result of the with-

drawing of water from them. This withdrawal may result from the local application of substances such as salt or alcohol or from increased concentration of the blood which is itself the result of loss of water from the skin. In regard to hunger we know less of the exact mechanism concerned, but we believe that it is associated with increased tension on certain nerve-endings in the stomach wall. Hunger and thirst are well known to be two of the most compelling sensations. Fear of hunger is, by association, equally compelling but in a civilized world more rare.

It must at the same time be admitted that it is difficult to imagine that the instinct which causes an animal to hoard food is dependent on any afferent impulses. Animal psychologists, however, tell us that such hoarded food is commonly forgotten rapidly by non-hibernating animals such as dogs.

Of the exact origin of the reproductive instinct we know little but we do know that sexual desire is exaggerated in such states as adrenal disease, prostate enlargement, increased external temperature, a full urinary bladder, or mechanical stimulation of the penis, clitoris or nipples, while it is reduced in fatigue, hypothyroidism and in cold. In women the occurrence of the periodic variability of sexual desire is well recognized to be related to the menstrual cycle which we know to be controlled by hormones from the pituitary body. It has also been shown experimentally that it is possible to reverse male and female sexual reactions by the injection of extracts of the ovary and testis respectively. Thus a hen may be made to "woo" another hen. Pavlov, too, has found that castration caused weakness of conditioned reflexes which could be restored by the injection of sex hormones, while it has been found possible to refeminize women suffering from virilism, in which the mental outlook, like some of the secondary sexual characteristics, becomes male in type, by removing part of the adrenal glands. The maternal instinct has been shown to be accentuated by the injection of extract of corpus luteum into rats, while in dogs it has been found that it is absent if the sympathetic is removed (Cannon). The whole idea of instinctive behaviour being dependent on chemical substances is indeed revolutionary, and where it

may lead to gives ample scope for imaginative thought. All these states indicate that instinctive desire has a physical basis, but admittedly many factors, many of which are psychological, go to the making of the sexual urge which is undoubtedly a most powerful motive in human behaviour.

It is convenient to consider those instincts which are concerned with nutrition, self-preservation and reproduction as the **primary instincts** since without them the species must necessarily perish. They are indeed essential to life itself. In a modern world, nutrition and self-preservation may be considered as the security instinct.

In addition, there are others which may be termed **secondary** since they are not possessed by all but which are so powerful and determine such important motives in civilized life that they require special consideration. They are the *herd instinct* which tends to make individuals act and think in groups or communities, the *power instinct* which urges some individuals to gain superiority over their fellows and the *spiritual instinct* by which man is urged on towards an idealist and immaterial goal. Analysed to their ultimate conclusion, these secondary instincts are not, however, entirely separable from the primary; for example, the herd and power instincts contribute materially to the supply of food and to protection.

The primary and secondary instincts certainly supply the master motives of life for the average human being and their satisfaction gives mental happiness and physical content. If their natural outlet is frustrated, there may be tension, discomfort or actual pain, but the extent to which these occur depends largely on the physical make-up of the individual concerned and his environmental conditions. Different individuals vary very much in the extent to which they are consciously and unconsciously affected by their instincts and the relative effects of the different instincts also vary. In some, certain instincts appear to absorb almost all the energy of the individual. Sometimes the power or the spiritual urge take first place and leave a sexless shadow with scarcely the physical power or mental courage to defend itself or its ideals. This may be true of nations as well as of individuals. There are nations and groups of individuals who are notoriously

idealistic and non-combatant in their views, but whose existence depends on others fighting for them.

The exact mechanism by which the instincts demand satisfaction has long been a centre point of dispute. Freudians look upon the instincts as being possessed of a kind of energy which like that of a pent-up fire or an ever flowing spring tends to make it surmount or get round all objects (especially the conscious self) in its way. The average biologist sees no difficulty in looking upon the instinctive mechanism as being driven by certain sensory stimuli in the same way as many reflexes which are in constant operation in the body. The absence of exact knowledge regarding the origin of the force need not, however, hamper our acceptance of its existence any more than the acceptance of electricity although we do not know with certainty its nature.

When life begins, the child is conscious only of comfort and pleasure derived largely from feeding and excretion, but gradually it becomes aware of a world of reality other than itself which may bring to it discomfort and pain. There can be little doubt that the lives of the less civilized members of the community, whether rich or poor, are guided largely by their simple desires regarding food and comfort, and their energies are devoted almost entirely to their attainment.

It is of interest, too, in this connection that signs of displeasure are shown by those unfortunate children who are born without the cerebrum. They show the typical drawing down of the lower lip and pouting of the lips shown by monkeys, and they cry. Goltz found that dogs deprived of their cerebrums responded to almost all forms of skin stimulation by growling.

Gradually, however, many other instincts and emotions develop. McDougall has classified the instincts and their attendant emotions as follows:

1. Escape from danger		Fear.
2. Combat		Anger.
3. Repugnance		Disgust.
4. Parental protection of young		Parental feeling.
5. Curiosity		Adventure.
6. Self-assertion	Self-regarding	Superiority.
7. Self-abasement	Self-regarding	Subjection.

8. Cry of distress	Helplessness.
9. Sex	Sexual desire.
10. Herd	Loneliness.
11. Food seeking	Appetite.
12. Hoarding	Feeling of ownership.
13. Construction	Feeling of creativeness.
14. Laughter	Amusement.

McDougall apparently considered the sentiments or emotions which result from the instincts as being the essential motive factors in determining conduct, but in addition he recognized a purposeful conception in each (see Purposeful Psychology). It is interesting to remark that he considered the first seven as yielding the most definite primary emotions and as secondary several, notably sex, which modern psychotherapists consider more important. It will be noted too, that he does not include reference to any spiritual instinct or the emotion of anxiety. This observation goes to emphasize the essential difference between the outlooks of the academic and medical psychologists. McDougall's distinct contribution was the relating of the emotions to the instincts.

It must be obvious that all such classifications are purely arbitrary and in their conception are of necessity coloured by the experience of their author. Some have gone further and included the innate tendencies as instincts.

These instincts as set forth by McDougall are not, however, of equal importance in human affairs and while recognizing their existence, for present medical consideration in this volume the primary and secondary instincts are all that need be considered.

The essential problem which concerns medicine is the satisfaction of the instincts once they have developed and in this both the individual and society are involved. Moreover, there may be considerable difficulty in reconciling the demands of each. It has now been quite clearly proved that an untold amount of physical and mental illness has resulted from lack of frank acceptance and explanation of the facts. In this, psychotherapy has proved itself an invaluable branch of medicine although at the same time it has, as was almost inevitable, tended to stress unduly the sexual aspect because in time of peace the other essential instincts,—the security

instincts, are usually satisfied. The good doctor whose therapeutics are not limited to the confines of clinical science has always practised psychotherapy.

It has not been adequately stressed that this frankness has not at the same time extended to society. Modern civilization makes such demands on the physical reserves of the individual, especially on those in places of responsibility, that their primary instincts become attenuated by fatigue or senility, and their secondary ones assume undue prominence. As a result the strength and power of the primary instincts except in their cruder manifestations are completely ignored and those who ought to guide inflict many gross injustices on their fellows in whom the primary instincts are more strongly developed as a result, no doubt, of a greater development of hormonal influences. The ways in which these sins of the flesh may be countered is a matter for discussion.

Various attempts have been made to assess the significance of the various instincts, but on the whole it would seem that it may vary according to circumstances. Records of the conversations and dreams of poorly-fed prisoners of war indicate that physical security, including food, may be the most important, but in the well-fed adolescent and young adult sex becomes prepotent in some and the power urge in others. It is not without interest to remark that most of the older married women would agree that a man likes, most of all, his comforts and that a man is most easily "got at through his stomach", or as the cynic said, "To attain happiness, feed the brute." In this connection it may be added that the general design of the body suggests that muscular activity is its primary function and indirectly, therefore, that physical security comes first in importance.

The attributes of truly uncultured peoples are of some interest in this connection. According to Elliot Smith, "natural man is revealed as a naked, harmless, truthful child, good-natured, honest and considerate with an aptitude for pictorial art and craftsmanship. Though merry and kind hearted, he is shy and suspicious, always on the alert, quick and able to defend himself. Though timid and friendly, he is always ready to fight for his life. He never wantonly

attacks or slays, but if attacked will protect himself with vigour and will call on others to help him. He has no desire to build houses, till the soil or domesticate animals. He has no religion or social organization, no hereditary chiefs or any formal laws, no ceremonies of marriage or funeral. He has no implements except those of the chase. He does not store food and shares what he has with his family. He resents injury and injustice. There is no organized warfare.

" He lives in a family group with deep affection for children, consideration for whom is paramount. He may have several wives or only one but, although practising unrestrained sexual liberty during adolescence, after marriage is faithful."

Elliot Smith considered the cruel practices to be in most cases the result of the adoption of religions or social ideas from more highly cultured peoples.

In medicine the influence of the instincts and urges is overwhelming. We see acute illness produced by continued anxiety or fear lest they are not satisfied and, if their frustration appears certain—although it may not necessarily be so—acute depression and melancholy may occur. In the more robust there may be resentment, anger and even mania. So acute may these reactions become that the individual may require institutional treatment, and the fact that melancholia and mania may alternate from time to time in the same patient indicates the similarity of their origin. These states may occur in relation to practically all the instincts or urges and must be looked upon simply as excessive reactions to what are normal emotions in persons who chance to have inherited mentalities (? nervous systems) which are inadequate to adapt them to the variabilities of a modern world.

In concluding this chapter it may be remarked that the satisfaction of the instincts is fundamental to the health and happiness not only of individuals but of communities and even nations. Thus we see in the Atlantic Charter the cardinal points are the conferring on all peoples freedom from want, freedom from fear, and freedom of thought. But let it not be forgotten, Hitler promised the Germans something very similar in *Mein Kampf*.

CHAPTER IV

THE SECURITY INSTINCT

THE term "security instinct" is convenient as it includes the various instincts which are essential for the preservation of the individual and are possessed by all animals. They are the instincts which make animals nourish and protect themselves against whatever may harm them or their food supply.

Pavlov described what he called the "freedom reflex" which he said was manifested when they were merely held without being hurt. Objection to being held by the head or feet is certainly common in animals. He suggested that a similar response is developed in different persons to varying extents. According to his view there are "born servants" in whom this reflex is absent.

The security instincts have been commonly overlooked, but in war-time they assume a special importance as they may conflict with the demands of the herd or community which insists that a man must ignore his personal security in the greater interests of the community. As pointed out, especially by Horner, there is little doubt that in times of peace, the security instincts play an important part in determining the vocation of the individual, and doubt regarding their satisfaction is a common cause of anxiety and social unrest. Security has always been an almost determining factor of the foreign policy of nations as recent history has amply shown. Most nations do not think of war as a possible reality until their security is actually threatened, rather they prefer to avoid the disagreeable thought and to live in a phantasy of peaceful neutrality!

In a modern world security is usually synonymous with financial provision for bad times, illness or old age. Until comparatively recently this was denied to those whose incomes were small, but a considerable remedy has been achieved through the advent of sickness, old age and unemployment benefits.

As a factor in selecting a vocation, " safety first " has many disadvantages especially in posts where promotion occurs through the length of service and some sort of pension. The number of such protected posts is steadily growing as various corporations and public utility companies increase their staffs. Too often it is forgotten that this provision tends to sap the vitality and initiative of the employee who tends to sit back and wait for dead men's shoes. Thrift tends to be discouraged and waste encouraged.

There is ample evidence that those who have the courage to throw security and comfort to the winds often come off best in the long run, although admittedly many who gamble in this way may find that their ability has not been equal to their courage. In no sphere of life is the balance between security and adventure so well seen as in the professions. Youth relies on its health and takes risks which are not so attractive to those of more experience. In professional life the undergraduate and the young graduate have to choose between years of hard work and poorly paid or non-paid work with little leisure, and taking better paid commercial posts with fewer prospects but which give him free evenings and more time for social contacts. At this stage his friends in business have many obvious advantages and this becomes more and more evident if marriage is contemplated.

Most people in all walks of life try to mix security and adventure. Family stock-brokers recommend such procedure in relation to their clients, and even intelligent research workers commonly find that they mix researches of two types with the same general purpose. Thus amongst the safe researches are those " on the effect of this on that " which gives a negative or positive result which may be published. These occupy over eighty per cent. of our scientific journals and provide occupation for hundreds of grantees of different kinds, at least a dull occupation for their dull minds. Those, however, who gamble by trying out fresh ideas lead more interesting lives but may toil in vain.

The young man is anxious about his future, his being able to maintain a family, and so on. Often the anxiety is even greater on the part of a woman on whom the care of the

family chiefly falls. For this reason women prefer their husbands to be in secure posts. These anxieties tend to become exaggerated at middle age when probabilities can be more accurately calculated.

In war-time different kinds of break-downs occur through anxiety, some for the reasons given above and some from anxiety for the physical welfare of the individual and his family. In peace-time this has commonly been assured in civilized countries and the idea of inescapable danger comes somewhat as a shock. The doctor, probably more than any other outside the fighting services, is familiar with the reaction to this situation, for from time to time it falls to him to announce the necessity for a surgical operation or declare how serious the complaint is. Most practitioners admit that they have amongst their regular patients quite a number who merely need to be told that their complaint is not serious and that they have nothing to worry about. Putting the patient's mind at rest is indeed " half the battle " in therapeutics.

Amongst nations we see also the past influence of the security instincts. The typical " canniness " of the Scot is no doubt a relic of many generations when security was in jeopardy. The Germanic invasions of France were admittedly responsible for great anxiety regarding security and the national relief when the country was considered impregnable, led as an almost natural sequence to the " maginot mind " which turned out to be a fool's paradise. We are often incorrectly reminded in this connection of the ostrich who hides its head in the sand to escape danger. This does not prevent it from being seen, but makes it look like a typical desert bush.

Fear

The special importance of the security instincts in medical psychology is that they give rise to fear and anxiety.

It must be understood that fear is a perfectly normal protective reaction.

Fear is produced by a variety of stimuli which may be grouped thus :

1. Fear of the unknown. This appears to be the exhibition of the security instinct in its simplest form.

2. Fear of the known which has, by experience, been found to be harmful. Once a child has burnt its fingers it does not go near the fire willingly—or, as we say, " once bitten, twice shy ".

3. Fear of what is believed by association to be harmful. Thus loud noises are commonly associated with hurt to somebody and internal pain may have associations with serious disease. In a sense this is to some extent fear of the unknown. Some animals make themselves deliberately more fierce to create fear by association. A dog may growl or show its teeth. Some tribes adopt war-paint.

Fear of the unknown shows itself in adults who are about to experience things of which they have little knowledge except that there is an element of danger. This is seen typically in regard to surgical operations or air raids. Sometimes the effect of the mental apprehension when the danger is distant is much greater than the fear when the danger is imminent.

A puppy or a child is afraid of entering an unaccustomed room and may treat quite harmless objects with distrust. A lion may be afraid of an umbrella, horses used to be afraid of motor-cars. Intense fear of the sound made by air-raid sirens and of bombs was at first very noticeable, but familiarity and the learning of the fact that, like thunder, they are not so dangerous as they sound, often lead to an almost dangerous contempt of their significance except by those who have actually had terrifying experiences. There can be no doubt that always running to shelter tends to reduce the morale and exaggerates the fear, while having of necessity to be exposed is beneficial, however much this may be against the public interest.

Different nations have different traditional fears, fear of witch-doctors, of demons or the " evil eye ". Fear of the Devil has been common until recent times. Certain puritans appear to have a fear of secular enjoyment, and so on.

Fear of things which are known to be dangerous is common and may be considered legitimate. It leads to great care being taken, but in some persons these fears are exaggerated

as in fear of thunder and lightning, fear of deep water, fear of heights and even of motoring.

To the child the world is unknown and he must be influenced by what he reads or is told. His giants and demons are therefore real to him until he has found out otherwise.

Much fear is little more than conditioned pain. Since all animals have probably experienced discomfort, if not actual pain, at some time or another, by a process of conditioning many objects and circumstances become identified with pain or discomfort and many, like a threatened injury, bring about the state of fear which, in certain circumstances, can be most terrifying and compelling. Often, indeed, the fear may be much more upsetting than the reality. Such fears are commonly seen in pet animals. A dog which has been accidentally injured by a pellet may cease to follow the gun or be obviously afraid of bangs. A puppy once carried in a basket for a long distance in a train or motor-car may refuse thereafter to enter a motor-car, although it may subsequently be brought to like motoring as judged by its eagerness to enter the car. It is important to remark that in the re-educating process the use of force may be necessary.

The neurotic adult never really loses many of the fears which are normal to or which he may have acquired as a child, not only so but in both man and animals the fears become extended by a process of association. The fear engendered by an air-raid siren is obviously not of the noise itself but of what it portends, and it has been observed that a dog afraid of a gun and of bangs may show signs of distaste of a siren.

It has been very noticeable that children have been surprisingly unaffected by the noises of an air-raid *provided* they are not taught to be afraid by their parents. For them, the " big bangs " are more easily related to the playful bursting of a blown-up paper bag or of a pop-gun, than to a missile of destruction which endangers security. I have observed, too, the reactions of a pet dog closely related to those of its most immediate human associates. At first it showed marked fear as indicated by shaking, overbreathing and excessive salivation. Horses have been found to be more perturbed

than cows. This was true of the reactions of these animals to motor-cars.

Those who have had experience of the civilian neurotic casualties emphasize the effect of prolonged mental stress in bringing about neurotic states and that " feeling " the effect of one bomb has a much greater effect than hearing many (Maclay and Whitby).

The action of alcohol which reduces conditioned responses is of considerable interest in throwing light on the nature of fear. The production of Dutch courage is a well-recognized phenomenon and is produced presumably by a paralysis of those higher centres responsible for the conditioning process, or, as we say, the imagination is dulled.

Stage-fright, fear of public speaking and tongue-tiedness are extremely common, and may or may not disappear with practice. The fear may, however, not necessarily reduce the efficiency of the performance, indeed, as has already been stated, it may benefit it. It is well recognized that many successful games of golf have been played by individuals who have felt extremely nervous. Robert Jones, the world's greatest golfer, has recorded that he played his best golf only when he felt nervous, while Ball won the Jubilee Vase at St. Andrews when he was so nervous that his hands were seen to tremble.

All such fears are greatly benefited by advising the subject to say to himself that he is superior in knowledge of the subject or technique of the game to the majority of the audience, opponents or onlookers.

There can be little doubt too, that many associations of fear can be fixed in a child by too protective parents. The child who is not allowed to play football or cricket, to climb trees or ride horses because such acts are dangerous, may never outgrow his timidity and he tends to shrink from all danger. Later he may become antisocial or his wife and family may suffer as a result, for he may be unable to face an uncomfortable journey, an essential operation or even to support a good cause in the face of opposition. We frequently see, however, physical timidity associated with moral courage and the reverse as compensations (see Compensa-

tions). It is not intended from the above that parents should not warn their children of the danger of doing certain things for children may not otherwise know of the danger, but the probabilities must be understood.

Fear of pain is commonly, too, a factor in indigestion, the patient being quite convinced that this or that article of diet will cause certain symptoms because such symptoms occurred on some occasion when really the patient's digestion was so depressed from some other reason that any article of diet might have caused the trouble. It is often found that such fear of certain articles of diet has no real relation to scientific probability and that other articles of similar chemical or physical constitution are not complained of. In many cases the special article of diet is given the blame because it chanced to be associated with some other circumstance which was really responsible. As we shall see, the kindred states of worry and anxiety produce similar results.

Anxiety, which is an unreasonable fear in the sense that the circumstances which bring it about are not immediate, is dealt with in a later section since other instincts are concerned in its production. Both fear and anxiety produce the same physiological effects, namely, intense sympathetic activity or its suppression. These are discussed in relation to: "The Effects of Mind on Body".

Specific Phobias or Fixed Fears. A very large variety of phobias exist to which classical names have been attached. Thus we have fears of water, of disease, especially of cancer or venereal disease, of knives, of closed spaces, of wide open spaces, of the dark, of different animals, of dirt and germs, of being alone, or leaving home, etc. etc. These phobias have commonly their origin in experience during childhood, when the child was shut in a dark place, frightened when being bathed, when in an open space, etc. etc. The actual occurrence which originally caused the fear may, however, have been completely forgotten, but sufficient cases have now been completely analysed to show that there can be no doubt regarding the existence of the early fright. Some psychologists who have not succeeded in tracking down such origins to phobias believe that they have an even deeper

meaning and are to be understood in terms of symbolism and require interpretation (Howe). Thus the fear of heights is claimed to occur especially in those who are ambitious but timid, claustrophobia an indication that the individual really wishes to isolate himself from the world. But such persons are often most social!

It seems probable that claustrophobia, which is remarkably common, may arise from a variety of causes other than those mentioned. For example, an individual who will not travel by a London tube obviously has his power urge better satisfied, and comfort increased, if he travels by taxi, and a similar argument can be used in regard to those who can only sit in the stalls at the theatre. They may, of course, be quite unconscious of the real cause of their "superiority" which may depend on the early exhortation of a Victorian parent who would only go to the "best" seats and would not deign to enter a public vehicle.

Of special interest are the disease phobias which as we have said are commonly those of cancer and venereal disease. They become of special importance because unlike the other phobias they cannot be avoided. The phobia is always present and may become increasingly intense, so much so that their possessors may become acutely melancholic. This state may be aggravated by an intense sense of inferiority. Doctors themselves may be so affected, and two recent cases which have come to my notice became unfit for work for prolonged periods. There is evidence that many of the fears have their origin in guilt which is discussed in a later section. They may also be escapes.

Fear of disease or of the significance of certain symptoms is probably the greatest single reason why patients consult doctors, and some patients are notoriously more nervous than others. As we have said, reassurance by a doctor is one of the most potent therapeutic measures as it puts the patient's "mind at rest" and stops his worrying.

The fear of mice has been given a sexual significance and, it is suggested, is common in women because the animal lives in a hole. Psychologists who believe this ignore the possibility that the animal might seek refuge up the skirts as they

say it seldom happens. The woman does not, however, consider all the facts, and what man can consider with equanimity such an animal running up his trousers—and it has happened.

The cure of such phobias is sometimes extremely difficult indeed, without a complete and prolonged psychoanalysis to discover the deep associations concerned. Many are so fixed that they are extremely difficult to eradicate. Fortunately many do not interfere sufficiently with the life of the individual to justify the time spent in prolonged investigation. Much can be done by argument, cajoling, ridicule, imitation and encouragement to the effect " that surely you can do what Mr. Smith can do ".

Obsessions. It is evident that it is but a small step from the more potent fears and phobias to the state in which the subject becomes overcome with various ideas which are known as obsessions, which may be so powerful as to affect the conduct of the patient that he has to be restrained in a lunatic asylum. These obsessions may be of a very varied kind and are commonly those of compulsion. But here again there is not necessarily a great difference between the person who says that so and so doesn't like him or hates him, and he who says that so and so wants to, indeed, has tried to murder him. Such an obsession may lead to the patient being depressed and may even cause him to murder so and so in imagined self-defence or vengeance. Psychotherapists of the Freudian school tell us that obsessions and fears may in a much less direct way depend on wishes. Thus when an individual has a fear of poisoning someone he may, on deep analysis, be found to wish to be rid of the someone he is afraid of poisoning, someone, for example, who stands in the way of his ambition. On the other hand, he may commit suicide when he really wishes to escape life for some reason or another, or to punish himself for some misdeed he has, or imagines he has, done. Actually there is a threat to his security as a result of the obsession. In the case of the fear of suicide the patient wishes to escape but is afraid to resort to such a drastic step. (See Appendix, p. 257.)

Minor obsessions occur in quite normal persons and account for acts depending on superstitions. Many persons will not

readily pick up their own glove or umbrella if they let them fall. They " touch wood " if they make a boast, they throw salt over the shoulder with the opposite hand if they spill it and break spells in many other ways.

Various superstitions are based on fears, but superstitious persons are not necessarily the persons who have the latent fears. In many cases superstitions have been passed on by tradition and hearsay or by some person whose opinion has been considered specially valuable in childhood.

There can be little doubt that the sensation of fear depends very largely on the conscious attention paid to it. Often people tell us that they were too busy to be afraid. This important fact places fear in the same category as the sensations generally, especially pain to which we have said it is related.

The Response to Fear or Threat to Physical Security

Different people respond very differently to fear and this has been well seen in relation to air raids and war service. From the point of view of psychological study these have been of great advantage in that they have provided a common stimulus to a great variety of persons and the different reactions seen must be considered to be due to their psychological make-up and subsequent experience.

Fear may produce a desire to escape and so avoid the conflict or the wish to fight. Both reactions are commonly seen both in animals and in man. Which reaction is produced probably depends on how best the individual considers he has the most reasonable chance of preserving his security. Sometimes the goodness of the cause may, however, justify standing up against overwhelming odds and often when escape is uncertain it is easier to stand and fight it out than do nothing.

In a more highly evolved world, fear has by convention been despised largely because it throws the responsibility for counteracting the fear on someone else who may be all the less able to overcome the offending object without assistance. We are all aware of the unfortunate results of failure of groups of individuals to stand up to an aggressor. Sometimes the

flight is quite precipitous and so unreasonable that it is an actual disadvantage as is seen typically in the panic which may occur when a crowded building goes on fire, when there has been invasion and in many other terrifying circumstances. Some have an uncontrollable impulse to escape and hide in a dark place like an animal. In war-time cases of real fugue or overwhelming desire to flee from the enemy are not uncommon and it is only with the greatest difficulty that they can be distinguished from desertion or cowardice in the face of the enemy, which is a punishable offence. In the true fugue there is a complete dissociation of personality sometimes with symptoms of hysteria also. The action is subsequently forgotten. The escape, however, may be mental rather than physical and this is essentially the reaction of persons who faint or get drunk in emergencies.

The average person feels a sense of shame in showing fear and does what he can to combat it by employing a variety of expedients which are really mental escapes from the sensation of fear. They acquire mental peace, probably by distracting the attention which we shall see in a later section can be given only to a limited number of subjects at one time.

The pastor likewise encourages the poor in spirit by religious exhortations to put their trust in God, in the security of whom the mind is at rest and fear is " cast out ". One of the benefits of religion is, indeed, that it gives a sense of security in life as a whole when otherwise it might be lacking, and thus we find that in dire emergencies men pray to God for succour and strength.

Patients who are afraid often respond remarkably to simple suggestion, encouragement and explanation, indeed, few doctors would give a hypodermic injection without the warning, " This is only a pin-prick ". Often in cases of emergency a doctor may be a source of great moral strength to the patient and his friends, although the courage and coolness may be born of a sense of duty rather than of confidence and lack of anxiety. In all cases of crisis the necessity of having to show an example to others is a good antidote but, as we shall see later in relation to " Conflict ", it may throw a great strain

on the individual and may, if prolonged, result in states of acute anxiety in which the individual may be afraid of being afraid.

The normal man may repress the fear altogether and cultivate the idea consciously and unconsciously that the danger does not exist or at least exists to such a small extent that it can be neglected. Real knowledge commonly shows this to be true; for example, it can indeed be calculated by simple arithmetic that the chances of death from an air raid in London are less than those of driving from London to Brighton ten times on a Saturday in the summer.

He may deliberately **do something** to take the attention from the danger. This commonly takes the form of caring for someone else, but much less useful expedients such as games or reading may suffice. The author found the writing of this book a welcome escape from the thought of bombs in 1940. The doing of something really useful is however best. Of special value in preventing fear after an accident is repetition of the dangerous action in safety. This is encouraged amongst airmen and racing motorists after a crash, for it has been found that if this is not done an undue nervousness in subsequent performances is liable to develop.

Another response is simple negativism. The individual simply does nothing. This is seen typically in the child who is afraid or shy, it just stands and stares, and in those too who take undue care. They look too long before they leap; they will not climb high buildings, drive in a motor-car, fly in an aeroplane, sit in the front coach of a train, and so on, although the danger is negligible. In more acute circumstances the individual remains "rooted to the spot". We are familiar with persons who when air raids were imminent did not do anything to protect themselves, their families or their homes, but sometimes panicked when the danger became more real and blamed the authorities for not doing something. It was as if they put the disagreeable idea of bombing out of their minds. This as we shall see in a later section may have been in part quite an unconscious repression, but in part negativism is the result of not knowing what to do.

In some cases the individuals believe like some children

that they cannot come to harm while others may have a guilt complex which leads them to think that they not only do not deserve to escape but that they will certainly be hurt. These considerations are no doubt at the root of the fatalism of many persons who simply believe that " if their name is not on " a particular shell or bomb they will not get hurt. The chance is then looked upon as being somewhat similar to winning a Derby Sweepstake, and less than that of cutting an ace in ten cuts. Unfortunately in illness, such fatalism in regard to death is a disadvantage, for if the patient thinks he is going to die and does not make a fight for life, his natural defences may not be mobilized and his chances of recovery may be decreased.

Sometimes there is an excessive over-compensation of the fear which results in such complete neglect of the danger that it amounts to bravado or showing off the absence of fear. Often, however, as we shall see, the normal compensation leads to real courage. (See Glover and also Boston Committee.)

Courage and Bravery

These may be defined as the doing of an action in cold blood with the full knowledge of the dangers which are involved. It is essentially a reaction to duty to the herd or to spiritual values. A man may believe the cause in which he is acting is much greater than his own life, and this is the attitude which has from earliest times been encouraged in war-time and is embodied in the Roman exhortation " Dulce et decorum est pro patria mori ". In many races it is held that this is the most noble way of dying. In other cases " perfect love casteth out fear ". In many cases, however, these considerations do not come into the picture at the height of the danger. Those who have " gone over the top " in the face of artillery fire tell us that the excitement and exhilaration of the moment completely obliterate the sense of fear which may have been present when the action was contemplated.

McDougall considered that there was an instinct of combat

without, however, distinction as to whether it was offensive or defensive. This is suggested by the activities of small boys, certain dogs and by various combative pastimes.

There are also adults and tribes to whom fighting appears to be necessary.

There seems little doubt that there is developed a habit reaction in regard to fear. This is well seen in regard to the phobias, but it is probably true also in relation to courage, for the fear is so repressed or forgotten that it is not experienced. The importance of troops " seasoned " in this respect is well recognized, and many of us recall having been afraid of things which at first we believed to be difficult or dangerous.

Anger and Rage

The emotion of anger is aroused when there is frustration of an instinct or of an urge which is temporarily at least more important in the mind than that of personal security. The stimulus may be a threat to the security either of the individual or of those in whom he may have a special interest; it is most effective when acute. These facts show themselves in a variety of expressions in common use, such as " even a worm will turn ", " it made him see red ", " stung into response ". Even a friendly dog will bite in certain circumstances, so " we let sleeping dogs lie ". In law, too, we have the judgment of homicide as distinct from murder which is previously contemplated homicide; in France there is the " unwritten law "; while often a man when he realizes the true implication of his act and the threat to his security which it may involve, expresses sorrow at what he has said or done " in the heat of the moment ".

Anger is produced most commonly when there is disparagement of personal prestige which may become impugned in a variety of ways, through his honour, his self-respect, his physical or mental power, or the cause which he supports. There may be merely mental or verbal reaction but sometimes the response is more violent and there is the physical reaction of fight against the offender. Sometimes instead of the anger being vented on the offender, the passion is released

on some object less liable to react. Thus there is a release of the emotion by breaking crockery or furniture. Anger is, however, essentially emotional and as such is irrational; there is no use in attempting to reason with an angry man. Because it is irrational it is also incompletely controlled and dangerous.

By convention the emotion of anger is deprecated in the community because of its possibly dangerous results. Children are therefore exhorted not to lose their tempers and are often punished if they do so. It becomes evident, however, that different children even when brought up almost identically vary very much in their liability in this respect. Some hold that this is inherent because of their heredity or of influences in very early childhood, but it must be admitted that many children have minor experiences in infancy which may pass unnoticed by adults yet profoundly affect the child.

Loss of temper amongst adults is usually considered to be evidence that the person is suffering from an "inferiority" which he tries to hide, and illustrates the dictum that "a man who gets angry shows his raw spot" or place where he is unduly sensitive. Sometimes as the years go on we see persons who for one reason or another become crotchety and ill-tempered, euphemistically "liverish".

Those individuals who get angry easily often choose their victims, selecting those who are least liable to retaliate. From this it is usually assumed that they are fundamentally cowards. This is a matter for debate, for a similar state is seen in animals; a cat or a rat will seldom attack a man but may very courageously attack a dog. A lion or a bull too may attack one man but not another.

Periodic Variability

The liability to get angry is not a constant factor. In the animal world we see animals who become extremely ferocious in protecting their young although they may be most friendly at other times. It would seem therefore that periodic variations in the relative importance of the instincts occur and it is not improbable that this may subsequently be related to other hormonal influences associated with repro-

duction. It is common knowledge, too, that some individuals show a remarkable variation from time to time, even from day to day. We have all been familiar with the teacher, "chief" or parent who has been much more approachable at certain times than at others, and we have waited for a good mood before putting forward a doubtful project. Hence the value of discussing difficult problems after a good lunch or dinner. This variation may be due to a variety of causes, notably the sense of well-being of the person concerned. The expression "as cross as a bear with a sore head" suggests this. Sometimes the individual has been upset by other things. The man who has had a row at work and has got the worst of it is notoriously liable to be difficult at home, and vice versa. This is discussed further under "The Power Urge".

The Biology of Anger

There is good evidence that anger has a considerable significance as a reinforcement in defence of security. This is suggested by the effects of acute physical pain inflicted on a man or lower animal capable of responding against the offending creature. The evidence is that in anger the adrenal glands pour out extra adrenaline which enhances those bodily processes needed in exercise. It has been stated by Richter that the injection of adrenaline causes a sensation like that experienced in anger but against nothing in particular. Ephedrine produces a similar effect.

In anger, the more recently acquired attributes tend to disappear as the individual "loses his head". The lessons learnt from the herd are forgotten and liability to lose the temper may be therefore regarded as an indication of the extent to which the individual has been civilized or learnt to control himself, or the extent to which the higher have taken over from the lower centres which are more immediately concerned with security. This is suggested by animal experiment.

A similar state may be produced in animals by removal of the cerebral cortex. A cat, for example, deprived of its cortex, that part of the brain which normally adapts reactions

to environment, shows every sign of loss of that control and is described as being in a state of " sham rage ". It has been shown that the emotion is dependent on a release of lower hypothalamic centres from higher control which are concerned primarily with the acquired reactions which depend on experience. At a certain stage in alcoholism a similar liability to anger and truculence may occur as a result of the paralysis of higher parts of the brain on which more recently acquired reactions depend. In some mental states, notably mania and hypomania, liability to anger is associated with other forms of loss of higher control.

It is not to be understood from the above that the lower centres referred to do not involve the cerebral cortex, for the higher associations may certainly be involved in determining the reaction.

Anger and rage may therefore be considered to be primitive security reactions which have the value of enhancing the apparent power of the animal but which, like so many other primitive reactions, are normally controlled by higher centres which concern themselves not only with immediate, but also with ultimate security and power.

That is, however, not to say that in the highest man the response to underlying threat to security necessarily loses its power, for history abounds with examples of individuals and nations not forgiving hurts or affronts ; indeed, civilization approves a modified response under the euphemistic term righteous indignation.

CHAPTER V

THE SEX INSTINCT

IT is in regard to this instinct that modern Psychology is most difficult to those beginning the subject, for in the theory of Freud there are included, under the term sex, many activities which are not normally considered so in ordinary parlance.

It has been suggested that the excessive secretiveness regarding sex, which is so universal, is a biological relic, since amongst wild animals the sexual act cannot be practised except in circumstances of extreme safety.

The instinct to reproduce is so universal in all biology that it may be considered a fundamental characteristic of life itself, for without it life cannot continue. In a civilized life food and protection are so commonly assured, and sexual gratification so limited by recognized codes of conduct in most societies, that problems of sex assume a special importance, the more so as it is also given a special importance in certain religious and social teachings.

In the lowest animals the instinct shows itself in the choice of suitable places for the deposition of eggs so that the security of the young is reasonably assured. Higher animals take part in the protection of young. In still higher animals the instinct is seen in the desire for companionship with the opposite sex, the desire to perform the sexual act, reproduction and the protection of the young. In all men, however, every stage is not seen and for various reasons, which are discussed later, development may cease at any stage.

Sexual maturity in man commences at puberty, a period during which considerable physical changes take place. In the female the periodic ovulation and menstrual flow from the uterus commence, hair appears on the pubis and the breasts enlarge, in the male the voice changes, there is a growth of pubic hair, and the testes produce spermatozoa.

The mental changes, which denote the awakening of the

instinct, do not occur so suddenly and there is a considerable variation in different persons and races. In some it appears at the age of 12, but in some individuals it does not appear to awaken at all. In most, however, the period of adolescence commences with what has been described as a " homosexual " phase in which there is a desire for the companionship of the same sex. There is an attraction to elders of the same sex. How far this is fundamental and how far it is an accidental result of conditions of education is difficult to determine. Some hold that it is less seen in co-education schools where the sexes meet as is common in the country as distinct from towns. Those who consider this stage fundamental emphasize that this period depends on the fact that male and female elements and hormones are not yet distinct. While, however, it is true that anatomical elements, both male and female, are present in the adult, their differentiation is normally fully marked at puberty if it is going to occur at all. It may be that hormonal differentiation is not complete, that is, it is possible that certain cells in the pituitary, adrenal cortex or gonads which influence mental sexual differentiation are not complete. This is suggested by the common occurrence in females at this stage of hair on the upper lip which subsequently disappears. During the period of adolescence it would seem that the bond of union between the individuals of the same sex is natural curiosity regarding life in general and sex in particular. The generative organs hitherto have been considered solely in relation to excretion. The adolescent finds it almost impossible to comprehend a large amount of what is going on in the world without a knowledge of sex, for literature, the play, the cinema, and the news of the day abound with allusions to its power and its interests to adults.

The importance of this stage lies in the fact that a persistence of lack of development beyond it may, in part at least, be responsible for homosexuality amongst adults. Other factors, such as fear or hatred of women or their absence, play a part in the production of this perversion which with others is well discussed by Havelock Ellis.

It is the satisfaction of the sex instinct which presents

the great psychological problem, for it is obvious that, for many reasons, this is not always possible because of social and economic considerations at an age when the urge is at its strongest and fertility at its highest. The problem is greater in regard to women, for most have the misfortune not only to be born into a monogamous world, but a world in which, for various reasons, more females survive to adult life than males. War accentuates the difference. The subject is discussed further in relation to " The Herd Instinct ".

Nor is the instinct always satisfied by marriage, for one of the partners may, for some reason, be deficient in some respect. To a woman, however, marriage means more than to a man. Until achieved it may take up the major portion of a woman's thoughts and for many it is an achievement desired solely because of the security it affords. It also satisfies their power urge. For men and women with careers it plays a less important part, although even for the latter it often offers overwhelming attraction if we judge from the number of successful women who exchange their professions for domesticity.

Fortunately for those to whom fate has been less kind, nature provides compensation and mental processes by which there is some appeasement or " sublimation " of their instincts. These are dealt with in the appropriate section later.

When the security instincts are endangered the reproductive instinct is not only stimulated but special care is taken of the offspring, the protection of which becomes even more important than the protection of the self. Many animals defend their young to the death, while human communities protect " women and children first ". It may be that this is because they are weaker, but it may be part of the general biological urge. Even plants when their survival is threatened, flower and seed more freely than if grown under more kindly conditions, while even bacteria produce spores which have a better chance of survival than the parent.

Infantile " Sexuality "

It is on this subject that opinions regarding modern Psycho-

logy are most sharply divided. On the one hand there are the followers of Freud who consider these relationships as essentially sexual and that this "infantile sexuality" has a profound effect on adult life. On the other hand there are others who prefer to take these relationships at their face value. The facts are not disputed.

A child from the time it is born is usually largely dependent for food and protection on its mother or some other female taking her place. If breast fed it takes particular interest in the breast and nipple. The other activities in which a special interest is taken are its excretions. It is exhorted to excrete at certain times and if complacent in this respect it may receive certain pleasurable marks of approval. The pleasures of the infant and its first regular contact with the outside world are those of feeding and excretion. Freudians describe them as oral and anal eroticisms. There is, however, a striking absence of evidence of any generally recognized differences between breast-fed and bottle-fed babies, although no doubt differences might be claimed!

Certainly the consuming of hot milk must naturally give comfort and pleasure, but it seems rather an exaggeration to attach the term sex to the pleasure. The taking of hot toddy on a cold day produces similar pleasurable sensations to certain adults, but no one suggests that it has any sexual significance and still less a cup of hot milk. If sucking as such were so extremely pleasurable one would imagine that it would have found more universal adult expression than the sucking of lemon through a straw or of boiled sweets.

Gradually the child becomes aware of a world other than itself and learns that it may attract attention by crying. The value it puts on crying depends on the response of the parents, and like any animal it learns rapidly (if properly trained) the uselessness of crying when it requires nothing but social attention. Some claim to recognize too a mental strain produced by a too sudden weaning. (See Ernest Jones.)

Freudians attribute finger-sucking to oral eroticism and trace with remarkable ingenuity a connection from the pleasures of excretion to playing with excreta and later the

playing of the adult with coins in the pocket. They also consider that by manipulation of the genitals, children obtain pleasurable sensations which they call infantile masturbation. There is, however, little evidence that the action is anything more than a simple response to the local irritation which is so common in this region.

Mother and Father, Hate or Love. It is well recognized that in adolescent and adult life there is a tendency for love between son and mother while there may be antagonism between son and father. On the other hand there may be attraction between daughter and father, while there may be antagonism to the mother. There are several possible explanations of this. Freud drew attention to what he called the Œdipus Complex. The name is based on the Greek tragedy of Sophocles in which Œdipus is caused by the Fates unknowingly to kill his father and subsequently to marry his mother, but when he finds out what he has done he puts out his own eyes. There is a similar ancient story of Electra who assisted in the slaying of her mother. It is considered that the child sees in the father an object capable of taking away the mother and who is a rival in the mother's affections. Thus is developed, it is thought, a fundamental antagonism of a son to a male parent. The application of the story of Electra, which is claimed to account for mother-daughter antagonism, is still more fanciful, but such situations are accepted by many leading psychologists as a background of mental illness.

It would seem just as reasonable to consider that the antagonism arises later when the mother, who is most concerned with the upbringing of the daughter, who may chafe under authority as the son may do under that of a father whose duty it becomes to exhort him in the pursuit of a life work according to his lights which may not be those of the son, for it will be generally admitted (although this is commonly ignored by psychologists) that the mother hate is by no means a universal feeling of daughters any more than father hate is universal amongst sons. It is worthy of note that in the animal world parental and filial affection is very short lived. Amongst intelligent breeds of dogs, female parents and offsprings appear to forget each other entirely

after a few months' separation, indeed, a dog remembers more readily its human master than its parent. It would therefore be quite logical to consider father-son antagonism to be due to a lack of development of affection rather than a new development of antagonism.

Whatever the cause of antagonisms when they exist, it is certainly wise for the parents to be made aware of the liability of their occurrence and to prevent it by arranging, as far as possible, for any necessary admonition to be given by the opposite sex.

Psychologists claim that daughters who are father-lovers tend to marry men much older than themselves and thus secure parental security, while sons who are mother-lovers tend to marry older women or women whom they expect to act as mothers rather than as wives. Where the mother has "spoilt" the son and devoted undue attention to his wishes great difficulty may arise, especially when the wife has to give much of her time to the care of children.

Parental Domination. The fact that parents may completely fail to recognize that their children have grown up often leads to difficult situations and mental distress to all concerned. The state would appear to arise from an exaggeration of the parental instinct, especially in the absence of any other interest to replace it, and where the children have continued to live at home too long. It may, however, give satisfaction of the power urge in the absence of any other. The disastrous effects of such states are seen in the lack of confidence of the children who continually look to the parents for guidance, feeling that they are always right, although the parents may be quite average individuals. (See Appendix, pp. 262–263.)

Frustration of the sex instinct. This gives rise to a great variety of reactions some of which are accepted by society and some are not. In many cases it gives rise to indeterminate illness, so much so, that Freud originally attributed almost all neurosis to this cause. Most, however, submit to the inevitable but the energy of the instinct is dissipated in other ways (see page 145).

CHAPTER VI

THE POWER URGE

ALTHOUGH the term power urge is used and a special section is devoted to its consideration, it is not to be understood that it is thought to be a separate entity nor that the author is a devotee of Adler. The power urge is really a development of what McDougall called the self-regarding sentiment.

The desire for power is in a sense secondary to the instincts, but in the human species is so important that it requires special study and the term power urge is a convenient peg on which to hang our knowledge.

In all colonies of animals we see that certain animals assert their superiority. If animals are observed feeding it is commonly seen that some will stand aside and give preference to others. Wild geese or duck fly in formation obviously with a leader. The sense of competition in play is, however, developed at a very early age in animals as well as man. Young lambs are commonly seen to compete with each other in running to the top of a hill, or chickens will race to be fed presumably because the first gets most.

Dominance amongst animals, which is closely related to the power urge, appears to depend on the sexual hormones,[1] for it has been shown that the injection of male hormone into hens of low social status (in a colony of hens) rapidly increased their standing amongst the others. The personality of eunuchs is of interest, while the use of the term virilism as applying to women with overgrowth of the cortex of the adrenal gland who show male characteristics suggests the importance of the sex hormones in this respect in humans. We notice that aggressive women have frequently an unusual amount of hair on the upper lip. At the same time, it is not to be understood that all dominance is necessarily male. There is evidence that in the case of some animals, such as

[1] The sex hormones are chemical substances normally produced and poured into the blood by certain glands.

deer and ducks, the females dominate the males especially during the breeding season.

Observers have recorded, too, that the rigidity of the discipline in colonies of monkeys and hens varies with the status of the dominant. In a large colony the head is much more tolerant than the medium grades. We are reminded thereby of the undue severity often shown by underlings compared with the leniency of their superiors.

Dominance amongst animals is frequently derived from a physical superiority which would confer preference in regard to protection, food supply and sexual relations and therefore assures security to the individual and his family. In the animal world where the rule of force prevails, this is of special importance. In many primitive human societies individuals assume leadership because of their physical superiority and a relic of this persists in schools where the school captain is chosen because of his prowess at games and thereby secures certain definite privileges and is the ideal of the small boys. Later, a man may owe his success even in a mental sphere more to a physical appearance of power than to his mental capability, or as we say " he looks the part ". Often in the academic or professional sphere there is such reluctance to admit mental superiority of another that physical superiority gains the distinction just as in instances of physical demand, as in revolutions, men of meagre stature may become leaders. Vying with the school captain is the dux who becomes so because of mental superiority.

In adult societies of the modern world, in which we see the influence of the power urge very markedly, leaders are chosen in similar ways but other less desirable factors such as assertiveness and appeal to average desires are also important. Some leaders do not lead but are facile at interpreting desire. Sometimes the leader chosen depends on the nature of the occasion and his capability of doing what is needed.

The power urge may be looked upon as partly inherited and partly acquired, as it is certainly present in very different degrees in different persons although usually absence in one direction is compensated by urge in another. It has been described as the possession of energy which must gain expres-

sion, and if it does not obtain this in one way it will, if it is sufficient, do so in another. In a very few persons only is it absent altogether. Very commonly activity in a certain direction is induced by ambitious parents who direct the early thoughts.

The power urge shows itself in several different forms. In youth the satisfaction is obtained through sport, or educational activity, but ambition and money-making are perhaps the commonest in men, while in women, social success, successful family and pride of house, jewels or clothes are more important. The desire to possess, or to make, or to have power over others is also well recognized, but there are many wishes which often are not. It is often quite pathetic to see the extent to which parents, especially women, will sacrifice themselves to satisfy their power urge through the success of their children. The notorious "cattiness" and anti-social tendencies of women is probably a related phenomenon through which women, especially the childless and unmarried, assert their power urge over their more successful sisters.

Illness may provide satisfaction of the power urge and this is most commonly seen in regard to patients who succeed in establishing power and control over those whose "duty" it is to look after them. Thus a parent may succeed in completely dominating and indeed ruining the life of a son or daughter. They may demand that the daughter is essential to look after the mother or the house, or that the son is needed to assist in the family business. Too often the parent slacks off work and the life of the son or daughter becomes circumscribed and impoverished as a result of what is little more than a form of selfishness which, however, is tolerated by the community. Such parents have to be exhorted to think of their children's future, at least equally with their own comfort.

Usually the urge for power is demonstrative. The acquired title, rich house, expensive motor-car or other possessions in England, the expensive mistress in France, the richly dressed woman in America, all bespeak the success, money and the power of the man concerned. Such phenomena are not, however, confined to human beings and are well seen in the

obvious strutting of the turkey cock or the peacock in full plumage even in the absence of admirers of their own species.

The satisfaction of the power urge is, however, not always harmful, indeed, it may be fairly said that it is commonly the urge which makes men and women "do things" in their own special sphere. Often a man prefers to be somebody in a small sphere to being a nobody in a larger sphere. This preference to be a large frog in a small pond to being a small frog in a large pond often prevents men from moving from the provinces to London and is responsible for men preferring life in provincial communities. Every community has its busy-bodies who satisfy their power urge. Some professions tend to attract such persons, notably the teaching profession and the Church. In common parlance, when we say that a man has been a school-teacher we at once understand his tendency to be boring, dogmatic and excessively opinionated. In the case of the Church we commonly see what was possibly, in the first instance, a spiritual urge, becoming more and more one of power, circumscribed though it is. Some men translate through the medium of money one form of power into another. This we commonly see in the purchase of unnecessary possessions or the thinly disguised purchase of a title. The possessions may be chosen to suggest power in other directions as is common in the purchase of books or art objects. Greed is merely this desire for possession carried to excess and to an extent which causes the deprivation of others. It is a vice in so far as it is anti-social, but it is a perfectly natural animal urge.

In the animal world resentment of intrusion by another who may compete for the good things of a certain place is usual. Birds notoriously look upon themselves as "possessing" certain gardens or trees, a cock fights most valiantly on his own midden, a dog resents an intruder at his fireside. These primitive instincts appear greedy only when the good things are not adequately and equally divided, and they have a counterpart in "an Englishman's home is his castle", or the Monroe doctrine.

It is well recognized that failure to achieve success may lead to illness. This, we shall see in a later section, is most

commonly an escape, since the illness suggests that the patient has been overworking and may be considered by him as an excuse for his failure, and thus he escapes any aspersions against his failure whether they be real or imagined.

Frustration of the Power Urge

Frustration of the power urge leads to a great variety of reactions some of which are anti-social and some of which are not. Of the latter the most accepted is the finding of an outlet for this urge in other directions. The more anti-social emotions are anger, hate, jealousy and revenge, which may produce most undesirable results in conflict with the law. These are, however, normal instinctive reactions seen both in dogs and very young persons.

The fact that such emotions occur in regard to sex, food and security, suggests, of course, that the power urge is in a sense dependent on the satisfaction of the more primary instincts. Adler has called these responses reactions to Inferiority, but it would seem best to regard them as reactions which preserve personal prestige or dignity and give pleasure to the self-regarding sentiment.

It is this urge often which drives on adventurous spirits to fresh endeavour and new discoveries which are for the benefit of mankind. That is, however, not to say that all endeavour and discovery depend on the power urge, for men continue to strive from other motives.

Fortunately for those who desire it there is some power satisfaction of some kind for almost everybody in the world; occasionally it takes strange forms. Freedom of speech is one of the characteristics of the British type of democracy, and by means of it many a man satisfies his power urge; indeed, the extent to which it is allowed, which is an enigma to most continental nations, is looked upon as the safety-valve of discontent. In a similar way a man who is bullied at business secures satisfaction by bullying those unfortunates over whom he has control, his assistants, his family or those who may have to wait on him at meal-time, especially waiters in restaurants who cannot retaliate by "giving notice". Public servants, especially those in the lower grades and who

spend their lives doing what they are told, love, as we say, to be officious. In war-time, when goods are scarce, we must have been impressed by the " power assumption " of minor shop assistants and newspaper men. Sometimes, however, the power idea is desirable where it is considered necessary to pass on discipline. Many take the first possible opportunity to obtain the position of power they have previously criticized only to discover that they too make mistakes. More commonly when a man fails to find satisfaction in one outlet he escapes to another sphere of activity and tries another. Thus a man dissatisfied in academic life may turn administrator or even politician, a fact no doubt which contributes to notoriously inefficient administration and bureaucratic bullying. For somewhat similar reasons failure in one field may lead to success in another. Failure at school is, for example, followed by success in less scholastic fields. The individual concerned may, indeed, have " learnt his lesson " and devote himself more thoroughly to new tasks.

Social inferiority is overcome by a variety of compensations. Thus we have the display of the " nouveaux riches ". The superiority and smugness of the man from the provincial city is to the Londoner so typical and so different from the modesty of the countryman whose life is so very much affected by the changes of weather and conditions of soil which are so much beyond his control. But, of course, the provincial man entertains a similar complaint about the Londoner who is thought to be peculiarly affected by being at the capital of the British Empire.

Shyness generally is commonly compensated for by excessive reserve or obvious over-confidence which is often quite misunderstood by the lay public and attributed to conceit. Such little actions as the lighting of a cigarette to hide embarrassment on entering a room are common. Excessive talking or affecting attitudes of exaggerated ease are common reactions to a feeling of awkwardness.

Many persons succeed in the world by simply making themselves do things and it often takes great moral determination to do so. Fortunately the doing is often not nearly so difficult or dangerous as was anticipated. Sometimes the reaction

is almost unconscious, but ofttimes there is conscious appreciation of what must be overcome. This we see typically in the individual "steeling himself" for a surgical operation of which he is intensely afraid, and it is the common experience of medical students at the commencement of human dissection for which the natural repugnance rapidly disappears. It is true also of public speaking or lecturing. It is well recognized, too, that to give way to fear is to encourage it. Thus we see the importance of doing the same thing again soon after an accident as in flying or motoring. We are exhorted in war-time to be angry about bombing and thus drive out our natural fear. In public speaking, nervous persons ought to tell themselves that they probably know more about their subject than most of their audience, otherwise they would not have been given the opportunity.

It must be understood that all these reactions are not necessarily conscious. In many instances the reaction may be conscious at first, and this is true particularly where there has been an early inferiority which has required counter measures of encouragement by the parents or doctor. Eventually the compensation becomes quite unconscious. It is evident, however, that those who compensate, especially those who over-compensate, are quite oblivious of the mental reactions so obvious to others.

The sense of inferiority may show itself in an excessive liability to get angry, or it may be merely a "touchiness" and inability to co-operate without the feeling that some undue advantage is being taken. This shows itself commonly in women, especially in their dealings with men who from common politeness cannot retaliate on equal terms. It is seen, too, in academic life. Those who do not come from professional families are often not quite happy with those who do, and members of certain universities tend to find it difficult to be contradicted, especially by those of competing universities, even in a professional matter on which there may be a justifiable difference of opinion. The striking lack of uniformity of the regulations of the various universities purporting to train students for the same purpose is ample evidence of this.

But as we have said, the principles of Psychology apply to nations equally with individuals, and we have much evidence of similar reactions between nations who for various reasons find it difficult to co-operate with each other.

The circumstances which may lead to frustration are very varied, and the reactions produced are not always so unfortunate as the evil emotions mentioned, suggest. Indeed, there may result such valuable qualities as valour, patience and perseverance. The more juvenile reactions to frustration of the power urge are discussed further in relation to "**Inferiority**". It is only when the "thirst for power" becomes excessive that it is harmful but, as history has so often taught, once the thirst has become developed it tends to become insatiable.

It will be realized that each individual begins life in a position of inferiority, at first physical and then mental, and only slowly does the individual of sensitive feeling "find his feet" in the succession of new circumstances in which he finds himself. We all recall our first day at a new school or university. Looked at from the broader aspect, these reactions are really adaptations which are in the interest of security.

The constructive instinct is closely related to the power instinct and there can be no doubt that there are many people who derive their greatest pleasure out of "making something". It may be building up a business or an institution, making something with the hands, writing books. It is so much commoner to find the destructive critic who destroys what is made by others, largely because it is made by them, yet puts nothing else in its place. "The new broom sweeps clean but sweeps empty," but it must be remembered that he, too, has the pleasure of doing something and of exercising power. Destruction is also so much easier than construction. You may not like this book, you may criticize it, you may burn it, but are you prepared to write a better?

In a similar sort of way a good row often clears the air and causes power reinstatement.

Unfortunately the constructive instinct does not run parallel

with ability or perseverance, otherwise we should not find so many half-finished tasks in the world. We are always meeting those individuals who "intend to do things" but never do. "I always mean to" they will say and may even begin but never finish, usually because they are too lazy. How often we see in research an individual who commences a piece of research but never finishes it, yet feels aggrieved if it is suggested that somebody else might.

It is the satisfaction of the power and constructive instincts which is the basis of the well-known adage that "nothing is more satisfying than a job well done".

The failure to satisfy this urge is one of the commonest causes of illness in modern civilization and in all classes of society. Apart from the writings of Adler himself, the subject is well discussed by Wexberg.

The Rôle of Money. In a civilized society money plays a very important rôle in the provision of the necessaries of a physical and mental life. Unfortunately the desire for money produces a very large number of undesirable reactions which lead to much unhappiness in the world, not always because of necessities that are lacking, but because of the competition money engenders and the luxuries it makes possible. Money is essentially a substitute for more cumbersome possessions, and for labour into which it may be converted. With it we purchase food but it must be realized that theoretically we exchange the labour which provides the money for the labour of the individuals who physically wrest the food from nature. We tend to forget that someone must catch and kill the animals we eat, dig our potatoes or harvest our wheat.

It seems probable that the accumulation of possessions is a human weakness which is closely allied to, if not merely a highly civilized adaptation thereof, the animal instinct to hoard food as the dog buries its bones or the squirrel collects nuts. The characteristic is indeed common amongst animals and is an instinct to provide for periods when the things hoarded will not be so easily available. Where the possession is ostentatious it is, however, closely related to vanity, which is discussed later.

Money also provides security. By the taxes we pay there are kept up the civil forces of law and order. Admittedly, however, in a completely and really civilized community this would not be necessary. In providing this security, however, we are at the same time depriving ourselves of the natural instinct to provide it directly, we may indeed forget its necessity until war is upon us. We may, however, in peace, purchase substitutes which satisfy this instinct, by attending shows or films of events involving competition, adventure, danger to others, or by taking part in sports or competitive games, and commonly it is found that such spectacles are attended by those whose lives are most secure.

Money may also purchase substitutes for normal sex life, and commonly these take the form of love stories portrayed by film or book. In the childless it may make possible the adoption of children, the keeping of animals, the running of welfare homes and a thousand other activities.

Money also, in the less civilized portion of society, which is unfortunately its largest portion and independent of social status, confers a considerable amount of power on its possessor and thus satisfies his vanity although the power and the vanity may remain latent as in the case of the miser. Money often provides, amongst business men, the sole means by which they can demonstrate their ability and success in business. The large house and motor-car have become such an acknowledged evidence of success that many purchase them as spurious evidence of such success when they can ill afford them. The necessity for a certain expensive and often uncomfortable address is, in many quarters, looked upon as essential not only for business, but for social acceptance amongst those of similar mentality. There are, moreover, sufficient who accept such criteria to make it worth while for doctors to maintain appearances they can often ill afford. From the more strictly medical point of view it must, however, be kept in mind that the acquisition of money is, to a vast number of persons, a measure of success and thereby contributes to health in those who have no other measure. In such persons its absence may produce misery and ill-health.

Money can also purchase escape and this is a very im-

portant consideration in a civilized world of a reality which for many is stark and hard. By the purchase of amusement and diversion of different kinds the individual, if he cannot think, merely escapes into a world where thought is unnecessary, and if he thinks, escapes from the knowledge of the futility and vanity of much human endeavour, especially his own. Or it may be, he escapes from a world of dull monotony into a world of excitement, adventure and romance. In so far as it does purchase escape, money may produce a spurious variety of content. It cannot, however, buy the things most worth having to those who think, such as affection, health and happiness, although it may bring them nearer. There is no evidence that the rich, or well-to-do, are any happier than the poor. Just as many of the former commit suicide. When then we say that money in excess of what is needed to provide the necessaries of life and a few luxuries merely satisfies a primitive power urge, we are probably correct.

Whether the new order of a post-war brave new world will succeed in transferring the chief energies of man to less personal ends remains to be seen, but Psychology would give the answer as a definite "No" unless means can be found to satisfy the power urge in some other way, acceptable to the majority.

CHAPTER VII

THE HERD INSTINCT

It is well recognized that certain animals tend to group themselves into herds. This characteristic is seen amongst certain birds, insects, sheep and wolves, and there seems little doubt that it is concerned with protection as in the case of sheep, or power as in the case of wolves. This instinct is, as it were, part of the beast itself. It resists separation and may often be observed, as in the case of warning against an enemy, to feel a primary responsibility to the herd which may take precedence over its own protection.

Many students of this subject hold that man is similarly essentially a gregarious animal. He tends to dwell in communities, he is sensitive to the voice of the herd, the passion of the pack, he is attracted by warmth, susceptible to leadership and intolerant of solitude, mental or physical, in regard to himself or the activities of others. The importance of this characteristic has been emphasized especially by Trotter who, in his *Instincts of the Herd in Peace and War*, has shown how potent this herd influence may be in determining the reactions not only of individuals but of nations.

Whether we subscribe to the view or not, that gregariousness and all that it entails is an inherent and important characteristic of man, there can be no doubt that practically all normal individuals obey the dictates of the community in which they live to an extent which is seldom appreciated. It may be that it is due to our early training, to our natural power of imitation, or to the realization that it is for the most part in our interests to do so, but certainly it is developed at an early age, for schoolchildren are even more intolerant of divergence of standards than adults. In all communities we find, however, the "lone sheep" or "lone wolf".

In all communities, but especially in a modern civilized world, there is a tendency to submit inevitably to certain conventions and restraints. These we see in regard to the

primary instincts, Nutrition, Self-preservation and Reproduction. The conventions of the community are well seen in relation to clothes. Both sexes submit to a fashion which has become a tyranny, and in the case of women the tyranny increases with the purse. But even men do not arrive at the University or at business on a hot day dressed in shorts and shirts only, although admittedly there is no justifiable reason why they do not do so. The clothes convention in regard to morning dress has indeed become so international that its adoption has become a conventional indication of civilized emancipation, while in regard to bathing-costumes conventional emancipation is indicated by approximation to the more wholesome garb of the South Sea Islander.

Chivalry in its medieval sense has passed. Fighting is a "breach of the peace", but we still are allowed to protect ourselves or our country by use of force, even to the extent of killing the enemy; indeed, we are expected to do so.

A convention which is of the greatest importance in medicine is that by which the sick or the wounded are considered deserving of sympathy and a demand upon the resources of the community. As a result of this, vast and increasing numbers of doctors are kept in employment at public expense and a vast number of persons are kept alive who would otherwise succumb to the natural law of the survival of the fittest. The origin of the convention is obscure but it is probably multiple. From earliest times sympathy for the sick has been shown and this has been the great function of the Church throughout the ages as part of the teaching of Christ epitomized in the story of the Good Samaritan. The treatment of sick prisoners of war equally with that of our own casualties is probably a survival of the days of chivalry passed on to us by the Order of St. John. It finds expression also in the code that we do not strike a man when he is down. The whole idea is probably a robust demonstration of the power urge which suggests that although our enemy may rise to fight another day we can again beat him, combined again with the teaching of Christ in the Sermon on the Mount, that we should love our enemies. The latter exhortation is itself good psychology in that by so doing a state of mental

rest is produced, but the latest war has shown us that in doing so it may lead us into a state of false security in a world of more crude reality. There is little doubt too, that in purely secular communities free medical treatment represents psychologically an attempt of the community to accept and at the same time atone for the disgrace of the existence of the sick poor which is thereby "escaped". At the same time it will be realized that the community is quite illogical in that it breaks the natural law by promoting the survival of the unfit without at the same time insisting on any appreciable standard of health, for it is admitted on all sides that our hospitals are thronged with preventable diseases which are the direct result of that fantastic delusion that uneducated man is capable of controlling his own health in a modern world. That sooner or later we shall see compulsory medical inspection of the whole community, in its own interest, is without doubt. In higher forms of civilization the weak, whether they be individuals or nations, are protected. Instead of the natural law of the survival of the fittest we see, in war, their destruction in the interest of the weak and the survival of the unfit who are permitted to propagate to an unlimited extent even although their progeny becomes a charge on the herd to which they belong. How long this state of affairs will be allowed to continue remains to be seen. Meantime it keeps a huge army of doctors and clergymen in employment!

Our play, too, has become conventionalized by the introduction of certain games with fixed rules and it is expected that Britons "will play the game". They will respect the courage of a beaten adversary as was done in the coliseum of ancient Rome, and generally not do things that are "not cricket".

In regard to food we have conventional methods adapted to certain circumstances in regard to articles of food, order of eating them and utensils employed. The conventions are not, however, identical in all countries, and slow changes are seen in each. Thus we have seen liver, since it has become of medicinal value and expensive, become an article of diet of the well-to-do when before it was despised. We take fish

before meat, and it is no longer taboo to take luncheon on a high stool at a counter.

In relation to sex we see a host of conventions many of which are biologically sound but not a few are futile.

In most communities the stronger man is expected to defend the weaker women and children. In a shipwreck women and children are first. In danger of air raids children are evacuated to safety. It will be realized that such conventions are essentially to ensure the continuance of the species and are not confined to humans. It is more than a convention that there are ideals worth living for dearer than even life itself.

Reproduction is permitted according to very definite rules designed for the most part to ensure economic protection of children and women. Although nothing is done to prevent the reproduction of the unfit, healthy unmarried women are not permitted to bear children but are allowed to adopt, and to lavish maternal kindness on animals or human beings of which they are not the parents, if they can afford to do so. This rule tends to be enforced especially by the older married women who thereby reduce competition.

There are, however, very great variations in different communities in taste, reticence, modesty and morality towards sex, and the effect on the child mind must also vary very much.

Instruction in sex has until recent years been ignored, and not a few did not find out until married, when they viewed the process with abhorrence. Many parents found it difficult, if not actually indecent, to instruct their children in regard to the process of mammalian propagation. This is based on a conventional idea that all parts of the body related to those of excretion are unclean and should not be mentioned or exposed. The convention is not universal; mixed bathing in the nude is the mode in certain countries. The covering of the nipples is not considered necessary in males, nor by females in some countries. In some, special liberty is allowed when a child must be fed.

It will be realized that the conventions of the herd to which we are attached for the time being may be quite different from the herd in other places. We say that " when in Rome

do as Rome does ", that a man is a good mixer or is very adaptable when he can adjust his reactions to the company in which he chances to find himself. Not only so, but when we revisit a place after an absence of years we realize that in the meantime local habits may have changed quite appreciably

The world is indeed composed of a vast number of little communities each within the other and overlapping considerably. What is " bad form " or " not done " in one is " allowed " or " O.K. " in another. Each community has its leaders and its conventions, and each judges the social status of individuals by their reactions in certain environments. In the less civilized moneyed world, capability of following the fashion of the month " places a man "—more commonly a woman.

On the whole, however, the rules of the community in so far as they promote health and happiness, are beneficial, although they may bring hardship to individuals and especially the young who often chafe under their restraints, for in a civilized world restraint is what obedience to the herd means in practice. There are, however, few who do not feel the restraint in some form or other. Fortunately much has been so fixed in us in our early days that the reactions involved are almost automatic. We find ourselves apologizing to strangers who bump into us in the street, although in fact we may not have been to blame, and so on with the thousands of little reactions which have become part of ourselves.

With the advance of civilization we no longer tolerate rule by physical force, but we must understand that this reaction in civilization is quite recent and is not adhered to by many nations who consider themselves civilized because they have access to and utilize modern inventions. There is little doubt that rule by force is, however, the only method of rule in the case of animals, of certain children and of certain nations. In their immaturity they understand no other and mistake the absence of force for weakness, while many amongst us, especially since 1918, fondly imagined that it was possible to inculcate the convention of our community by kindness only, but the last ten years have provided the world with sufficient evidence and nations to prove the

futility of attempting to flout what are simple biological laws. Trotter pointed out in 1919 that unless the German people tasted more thoroughly of the horrors of war another war was inevitable because war was part of their heritage.

As we grow older we try to inculcate social laws into those over whom we have control and tend to become more and more intolerant of change. It is quite remarkable indeed how men who have themselves contributed quite materially to scientific knowledge, tend to be intolerant of evidence which opposes their school of thought—and especially when the new knowledge has been discovered by someone who chances not to belong to their own little herd. This is often ascribed to " old school tie " or pride of University, etc. etc., but those who take the broader biological view merely see the simple reaction of the gregarious animal outcropping as it were through the civilized crust.

.In what has been said above, the view has been taken that the responses are essentially those of the herd. It must however be understood that it would be quite as justifiable to consider many of them as adaptations to environment, for in most cases we can recall the process of having learnt them. It is not possible to distinguish clearly between what reactions are essentially due to our gregarious instinct and what are the result of experience. We see a very large number of similar reactions in domestic animals. These reactions which are the result of experience are for all practical purposes conditioned reflexes like the tricks we may teach our pet dog.

It is seen that the impelling forces of the environment or of the herd are ever with us and run counter to those of the primary instincts concerned in nutrition, self-preservation, and reproduction. The forces of the former usually gain ascendency in the abstract and leaders do not hesitate to send others to fight for them. For the individual concerned it is quite another matter when he is faced with starvation, prospect of physical hurt or death or leaving those he loves. He may find himself quite unable to obey the dictates of the herd and be overcome by the emotion or he may develop a state of conflict or frustration (this is discussed in a subsequent section).

Special Inhibitions Leading to Abnormal Adult Reactions. Some of the inhibitions imposed by the community, or by that part of the community which is responsible for our early up-bringing, are developed so strongly that they cannot readily be overcome even when desired. These are commonly concerned with the excretions and sex.

Micturition and Defæcation. As pointed out by Pavlov, control of micturition is an excellent example of the establishment of a conditioned reflex overcoming a natural one. At an early age we have been taught that the urinary bladder should be emptied only at certain times and places. Many boys have great difficulty in commencing the act in public urinals and very few persons could probably do so on a public platform. Many have difficulty of micturition when confined to bed, and various devices such as pouring out water or moving the hands in water are used to facilitate the act. Similar difficulty in defæcating in bed is common, or publicly in the multiple latrines used in war-time. The fact that in the house-trained young dog there is a conditioned inhibition in relation to micturition is shown by the effect of excitement which may release the inhibition.

Sexual Impotence. There is little doubt that many cases of inability to perform the sexual act are in the same category. As a result of being brought up with the idea that all matters concerning the sexual organs are unclean, the whole sexual act may become so inhibited, or the idea so repugnant, that in the male erection does not occur, or there may be sexual anæsthesia in either the male or female. It is not suggested, however, that all cases of sexual impotence of psychic origin are necessarily produced in the same way.

Imitation. A feature of the herd instinct is imitation. When we join a new herd we try to become part of it, for in so doing we establish a sense of security. Here again it becomes evident that the animal by imitation takes advantage of the experience of others. Sheep follow " like sheep ", but in many spheres of life we see imitation. The young surgeon tends to imitate his teachers, the young artist tends to follow the methods of his masters and often this remains evident in his later work. The young housewife does things

like her mother, indeed it may be fairly said that an enormous amount of human endeavour is based on imitation whether it be clothes, work or play. Even suicides tend to imitate each other. Imitation is also seen amongst hysterical patients who may also acquire thereby abnormal movements from other patients.

Socially, imitation makes us safe with the herd—imitation is not only the sincerest form of flattery but is also etiquette —whether it be in regard to clothes, customs or manners.

By imitation the individual takes advantage of the experience of others and cannot therefore be blamed when things go wrong. It is for this reason that we see fashion even in medicine. Many quite good therapeutic measures become discarded and others not any better take their place, and unfortunately the reasons for the change are often no more rational than those which dictate the fashion in ladies' clothes. There have been many historical examples of popularity of wrong treatment dependent on the personal standing of certain well-known men, and the vendors of patent medicines often take advantage of the fact. Some advertisements, on the other hand, try to show that the herd has already benefited from the treatment.

The Herd Instinct and Nutrition. The influence of herd instinct in relation to nutrition is well seen in the prevailing fashions regarding articles of diet and table manners, but visits to other countries rapidly make us realize how restricted are our fashions to our own community. It is quite common for the dietetic fashion of a community to interfere with its nutrition. Until the war this was seen in the extensive use of white flour which is less wholesome than wholemeal flour, which, however, is not fashionable and therefore more difficult and expensive to obtain.

The Herd Instinct and Individual Security. In relation to personal protection we have many examples of the operation of the herd instinct. In war the individual is frequently torn between his desire to protect himself and his sense of duty towards his country and many intense mental conflicts arise, the more so, since in a modern war the enemy may be so distant that he belongs almost to a land of unreality.

The Herd Instinct and Reality. Many of the emotions of life although they are based on the instincts may, as will be shown later, be so altered in context that they belong almost to a land of phantasy. The power urge or the sex instinct may entice an individual to spend his money on an attempt to attain some object which may in fact be so out of reach that it belongs to phantasy. The laws of the community, however, bring the dreamer back to earth in the form of creditors. Thus obedience to the herd almost necessarily means facing reality, for the community in which we live is part of our reality.

The Herd Instinct and Education. The herd, whatever its nature, educates its members by example and precept in the interest of the herd as a whole and some are much more amenable to its demands than others, especially when education competes with pleasurable activities in other directions and education at all ages must inevitably so compete. The necessity for impressing the advantages of education at an early age before the child finds that this or that is too difficult is therefore paramount.

In civilized communities there is an increasing tendency to make education compulsory and the number of " unwilling schoolboys " will be increased. How far this will increase disgruntlement amongst those who cannot learn remains to be seen (see Inferiority).

Since, however, all education depends on the establishment of conditioned reflexes which are of value the community may benefit, if the instruction is good. Universal opportunity will at least expose the inequality of man.

CHAPTER VIII

THE SPIRITUAL URGE

HOWEVER differently various individuals may look upon the exact origin of the spiritual urge, there can be no doubt regarding its existence and importance in human affairs. In the general sense it may be taken to be the urge or emotion which manifests itself in such qualities as justice, honesty, honour, conceptions of right and wrong, idealism, piety, purity, fraternity, liberty, equality, love, kindliness, sense of beauty, and so on. The adherents to many religions claim these qualities to have sprung from their own special religion, but we have ample evidence from ancient Egypt and ancient Greece that such qualities were admired and sought after, long before the birth of modern religions, indeed, before the period of the ancient pagan gods. Full evidence of this is to be found in the Precepts of Kagemni and Ptah-hotep of the Vth Dynasty, that is about 3000 B.C., while the repudiation of sins or negative confessions before the judgment of Osiris are even older, but only fragments of these remain. The standards set forth are, in many respects, higher than those of the Greeks and approach most to the Roman standard after Stoic philosophy and Christianity had successively improved on it (Flinders Petrie). For example, amongst the declarations made were "I have not been lazy"; "I have not acted crookedly"; "I have not been deaf to the words of Truth"; "I have not been covetous"; "I have not quarrelled", etc. etc. Such utilitarians as Mill and Herbert Spencer have pointed out that the moral ideas of right conform to what is in the best interests of the race rather than the individual. It is suggested that those minds whose impulses were the most useful succeeded best and that type of brain tended to descend to future generations. According to this view even the sacrifice of martyrs becomes strictly utilitarian as it keeps up that standard which is in the best interest of the communities to which they belong. This view

is of considerable interest to Psychology as many patients, by indulging in excessive self-sacrifice in one form or another, achieve a peace of mind by reaching the standard or live in mental agony and bodily ill-health from failure to do so. In our daily life many of the ancient pagan beliefs persist in the form of superstitions which no civilization or missionary effort has so far succeeded in dispelling entirely.

The spiritual urge in some is a super-emotion and may take precedence over all others. Thus a man may be prepared to suffer or even die for his convictions and allow his dependants to suffer likewise. The herd, which we know as democracy, may indeed admire a man for obeying the dictates of his conscience in the face of opposition and danger whether the dictates are considered right or wrong, provided he does so sincerely and without detriment to anyone else. Freedom of academic thought and the liberty of free speech is but another expression of this.

Frustration of the spiritual urge has led throughout the ages to most intense reactions of individuals and of groups. Few pages of history are more striking than those relating to the martyrdom of the early Christians and their various subsequent reactions to religious persecution. They form, indeed, an important piece of evidence in favour of the existence of a spiritual urge.

Religion

The spiritual urge is not to be confused with religious form of worship which appears to be psychologically quite different although there may be common associations. Religion may be defined as an act of belief in what is not provable by the senses, and a study of religion indicates that it may be quite separate from personal morality as indeed it often is to-day. Since the time of the pagans, religion has been a public not a private affair, an act of the herd with all that intolerance so characteristic of the herd which has led to so much dissension and war amongst the peoples of the world since the dawn of history. It is, indeed, quite remarkable what an active part many persons who otherwise have little interest

in the Church will take when any form of denominational union is suggested. This is probably explained as some kind of frustration of a power urge together with the imagined frustration of a vicarious spiritual urge and an emotional elation typical of all groups or crowds with a common emotional text.

Many religious activities, which are common to such a wide variety of human beings, such as the worship of gods, the sun or of symbolic objects, seem to be little more than the expression of an intense desire to continue life under the most advantageous circumstances, even beyond death itself. The object worshipped is essentially one which can give nurture and protect life and every effort must be made to placate and gratify it. Most, if not all, religions, irrespective of creed have this common psychological theme.

Religion therefore exercises a valuable function in promoting peace of mind in a variety of ways. Its most primitive psychological function is that it promotes a sense of security not only when the individual is alive but for the future. There have been many who would have us believe that the whole mental concept of God and a future life is based on this instinctive desire for security. Certainly, appeal to God is most evident when security is in doubt and when something is wanted. The thanking of God for material mercies is in a similar psychological category. Many of our best hymns and prayers give a sense of security, such as, " O God, our help in ages past ", " Rock of ages ", " Abide with me ", " The Lord is my shepherd ", and so on. Stability is suggested by " World without end ", " For ever, amen ", and so on. It would, however, be a poor world without some such comfort.

It is often taught that there are certain fixed standards demanded by the spiritual urge, but a little reflection demonstrates that these standards vary enormously in different religious sects and lay communities whose sincerity is beyond dispute. Fortunately, in Britain at last we have established a religious tolerance. In many cases the religious laws are primitive laws of health demanded by the exigences of the time when they were written. The order against the eating

of pork by Jews is probably of this kind. There can be no doubt, too, that many of the standards set up are more dependent on the herd instinct than on the spiritual urge. This is true of such qualities as honour, honesty, justice, liberty, and even kindliness and beauty. Ideas of what is beautiful vary enormously from age to age and as we know may change even in ourselves. We recognize the beauty of one age but not that of another which previously presumably was admired. In the same way there may be a considerable variability of ideals as is indicated by the various philosophies of living which have appeared throughout the ages and which to-day co-exist.

Even to the biologist, however materially minded he may be, religion has a necessary place, for it provides the source of the progressive and purposeful element of evolution which is so undeniably present yet is otherwise not provided for in Science. Bergson's *élan vital* is really God called by another name but no more understandable in any scientific sense. The doctrine of evolution, far from denying religion as imagined by many of the contemporaries of Darwin, probably does more than anything else to support it, for anyone familiar with the progression which has taken place in the animal world can scarcely fail to find the necessity for some controlling entity even although he may not subscribe to many of the claims which various religious bodies demand. Views of the psychology of religion are given by Ames and by Coe, but there are others.

The most important function of religion in a modern world is that it provides a focus or sphere for the exercise of the spiritual urge. In a material world in which the power urge is represented by an intense desire towards wealth and power and is so important in the community, there are many, especially those who think, who are aware of a strange lack of motive in living, realizing as they must that all is vanity and that all earthly possessions are of no avail at death. The desire to live a life of usefulness to a suffering or unhappy humanity is certainly one of the highest ideals to which anyone can dedicate himself. This end may take several forms such as social service, the Church, medicine,

science, and even war for conscience' sake. In many instances, however, those who take up such activities are unfortunately more actuated by simple ambition, the power urge, or a vocation rather than a spiritual urge. Most commonly we see the individual who satisfies his material wants and " puts himself right with his Maker " by participating in the activities of the Church once a week.

Religion is of importance in Psychology in another way. It provides ethical standards the unattainment of which may lead to a sense of inferiority, guilt or sin and to fear of, or anxiety regarding, the consequences.

Guilt

A sense of guilt and shame is relative to the standard set up in the mind of the individual. In some religions there is fear of hell-fire and damnation or some other form of physical torture for the wicked. It may be that the individual thinks he has forfeited his claim to any further consideration by a parental God in this world or any future existence, or that there is a sense of shame at having failed to maintain the standard set up by the faith in which he has been nurtured. For completeness it may, however, be added that such shame may occur apart from formal religion, for the herd or community to which the individual belongs has standards of conduct the non-attainment of which may also lead to a sense of guilt. There is little doubt that the sense of guilt deserving of punishment is possessed by animals. It is quite noticeable amongst dogs and horses who by their demeanour indicate that they know when they have done wrong. Amongst humans guilt is most commonly felt in relation to the causation of human suffering, to sexual delinquency, or avarice, and it may be sufficient to lead to an intense depression and severe reactions. Fear of consequences may indeed be so unbearable as to result in suicide. This we see typically when the murderer commits this.

It must be understood, however, that fear of consequences may not be wholly dependent on religion but quite directly on fear of retribution in the form of physical punishment or

disease. Roughly, everyone will agree that it is wrong to do anything which will cause unhappiness to anyone else who does not deserve it. This, indeed, is an axiom inherent in the laws of God and man. Considerable argument as to the justification of any punishment may, however, occur not only in regard to another but in regard to oneself. The sense of guilt carries with it the sense that punishment is deserved and may well occur in the next world if not in this. Those who fear punishment in the next, however, are often singularly free from similar fears of punishment in this world. The reverse is also true, especially in those who fear disease as a punishment for delinquency (see p. 31).

The commonest delinquencies which may produce guilt reactions, largely because they are secret, are those of sex, especially masturbation or illicit sexual relations, both of which are condemned in Scripture. It should be clearly understood by all at quite an early age that such procedures are in themselves not at all harmful unless carried to excess and do not lead to any permanent bodily injury and may even be beneficial. Their sole physical harm is that they may lead to neglect of the more approved methods of release of sexual tension and hence to distaste for the more restricted married state.

In many cases the sense of guilt is largely due to the activity of many well-meaning people who by literature and otherwise succeed in putting undue fears into the minds of young persons. The guilt and inferiority produced with or without the fear of disease or illegitimate children may lead to such profound reactions that the individual may become quite unfitted for normal employment and his general prospects may become imperilled.

There can be little doubt, too, that a very large number of persons get married with but a very elementary idea regarding the facts of life, and a very large number of misunderstandings between man and wife have this as their origin.

Even should the individual succeed in developing normally he may show the guilt he feels for some misdeed by being unduly penitent in his anxiety to make up for his delinquency.

This is seen where an individual has admitted treating someone badly and may subsequently, in attempting to make amends, deliberately set up to make a reputation for kindliness and gentleness which is often entirely misplaced.

Allied to guilt is shame or the sense of guilt or disgrace which may be an intensely compelling emotion as Swinburne suggests when he says, "Shame, that stings sharpest of the worms of Hell."

In concluding this section it may be remarked that according to Adler the feeling of guilt occurs because the individual, as a result of his misdeed real or imagined, feels he is inferior to his fellows. It is a point of view which is important when any attempt is made to dispel the guilt, especially in those whose ethical standards are poor.

Cases of guilt come to the attention of the doctor when it is so intense that it causes depression, intense shyness, reclusiveness or other anti-social conduct such as attempted suicide. In dealing with such cases of guilt he must either alter the standard to which the guilt is relative, point out that the penalty is not inevitable, or advise one of the recognized religious methods of securing forgiveness. That is to say, we can consider that what has been done is not very wrong, that even if it is wrong, leniency may be shown or we may say we are sorry. Fortunately religion may not only indicate the guilt but may provide also the way by which the deserved penalties for such guilt may be avoided or escaped. In this sphere the functions of the Church and Medicine overlap.

It is difficult to speak of religion without entering into the realm of controversy, the more so as it seems at first sight, to many of us, crude and almost sacrilegious to speak of religion as an escape. By calling it an escape, however, it is not intended in any way to detract from its value.

We have already noted that religion is of value in the "casting out" of fear and that escape is one of the ways of promoting security.

In a world of reality where there is, for many, little happiness and even if there is no material want, the unhappiness of the world is cause for great disquiet and sorrow. For

those who are tired and weary of the worldly struggle, religion provides a haven of rest comparable with that provided by a parent. Religion teaches that qualities which may be possessed by all, such as poverty of spirit, meekness, mercy, purity of heart, humility, joy in persecution for righteousness, all bring blessedness and reward, that it is right to render unto Cæsar the things which are Cæsar's, and that whom the Lord loveth he chasteneth. Finally it offers a future comfort which, unlike the comfort of this world, is even more accessible to the poor than to the rich.

It is interesting to remark that the final goals of different religions provide an abundant satisfaction of the most sought after wants. For the world-weary Christian there is the joy and peace of a many-mansioned Heaven; for the fighting Viking the joy of ample victory in Valhalla, for the Brahmin the desireless mental content of the Nirvana, and for the desert-tired Moslem, the green robe and green-cushioned Paradise with modest-eyed maidens in attendance.

Religion also provides an escape from the penalties of sin through the medium of confession and prayer. Thus there is solution of conflict, a dispelling of the sensation of guilt, and a casting out of fear and anxiety regarding the future. Many of our ecclesiastical buildings have been built or beautified in an attempt, conscious or otherwise, by the donor to escape the consequences of his guilt—in olden times some, indeed, by demand or at least connivance of high ecclesiastical authority.

Speaking strictly psychologically, religion offers an escape from reality into a world, which to the irreligious or agnostic appears to be a world of phantasy, although to those who believe, the world of the spirit is no less a reality than that in which we live and have our physical being. The very fact that religion can give such a consolation to so many and can be such a power for good and evil in the world may be considered good reason for including it as a major force controlling the endeavours of man, whatever one's views on the various beliefs and methods of religious observance; there can be little doubt that the world would be a happier and healthier place if the majority practised what is preached by

both the Church and by Medicine. Their functions are more closely allied than many imagine and, as we have said, certainly overlap to a marked degree.

The sensibility of having escaped is seen in an exaggerated form in the intolerant smugness which is unfortunately so often seen amongst those who are most ardent churchmen. They appear to feel that their futures are so assured that they become capable of acting and thinking in ways which are quite contrary to many of the standards they set for others. The intolerance of those who profess one creed for the beliefs of others, has ever been notorious and the refusal of many religious bodies to distinguish between what is spiritual and what is ceremonial has been largely responsible for the decline of formal religion, although good practical religion flourishes in our midst as never before and the spiritual urge was never stronger.

This is unfortunate and should not blind us to the value of religion from the more strictly psychological standpoint, for " the peace of mind which passeth all understanding " is certainly worthy of achievement in the interests of our bodies as well as our spirits.

The subject of guilt is also considered in relation to " Inferiority " (see page 222).

CHAPTER IX

RETROSPECT AND PROSPECT

At this stage we can turn, look backwards and ponder. So far we have seen man for the most part acting like an animal governed by reflexes and instincts, in a higher sphere it is true, but nevertheless the influence of the reflex and the instinct is quite unmistakable. Those who hitherto have been unfamiliar with the automatic or reflex activities of the nervous system must be surprised at the extent to which so many of our actions have been shown to be automatic or reflex, but at the same time the influence of the natural instincts common to all animals, including man, is also very clear. It is easy to explain the effects of education of different kinds, even of compulsory education, as a process of conditioning, and a good case can be made out for holding that this process plays a large part in the formation of habitual language and thought. Individual differences which are seen in man and animals are explained as due to differences in heredity. This very material conception of man's mental activities is usually known as *Behaviourism*. According to this view man is little different from the animals but more highly evolved, but with motives little higher than his pre-human ancestors. This is true, alas, of a very large proportion of human activity. If, indeed, we look at the behaviour of most of our fellows, it is easy to believe in Behaviourism and to stress the resemblance between their behaviour and that of animals.

If, however, we consider our own conduct we are less critical, and we can point to a few amongst us who appear to pursue a higher ideal. That may indeed have been said of the activities of Pavlov, who more than anyone else in recent years was responsible for putting forward the more material aspect of the problem supported by much experimental evidence. But man has more than an animal mentally, in view of his higher consciousness which gives him

intelligence and high powers of learning, of forming mental concepts, and of reasoning. That is not to say that the animals do not have some of these powers, but they have them to a much lesser extent, and different animals have them in different amounts according to the evolution of their brans. Much excellent work has been done on this subject andmuch was conveniently recorded by Bastian and by Mills, althugh since their time our knowledge has been much added to and recorded by workers such as Lashly and Herrick.

In man, as Julian Huxley puts it, consciousness " comes of age " and this, as we shall see, at once confers on him a power of learning and reasoning much beyond that of the brutes. In no sphere is this more clearly seen than in his power of learning language and forming concepts. It is seen also in the arts and crafts. That there has been a slow evolution of mental activity was accepted by Darwin and was a part of the general evolution picture put forward by Herbert Spencer. It has since been supported by Bergson, by McDougall, by Hobhouse, by Lloyd Morgan and by Elliot Smith. It is only when we come to discuss the cause of the evolution that we come to difficulty. The problem is one of evolution as a whole and cannot be entered into here.

For the present, the important consideration is the fact that with the evolution of mind man ceased to be a creature solely of his environment and became capable in greater or less degree of controlling his own destiny within the limits of his capability and of moulding some of his environment to his will. Further there is very complete evidence that the general direction in which he tends to mould his environment is upwards in the direction of comfort, health and happiness not only for himself but also for those over whom he has control. To many this suggests the presence of the guiding Spirit of God. The subject will be referred to further in relation to the place of Mind in Nature. Much of the remainder of this volume deals with those aspects of the conscious activity peculiar to man which cannot be satisfactorily explained in terms of reflexes or instinct.

CHAPTER X

CONSCIOUS ACTIVITY

CONSCIOUSNESS is probably best described as the sense of awareness of the stream of nervous impulses which passes through the cerebrum as a result of stimuli from the present and recent external environment and from the body itself. John Hunter described it as the awareness of one's own existence. It may also be described as an awareness of external environment and thus a differentiation is made between that and the awareness of dreams, although there is no reason to believe that this awareness is fundamentally different (see Dreams). A study of the causes of unconsciousness indicates most clearly that consciousness depends on oxidation processes in the higher parts of the brain and that it is less if the oxygen supply of the brain is unduly reduced. It is not, however, known whether this dependence is a function of the intensity of the oxidation, of the amount of the cerebrum involved, or of the activity of special parts, and investigation of this subject is rendered difficult by the fact that in cerebral injury or disease, post-mortem examinations obviously cannot be carried out at the stage where consciousness may be incomplete or intermittent.

Consciousness is very largely dependent on sensation. If the stimuli from the external environment are reduced, as they may be in a warm comfortable bed in a dark room, it may, at the point of awaking from sleep, be quite difficult at first to differentiate normal consciousness from pseudo-consciousness of a dream. The fact that recent stimuli play an important part in consciousness is suggested by the fact that after a sudden accident all memory of recent events may be lost.

Some indication of the physical changes which underlie consciousness and unconsciousness is obtained from a study of the electrical changes produced by the brain which may be obtained by placing electrodes on the skull and connect-

ing them with a suitable recording apparatus. The brain of the sleeping person, or deeply anæsthetized animal, is relatively quiescent, but when awake the brain emits changes if electrical potential known as Berger rhythm. Similar but less marked changes are obtained from the cerebral cortex on anæsthetized animals, but they are much reduced by deepening the anæsthesia. It becomes evident that different stimuli applied to the brain travel in similar patterns as if certain pathways were easier than others. Powerful external stimuli appear also to modify the normal rhythm and may synchronize independent normal rhythms. All such experiments indicate that consciousness is a co-relate of nervous activity.

It becomes evident too that attention may localize consciousness to certain subjects, for external stimuli may set up other localizations, and so, as we say, put the subject we have been discussing " out of our heads ", or if we have been adding figures, put us " off the count ".

It must be admitted, however, that the nature of consciousness has been the subject of very great controversy. Even if we are unsatisfied with any available definition, we agree that it perceives sensory impressions, that it reflects upon all impressions past and present, that it determines the necessity for, and the nature of, the response and it initiates the response.

Consciousness is active in three directions, viz., feeling, knowing and willing. It is in regard to this last function that we find ourselves in special difficulty, for the initiation of the response, according to all the knowledge we have of the nervous system, commonly involves the stimulation of certain nerve-cells in the motor cortex of the cerebrum. This stimulation is a material entity which is presumably dependent on a preceding physical entity. In the case of movement response it becomes then very difficult indeed to escape from the conclusion that the primary stimulus is a recent physical change brought about in the external environment which causes a stimulation of the afferent nerves and thereby of the host of nerve-cells in the cerebrum. Such a mechanism becomes apparent when we ask ourselves why we perform any act *at a particular moment.* It should perhaps

be added that internal pain is really brought about by external influence—notably bacteria and food. When we leave the room at the end of a lecture the stimulus is the cessation of the lecture, while light reflected from various objects stimulates and guides our footsteps as truly as a light may guide us in the dark. Such a view, carried to extremes, makes human beings into automatons, but this is prevented by interposition of consciousness at each stage. The function of consciousness is to perceive sensations and to interpret them in relation to past experience. (See also The Foreconscious and Unconscious.)

Association or Mental Relativity

Any simple study of knowledge makes us realize that everything we know is in relation to something else and that our ideas are similarly inter-related. If we think of an orange we at once conceive an object of a certain size, colour and weight. A certain thought has association of place, time, view, and so on indefinitely. Each size, place and colour has also certain other associations, but these depend entirely on the individual and the combinations and permutations are limitless. Our knowledge of the existence of reality depends on the appreciation of the qualities of the objects we see in relation to each other.

The study of word association is very instructive in this respect. It was much used by Jung for the investigation of the mind, but may be played as a social game. A group of individuals are given the name of an object and are asked to write down a list of the next twenty nouns which appear to follow on most readily, e.g., bat, ball, game, fight, war, death, etc., each word having a mental connection with the previous one. Not only will the list be remarkably diverse but each person will be found to have a list of words so peculiar to himself that it is quite surprising how often it is guessed that he is the author by the others of the party.

If we substitute an idea for a word we have the method of free association used by Freud in psychoanalysis.

Association may occur in relation to any quality, but

there is also a time factor. The size, colour and shape of an orange we appreciate at the same time, and its weight we have on a previous occasion associated with one or more of these qualities at the same time. Things that happen at the same time become associated. The dog that hears a bell rung each time it is given food learns to associate food and the bell. A process of association is the basis of the conditioned reflex. This was accepted by many members of Pavlov's school but was never admitted by Pavlov himself (Cathcart). It would seem that any two stimuli which reach consciousness at the same time tend to be associated. It may be that the two impulses set up in the nervous system meet; indeed, this is quite probable since we know that the nerve impulses are self-propagating in the nervous system, and must pass on from neurone to neurone until they reach regions of resistance which they cannot overcome or somehow become antagonized by opposing impulses.

When we come to deal with abstract conceptions it is also evident that there are similar associations many of which are quite easy to see, e.g., force, strength, power, courage.

In the development of the child mind such associations are of paramount importance; indeed, all experience has a vast amount of associated experience which is eventually taken for granted. Thus an object, the size, shape and colour of a large key, we expect to be heavy. The associated experience may indeed be so fixed that it is misleading. Thus it is common experience that we may think the train we are in has started when we see the train on the adjoining rail move.

It is indeed impossible to separate any word or experience from its association even if we wish to. If we are trying to find a suitable name for a child or a dog we readily realize how coloured even a name may become. In the same way we have conventional ideas of the appearance of John Bull, Uncle Sam or Mr. Punch. We imagine that in certain circumstances we shall have certain experiences, but the reality is often quite different from the imagined. The professor of our imagination has many definite characteristics, but it is now quite unusual for a professor to look unduly wise or to have a beard!

We may recall an association beyond consciousness as has been said by conscious effort, but sometimes associations force themselves upon consciousness. Thus when we visit an unaccustomed place we almost certainly recall any previous occasion we have been there and the company we have been with. Many persons find it impossible to stay in the house where there has been a tragedy. We are reminded of Lady Macbeth, whose hand " not all the perfumes of Arabia " could cleanse of the memory of having daubed the servants with King Duncan's blood in order to implicate them in his murder. By a process of association we can all give similar examples. One form of association is sometimes a disadvantage in medical diagnosis. A doctor who finds in a patient a certain sign or symptom is very likely to be forcibly reminded of a similar striking recent case with the same signs and symptoms to presume that the cases are alike and thus arrive at a wrong conclusion regarding the case. What, however, is even more important in medical psychology, as we shall see later, is that an emotion associated with experience may remain without the association entering consciousness; for example, the sound like that of a shell may set up such a train of symptoms that the patient is quite upset, yet the old association between the sound and the shell may never impinge on consciousness until brought to memory by psychoanalysis (Ross) in which the subject gives the train of words or thoughts which are associated in his unconscious mind with the particular sound. It will be realized that in many, if not all, of such cases a process of conditioning has been in operation.

The Foreconscious and the Unconscious

Some past experiences or thoughts are beyond consciousness, but by a process of association they may readily be recalled. We can, for example, recall a place we have seen, or a topic of conversation, by going over the sequence of events preceding. The same is true of the facts we know of various subjects with which we are familiar. They may not be in our immediate consciousness but they may readily be

recalled. They are said to be in the **foreconscious or subconscious.** Beyond this, however, there is a vast amount of knowledge which is less easily reached. In a *viva voce* examination the good student has his information in this foreconscious where it is easily available, but he has more which the good examiner, desirous of finding what a student knows rather than what he does not know, can reach or, as we say, drag out. By approaching the subject from different angles he commonly obtains evidence that the candidate has studied certain parts of the subject which from earlier answers appeared to have been neglected.

In addition to memories which we can recall voluntarily or which can be reached easily there is good evidence that there are still deeper memories which can be brought to consciousness only by more elaborate means.

They were said by Freud to be buried in the **" unconscious mind "**. It is convenient then to consider the knowledge which we possess, or the record of the experiences we have had, to be at different association levels or depths of availability.

It has been suggested by Watson that the material in the unconscious is difficult to recall because it has been unverbalized, i.e., had no verbal association. It is, however, to be understood that there is no hard and fast line between the different memory levels.

The concept of the unconscious, especially in the dynamic sense in which Freud used it, is not essential to an understanding of psychology, but it is so convenient and has obtained such a position in the literature that it may be retained. The unconscious is held to contain not only these memories of experiences which we have forgotten but also the desires and fears which are innate in our being and constitute the " unconscious self ".

There is very complete evidence that although these memories are forgotten they may still have a considerable influence on our conduct.

The memories in the Unconscious may be uncovered by a variety of ways, by deep analysis, or detailed study of the association after the method of Freud, or by reducing the

effect of conscious activity. This occurs in hypnosis or under the influence of narcotics of which pentothal sodium appears to be most popular. They may also become apparent to their possessor in dreams although often in a disguised form.

Remembering and Forgetting

One of the remarkable powers of consciousness is that of recalling past experiences whether these have been appreciated by the senses, willed or known.

The power of recall is seen in its simplest form in regard to vision. If we look at an object for a few seconds and close our eyes we can continue to visualize it, and depending on the time we have looked at it we can remember details of its shape, colour and size. Further, if we concentrate on doing so we can continue to see it "in our mind's eye" almost indefinitely.

It is relatively easy to imagine what happens in such circumstances. We know that the light reflected from the object acts on the retina of the eye, sets going a set of nerve impulses along the optic nerve to the occipital part of the cortex of the cerebrum. Thereafter we cannot trace it accurately, but by analogy with the memory for sound we believe that it passes to certain association areas in the neighbourhood. At what stage we become conscious of the passage of the impulses we do not know, but we can well imagine that so long as we keep the "spot light" of consciousness or attention focused on what we have seen the neurones which were stimulated continue in action. If we open our eyes and look at something else or think of something else, our memory image is at once blurred, but if we deliberately intend to try to remember it we may do so for an indefinite time. Voluntary recall at intervals tends to fix the memory, a fact which suggests that behind the memory there is a definite neurological basis which, like all other nervous activities, is affected by repetition.

It would appear that different individuals have various kinds of memory. Some persons have a good visual memory and create mental pictures to assist their recollection, others

have good aural memories, and so on. It is evident, too, that certain persons have unusual capacities for remembering certain things. Some remember faces or hands, personal details regarding individuals, dates, data, playing cards, quotations, poetry, etc. etc. It is well recognized also that many with good memories, notably those of Eastern descent, may in studying for an examination substitute memory for the logical understanding of a subject. Others have poor memories and can only remember scientific facts when they understand them. Their memories depend on reasoned association of facts not on mere association of words on a printed page.

Sometimes a small detail will awaken a whole flood of memories. A good example of this has come to my notice. Mrs. C. and Mrs. F. met at an hotel where they became friendly, they thought, for the first time. A fortnight later they met in a restaurant where Mrs. C. spoke to Mrs. F., but the latter now recognized her not as Mrs. C. but as a girl who had been in her class at school, for she was now wearing a hat like the one she habitually wore at school twenty-five years before. Often the sight of a post-box may remind us of the letter we have to post, one story reminds us of another, and so on.

There seems little doubt that there may be considerable emotional reinforcement in memory. We retain facts which have associations. We have all outstanding memories. There are few of us who do not remember with great clarity details of certain *viva voce* examinations, or of the first time we rode a horse or motor-cycle, travelled by aeroplane or drove a motor-car. We remember, indeed, those things in our lives which are very important. It would seem, however, that we tend to remember most easily those things in which we have been successful. We remember the pleasant things of life, while the others less agreeable tend to be forgotten. Students may remember details by a special lecturer, but have a very blurred idea of a lecture by their regular teacher.

Victorians beat their children to reinforce their memories of forgotten precepts and some still treat dogs thus.

Pavlov suggested that the excitability of the cerebral cortex may be affected by the emotion.

In those matters in which there is little or no emotional colouring, memory depends largely on repetition of the experience as many of us recall in regard to the remembering of poetry at school. A considerable amount of experimental data on the subject is available. Cathcart has stressed the importance of persistence and others claim that movement assists mental fixation. Hence the benefit to some of saying aloud things to be memorized. It has been shown that we remember best when we are fresh and that mere repetition, e.g., of poetry, may produce fatigue. Such fatigue may be produced by cramming for an examination. It has been shown that in order to memorize the maximum amount of poetry in a given time, it is necessary to have properly spaced rest pauses. Thus to memorize a piece of poetry in seven readings—a maximum efficiency is attained by reading it once a day for seven days. It has been shown, indeed, that the principles discovered in relation to the performance of physical work are applicable to mental work of this kind. It will be realized that the value of advertisement and propaganda lies, to a considerable extent, in its repetition and associations and it is remarkable how many of the details of advertisement we remember without consciously making an effort. Remembering also depends on the concentration and attention given to the process of learning. These subjects are dealt with in a separate section.

It is well recognized that young persons remember better than old. This appears to be easily explicable on a neurological basis, for in the young not only is the brain still growing but all possible connections between various neurones have not been used up.

It seems likely that the so-called maturation period is related to fatigue. It has been found that if a subject is memorized in the evening it may be repeated better in the morning than immediately after learning it. Memory is also reduced by general fatigue, by illness and old age.

There is good evidence that the parts of the brain specially concerned with the storing of memories of certain details are

those in proximity to the sensory cortex connected with the organs of special sense, especially the ear and the eye. Thus the names of objects appear to be related to the first temporal convolution, destruction of which, by abscess from the ear, leads to inability to recall such names (Kinnier Wilson). This fact suggests that we have acquired our knowledge of the names of objects through the sense of hearing. This statement refers to human memory. In the lower animals the mechanisms concerned may be very different, for it has been shown that fishes have good memories while worms may learn to find their way out of a maze (de Haan). In these animals memory must depend on lower parts of the nervous system.

One interesting feature of memory is that it may be blotted out by physical agencies. If, for example, an individual is rendered suddenly unconscious by a blow he may be quite unable to recall the happenings before or after the accident which normally he would have remembered. Anæsthetics have no such effect, the patient remembering every detail until the time of the anæsthetization. On the other hand, many things may be done or said during anæsthesia or under the influence of alcohol which appear to leave no imprint on the memory.

Forgetting is the reverse of memory and may be described as the inability to recall facts which we have once known. We are all too painfully familiar with its existence, but it is only in comparatively recent years that there have been much data regarding it.

The facts which we have lost we may regard as having passed into the deeper layers of consciousness. How and why this occurs has been the subject of much debate. An important fact in forgetting is certainly inadequate stimulation. The forgetting or remembering of facts we have read depends largely on the number of times, and the concentration with which we have done so. The mental state of receptivity is well illustrated in relation to pain. A footballer in the excitement of a game may be quite unaware of a kick which has caused considerable injury to his shin. An individual in obvious danger may be so actuated by the

motive of his action that he may be quite inappreciative of the risk he is running. It is not infrequent at a card game, such as bridge, for the dealer to ask who has dealt the cards although he did so himself but a few minutes before. On the other hand there are certain things which we forget much more readily than others. As has already been said, there are incidents in our lives we can never forget, there are other incidents which we appear to have entirely forgotten but which may be re-called to us by a friend, a book, or by visiting a place.

As has already been indicated in relation to the Unconscious, the evidence is very complete from psychoanalytical studies that much less is really completely forgotten than we imagine and under certain circumstances it may be recalled. We should not, however, imagine that this view is recent, for De Quincey wrote: "I feel sure that there is no such thing as ultimate forgetting. Traces once impressed upon the memory are indestructible. A thousand incidents may and will interpose a veil between our present consciousness and such inscriptions on the mind. Accidents of the same sort may also rend the veil but indelible, whether veiled or unveiled, the inscription remains for ever." Now we know that the material of which such a veil is made may be emotion or subsequent inscriptions which blur the tablet of the mind.

Time is also an important factor concerned in forgetting. We have all experienced the fading in the course of years of a once, it seemed, ineffaceable memory, say that of a passage of poetry. Time, too, is the "great consoler". In this and many other instances, it seems most likely that the neurones concerned have simply become used for other purposes. Since we have a given number of neurones in the brain, there is presumably a limit to the material which can be remembered just as there is admittedly a limit to human capability. The specialist knows more and more about less and less until, as the cynic says, he knows nothing at all.

Emotional Forgetting. Forgetting has also a considerable emotional aspect as has been abundantly shown by Freud, who has collected many examples of this in his *Psycho-*

pathology of Everyday Life. In this forgetting there is a reason for inability to recall to consciousness which may on investigation become quite evident. There may be a forgetting of names of persons, of words, or of impressions and resolutions and appointments. Freud has given examples of each type, and he has pointed out that during an attempt to call to mind any particular name or word, other names and words may come up for review or be spoken which may have a definite relation to the reason for forgetting.

Freud's views on the subject must have a special consideration, for he was the first to draw attention to this emotional forgetting although many will not go so far as to agree with him entirely when he says, " The forgetting in all cases is proved to be founded on a motive of displeasure ". Most, however, will admit that many people are prone to wishful thinking in which disagreeable facts are forgotten. Reference to this is often made by speakers and writers regarding the war. Thus there were many who did not believe there would really be a war because they did not wish the trouble of preparing for it.

Forgetting is often to be observed in scientific papers. It is not uncommon for authors to avoid mention of papers they have read which have a very clear bearing on their work. Often these omissions are looked upon as a conscious attempt to secure kudos and in the literary world may amount to legal infringement of copyright although the authors concerned may be quite above such practices.

A notable example of this in recent years was the omission of Bayliss in his *The Vasomotor System*, to mention Claude Bernard who was largely responsible for the beginnings of the study of this subject, although there can be no doubt of his appreciation of Bernard's work because he has even given an illustration of Bernard's statue in his earlier *General Principles of Physiology*. It is not too much to say that many scientific workers if not actually guilty of omission, unconsciously misread and misquote papers and certainly forget the evidence against their pet theories. The subject is dealt with further in relation to " Repression " in a later section.

In a similar category are errors of vast variety. The commonest are those of speech, writing and of losing things. Thus *lapsus linguæ* may show themselves to have a considerable significance and as we say, "the truth will out". That, however, is not to say that all *lapsus linguæ* are in this category. Some undoubtedly are parts of other ideas of which the individual chances to be thinking at the same time. When writing this book I found myself having written "assistance" instead of "assist in the maintenance". This is obviously an example of collateral or advance ideation, but many such errors have an emotional basis.

The following examples are quoted by Freud in his *Psychopathology of Everyday Life.*

"Two women stopped in front of a drug-store, and one said to her companion, 'If you will wait for a few *moments* I'll soon be back', but she said *movements* instead." She was on her way to buy some castor oil for her child.

"I repeatedly addressed my patient as Mrs. Smith, her married daughter's name, when her real name is Mrs. James. My attention having been called to it, I soon discovered that I had another patient of the same name who refused to pay for the treatment. Mrs. Smith was also my patient and paid her bills promptly."

"An almost unbelievable example of miswriting and misreading occurred in the editing of a widely circulated weekly. It concerned an article of defence and vindication which was written with much warmth and great pathos. The editor-in-chief of the paper read the article, while the author himself naturally read it from the manuscript and proof-sheets more than once. Everybody was satisfied, when the printer's reader suddenly noticed a slight error which had escaped the attention of all. There it was, plainly enough: 'Our readers will bear witness to the fact that we have always acted in a *selfish* manner for the good of the community.' It is quite evident that it was meant to read *unselfish.* The real thoughts, however, broke through the pathetic speech with elemental force."

The "Wicked Bible" was so called from the fact that the negative was left out of the seventh commandment. This

authorized version of the Bible was published in London in 1631, and it is said that the printer had to pay a fine of two thousand pounds for the omission.

Campion and Elliot Smith quote the instance of a man who had partially lost the power of speech. He knew his own address but not that of his mother-in-law who lived with him.

The following amusing instance occurred to me. I had taken a friend to afternoon tea in the laboratory. Immediately after a colleague entered to whom, in my friend's hearing, I said " Good afternoon, Thorpe ". A minute later I was unable to introduce Thorpe to my friend for I had forgotten Thorpe's name, but I realized later that he was accompanied by another man, with whom I was friendly, but whose unusual name had disagreeable associations.

It will be seen that the errors of writing or of speech may have a quite clear emotional basis, but that some arise through what may be described as a collateral ideation.

The losing of articles is in a different position, for many will deny that they do not value things they lose. Most of us can recall instances of having left behind some article in a train or taxi-cab. I recall, for example, leaving in a taxi the corrected copy for a new edition of the " Handbook of Physiology ". Had it not been recovered many months of work would have been lost. Although I searched for any conceivable reason why I should have desired to lose it, I have failed and I am inclined to think that it was due to some extraneous idea which came into my head as the taxi stopped, and as we say, put the idea of the possession of the book out of my head. We are admittedly much more likely to forget if we are hurried or have something on our minds, and are therefore prone to forget several things on the same day. The saying " out of sight out of mind " has probably a physical basis, and we are reminded that when Nelson did not want to see he put his telescope to his blind eye and when we do not wish to be upset by a disagreeable sight we do not look and thus avoid remembering it or, as we shall see later, even if we have seen it we may repress the memory.

On the other hand, there are many examples of articles

having been lost for unconscious emotional reasons—when no other adequate excuse can be offered.

That, however, is not to say that such things are permanently forgotten. Some are certainly not. Eventually we may remember the object we have left behind because of some other association. The name we have forgotten may come into consciousness when we are not specially trying to recall it. These so far are part of the riddle of consciousness.

In concluding, it should be pointed out that this account does not attempt to decide whether memory is a function of the mind or of the brain. There seems little doubt that " the tablet of the mind ", as De Quincey called it, is a kind of neurological slate upon which we write words of varying indelibility, but the actual thoughts we record and their relative importance given to them is a function of mind. A generalized loss of memory (amnesia) occurs in hysteria and after head injury.

Further reading on the subject is to be found in books by Freud, by Pear and, from the more experimental standpoint, by Bartlett.

Attention, Concentration and Absent-mindedness

Attention and concentration are amongst the highest attributes of the human mind. By them all mental power is focused, as it were, on a given problem as a result of conscious effort. It would seem that one part of the brain becomes intensely active at the expense of another, for it is evident that if we concentrate on seeing one object we may fail to see another or to hear something, and it is well recognized that extraneous stimuli such as conversation may make concentration very difficult. Experimental evidence by Pavlov indicates that when an area of the brain is strongly excited, this area is surrounded by another of inhibition.

For the maximum benefit for the individual the attention must be closely adapted to the total activities in hand. Too much attention may be as great a disadvantage as too little, and may lead to apparent absent-mindedness.

As yet we know little regarding the nature of voluntary

concentration, but we do know that concentration can be produced in others by appeal to the security instincts. Many of us are painfully aware of having been exhorted by the fear of the teacher's cane, restriction of freedom, or even threat of no supper, or fear of failure in examination, to do educational tasks not immediately agreeable. It has been said that the average student goes in constant dread of being over-educated.

Amongst adults it is commonly said that students and others all pay attention when they are interested, and here it is to be observed if we notice the subjects to which the greatest space is given in newspapers, that most persons appear to be interested in subjects pertaining to the primary instincts, fighting, food and reproduction. Such facts open up the very interesting problem as to how far attention is related to the satisfaction of the instincts generally, including those of power, of the herd and of the spirit.

Concentration can be improved by practice and training, as most students know. It is not generally recognized that concentration is just as important in games of skill. Robert Jones has remarked that in golf the maintenance of concentration is one of the great difficulties of the game.

Absent-mindedness is the reverse of attention. It does not mean solely lack of attention, for this might really mean the paying of attention to some subject other than that desired —say by the teacher of a class. In absent-mindedness instead of attention being given to the task in hand there is day-dreaming—a brown study or moon-gazing in which no special subject is being considered but the thoughts flit from subject to subject as in free association.

The professor who has learnt to concentrate is notoriously "in the clouds", and is considered to be absent-minded in regard to the things on which he does not concentrate or devote sufficient attention. Such absent-mindedness, which is akin to carelessness, is responsible for many runover accidents on the streets—notably that of Pierre Curie, the discoverer of radium.

It is in relation to symptoms, especially pain and fear, that attention is of the greatest practical importance, for

great alleviation is produced by getting the patient "to take his mind off his condition", or in the case of fear "to do something". How sensation becomes focused by attention is very difficult to understand. It would seem that somehow a cycle of thought is produced which becomes a vicious circle, such as cause, pain, cure, cause, which by repeating itself becomes intensified, or it may be that stimuli from the outside world take priority in consciousness to minor bodily sensations. Thus playing the piano may dissipate a headache or a toothache. The importance of visiting the sick in respect to distracting attention is obvious.

Attention does not, however, take up all mental activity. It is possible to do a routine activity such as knit, drive a car, or carry out a repetitive piece of work in a factory and have considerable spare mental activity to engage in conversation or thought. By becoming almost automatic such activities appear to need less attention. It is of interest to note that reading and thought are more difficult during talking on the wireless than during music. If two programmes happen to be tuned in we can listen to one or the other but not both. It would seem then that speech has a prior claim to other sounds, but we cannot pay attention to two speeches at once presumably because the same part of the nervous system is involved in both.

Excessively prolonged attention and concentration produce certain bodily changes which are discussed in relation to "The Effect of Mind on Body".

CHAPTER XI

LEARNING

In relation to conditioned reflexes we have already referred to learning as a process by which an animal benefits from experience, and so secures more complete adequate adaptations to its environment. Here we consider it more particularly as an approach to the higher mental processes of man.

By learning, an animal improves on its instincts and recognizes as a result of previous experience that certain stimuli have a significance. Some look upon this recognition as an indication of mental ability, but if so it is of very low grade. Commonly it is possible to teach an animal that when a certain sound or movement is made it either gets fed or hurt. This reaction occurs as low down as the fishes, which have a highly developed vibratory sense, and may be taught to go to one end of a tank when a high note is sounded and to the other if a low note, while a wide range of domestic animals learn to associate certain calls with being given food.

Animals learn in two main ways, by imitation or precept and by trial and error. On the other hand, man, while employing these methods, may in addition bring reason to his aid in determining a new course of action. Once the subject and the method have been determined, repetition of the learning brings about fixation and skill in performance. This has already been discussed in relation to Conditioned Reflexes and Habit. It is by imitation that adaptations to the needs of the herd are learnt, and for this and precept the presence of other individuals is necessary, but by means of trial and error and by using reason the individual may learn for himself. The trial and error method may be haphazard or may be combined with reason until in the highest form of learning reason predominates and trials are reduced to a minimum. Imitation is the easiest way of learning since it may be done without reasoning, and this is how most things are learnt, especially by the uneducated. The unfortunate thing about

the trial and error method is that it gives rise to most erroneous conclusions being made and nowhere is this better seen than in Medicine. The patient is given a certain treatment and recovers. The treatment gets the credit, but the recovery may have been in spite of it. The more haphazard the trial the more erroneous is the conclusion likely to be, but in all animals there is a retention of success and the odds are certainly in favour of the successful method being successful again. It was in this connection that Hippocrates is credited with having said that " experience is fallacious ".

Learning is affected by a number of factors which have been extensively studied, but on the whole such investigations have subsided because of the general recognition that different detailed factors apply to each type of learning. The learning of one act does not necessarily benefit another except in so far as they are affected by common features. Thus a student learns to study, and that a diligent application, and, it may be, somewhat boring repetition, are necessary for the learning of any subject, or the learning of Latin may facilitate the learning of languages derived from it.

The most important, and to many unexpected, generalization in learning is that the acquisition of skill or knowledge is not necessarily in proportion to the time spent on it. The condensation of practice into long sessions is not necessarily an advantage, indeed, it would seem that to reach the highest attainment with the least time in learning, the well-known principles of rest-pauses so well worked out in regard to physical work apply. This has been shown in a large variety of tasks, e.g., rats learning a maze, dogs forming conditional reflexes, and humans learning typing, golf, and to more purely mental attainments which are discussed under Memory.

As will be seen also in relation to remembering, in all learning there is considerable emotional reinforcement which most commonly is the financial inducement to learn.

Source of Motive in Learning

The problem of why animals and man learn from any particular experience is part of the larger problem of goal versus

stimulus as the motive in behaviour, or again it may be a *vis a tergo* or a *vis a fronte*. The subject, which is discussed shortly below, is not, however, so academic as at first sight appears; indeed, it is a central problem in education. There are those who can be led and those who can be driven. Educationalists hope that by raising the school age they will inculcate into those who are the children of the less well-educated certain principles of conduct, and even the desire to learn by showing them the advantages of learning. Admittedly the educationalists are not free from vested interest in the subject. There is even the desire amongst some to force the children to learn, while the fact that the desire to learn may be largely hereditary is generally overlooked, for there are many who are fully aware of the advantages of learning yet cannot be bothered doing so. The most common reason for this is partly the result of lack of that mental equipment without which learning becomes most fatiguing, and partly lack of capability of persistent application to any task. At the same time it should be pointed out that the attraction of learning should be for its own sake and not necessarily for what it may bring, for obviously we cannot all be employed on intellectual pursuits and there are many sources of real pleasure apart from learning. This is not intended to deny that pleasure may be acquired. Many of us recall having acquired a liking for something which at first we did not like but to which we submitted because it was polite or politic to do so. This is particularly true of articles of diet which we have not liked but which we have taken because we were extremely hungry or we did not wish to disappoint our hostess. Fortunately the number of those to whom scholarship comes readily is few or we might become a nation of black-coated workers.

Accustomed as we have been in Physiology to the idea of stimulus being followed by effect, we almost take it for granted until we suddenly realize that much of human motive has a goal which cannot always be looked upon as radiating stimuli in any physical or physiological sense, e.g., the goal of a qualification to a university student. If, for example, we consider why a dog seeks food we can say that it does so

because it is driven by the pangs of hunger, or because it is attracted by food which may be looked upon as stimulating the dog through its senses. In the case of an abstract entity the direct effect of the stimulus is less evident. Further, the more we insist on the necessity for an adequate stimulus the less we admit our capability of controlling our own destiny. It is, for example, difficult to decide what the physical stimulus is which makes us learn to ride a bicycle. Physiology based on experimental evidence stresses the importance of stimuli, as pointed out by Sherrington, who discusses the subject in his well-known *Integration of the Nervous System*, and various attempts have been made to evaluate the importance of the various stimuli concerned. It has been found, for example, that if hungry rats learn with practice to get out of a maze or reach food in a given minimum time, if they are thirsty but not hungry, they do not make such good time. Dogs if well satisfied with food do not establish conditional reflexes so well, and, as we say, we can lead a horse to water but we cannot make it drink. In human affairs, too, it is well recognized that satisfaction leads to a cessation of striving, which is seen in a number of popular sayings such as "he hasn't got to bother", "he's too well off".

All are agreed that man and animals tend to avoid pain. Indeed, even the partial nervous systems of decapitated animals produce withdrawal of a part from harmful stimuli or removal of the harmful agent.

At the same time, however, it is obvious that with the other instincts desire plays an important part. Both man and animals when not hungry will take certain tasty articles of food in preference to others. The rabbit, hare or fox is the goal of the average hunting dog, although until the moment of seeing its prey it may be quite docile; indeed, in so many instances is the goal obvious that many philosophical physiologists, such as Haldane (1922) and Cannon (1932), have discussed the subject in terms of what has been called goal behaviour, and without a goal there cannot be striving. It is true that in many cases the goal appears to radiate stimuli like the carrot held in front of the donkey, and we know

that there are many persons who like " to see the end of their job " and tend to lose interest if they do not see " the good of doing it ". In the case of the student we see a series of goals, the examinations which lead to the final goal of qualification. It is possible, then, in considering human behaviour to consider the wish to attain as a goal in all activities. The desire for freedom from pain may be considered the goal of its avoidance, and however applicable to the intact animal is a principle difficult of application to the decapitated cat. Nevertheless, it should be emphasized that goal has been the central pivot of philosophies and psychologies from the time of Aristotle. According to McDougall the purpose is the determiner of the action, while Freud considered the wish as of paramount importance, while in many religions goal is a justifiable determiner of action and producer of desire.

It is probably best to adopt a dual attitude and to return to something like the hedonism of the ancient Greeks, which appears over and over again in different forms, and to consider that man and animals alike pursue pleasure and avoid pain, for their nervous systems, their animal instincts, their unconscious selves, in the case of man, and in the case of animals, their conscious selves all conspire towards this end. There is a goal towards which he goes and one from which it gets. An escape from harm is at once a desire for safety. A conflict produces mental displeasure and there is, therefore, a desire to resolve conflict.

It is of interest to observe that this is one of the points at which the Gestalt School of Psychology begins; it avoids the issue and considers the resolution of a goal situation in the same sort of sense that various physical systems tend to reach a state of equilibrium, but this subject is discussed in a later section.

Consciousness and Direction in Learning

The rôle of consciousness in learning is a difficult one to understand. Certainly it will be agreed that the unconscious animal cannot learn, yet we may learn without having made a conscious effort in learning. If any of us was shown a

well-known advertising poster we might at once recognize its reference without having attempted to memorize it, or we find our way home from a new place without having tried to learn it. An unusual building, for example, gives us our direction when we come to it, but we could not say so at the beginning of our journey. It used to be thought that the cerebral cortex was necessary for learning, but since it has been demonstrated that simple conditioned reflexes (e.g., to a sound but not to any special note) might be formed in the absence of the cortex, it seems probable that the thalamus will suffice.

The importance of consciousness in learning is that it gives it direction. The subject is more fully discussed in relation to " Mind ", but for the moment it may be said that the facts of knowing or not knowing as the case may be directs our learning into given channels.

The other potent director of learning is undoubtedly stimulation. Some stimulus, sometimes accidental, directs our attention towards a subject in which previously we had no interest. We are taken by a friend to see an art or craft, we hear a lecture, or read a striking article written in a form which we can easily understand and thereafter read articles on the subject which otherwise we might not have done. This book, it is hoped, will give many an interest in Psychology which hitherto they either considered rubbish or too difficult to understand. The nature of the underlying mechanisms can only be surmised, but they are closely related to the phenomenon of attention and the emotional reinforcement of memory, in regard to which some aspects of learning are considered further.

Language

The possession of language has been one of the most important factors in the development of the mental ability, and man's unique capability of learning it alone places him in a sphere above the lower animals and, as pointed out by Wilson and others, this has probably been, more than anything else, responsible for the ascent of man. The lower

animals, it is true, have a crude form of language, and we are familiar with a variety of sounds of which the cry of distress is the most universal and so fundamental that McDougall considered it a separate instinct. It tells others that there is danger and acts as a warning to animals even of a different species. Some sounds threaten like the hiss of a goose, some indicate pleasure as when birds are fed, while there are many sexual calls. The importance of language in any form is that it brings about unity in the herd, and makes it possible for the individual to benefit from the experience of others and to become aware of their wishes and fears.

In a general sense, however, it should be remembered that any form of activity may be used as a language. We can learn much of old ideas, for example, from remains of old arts and crafts, and the policeman who holds up his hand to the traffic as effectively conveys the idea of " stop " as if he shouted the word. The spoken language has a very special significance. (See Campion and Elliot Smith).

The speech of man is unique in that it makes extensive use of symbols which have an agreed meaning. Usually they are sound symbols. We can teach a horse or a dog to understand quite a number of such sounds, but the child of the lowest human being differs essentially from the offspring of the highest ape in that it can learn the very much more elaborate language of spoken speech with great ease. A detailed study of the acquiring of language was made by Head, who showed the transition from words to the formation of phrases and eventually sentences, while beyond that we recognize the genius of those whose eloquence has special appeal. We recognize similar steps if we begin to learn a foreign language, especially by the direct method.

It is evident that in the formation of language the process of conditioning (see Conditioned Reflexes) is very important, a fact probably best recognized by adults again if they begin to study a foreign language. It is, indeed, as if the process of conditioning had joined forces with the instinct of the herd, for the symbols which we use with great facility would have no significance if they had not been agreed upon by the herd to have a certain meaning. We have no evidence that grass

is green, we have simply all agreed that the object referred to is called grass and that the colour is green.

But language does more than allow us to converse freely with our kind, it gives us books and other forms of recording which enables us to know the thoughts and emotions and benefit from the experience of those with whom we are not in immediate contact, or of those who may even be dead. By having these sources from which to learn, man has avoided much waste of time in having to find things out for himself, and in this has gained enormously within comparatively recent history. Unfortunately there are still many in the so-called practical affairs of life who have not benefited from books to the extent to which they might. This is largely because the practical men are often not sufficiently educated to be able to learn from books and are sceptical of what they read, while many of those who write books do not write them so that they can be understood by the practical men.

Finally, and most important of all, language has given us mind, for as Campion and Elliot Smith pointed out, we cannot think without symbols any more than we can play a game without the proper tools.

CHAPTER XII

MIND

THE time has surely come when the term "mind" should have a conventional meaning. It is true that, like consciousness, it can be said to be possessed by the lower animals, but theirs is of such a low order compared with that of man that it may be referred to as mental ability. An animal can, we know, feel, perceive, know, understand and, within limits, reason and will. These mental abilities we can study experimentally. If, indeed, we are meticulous we can even consider that every living cell of the body has a mind of sorts, but this leads us nowhere. Man, however, is unique in having the power of forming concepts. It may be that some of the higher animals can do so but we do not think so, and there is no way of finding out. Mind itself is, indeed, but a convenient concept to describe something we do not really understand. The position of mind in the physical universe is not unlike the ether which transmits wireless waves, or like the early position of electricity. We have become aware of their existence and of the effects which they produce, and we can study their properties although we do not know their exact nature, and we may remember that until comparatively recent times the nature of air was in a somewhat similar position.

The unit of the mind we may then consider to be **the concept** idea, or notion, which is built up largely but by no means entirely through the agency of the nervous system, and especially through the senses. Let us consider our concept of any person we do not know. We may first hear the name of him or it, we may see his picture or hear his voice, gradually our concept tinged by emotion grows and takes shape, and may change very materially in the growing, indeed, seldom ceases to grow because the object to which the concept refers may change too. It is in the formation of the concept that we see the immense value of language symbols by which we can describe our concepts. Such descrip-

tion, we believe, is beyond the power of animals, and must ever restrict their imagery.

By far the most important concept of the mind is that first communicated by Descartes, "*cognito, ergo sum*" (I know, therefore I am), which may be looked upon as the starting-point of all real knowledge. But the concept of the human mind is remarkable in still another way, in that it may be purely mental or abstract and not refer to any material entity. This is especially true of mathematical concepts. In describing them, however, we must still use the language with which we describe physical things. When we attempt to describe the shortest distance between two points we use the term "line", although the mathematical line which we really mean has no breadth or thickness like any line we may draw, while the mathematical point is a purely mental concept. Thus, too, if we wish to give the concept of a brougham to a child it may be best to call it a thing like a motor-car but drawn by horses.

The Place of Mind in Nature

We are now in a position to discuss the place of mind in nature, that is, if we admit that it is in any sense a biological entity, but in assigning a place we cannot hope that all who have considered the subject will agree.

It is probably best to consider that mind, like consciousness, has evolved to its present state by a series of imperceptible stages but which looked at still more broadly appears to be a series of jumps. (See also page 77.)

The lowest forms of life began, we believe, in water and were entirely at the mercy of their environment, but gradually, as physical form evolved, freely swimming fishes appeared which were more independent and which could, for example, go upstream and change their depth. Then at a later stage there evolved amphibious creatures which were still less at the mercy of their environment until eventually there appeared reptiles free of the water and capable of independent life on land, while later still appeared birds capable of free flight in the air. From another branch animals of arboreal habit

emerged, and from these we believe evolved man, more independent than all of his environment, possessed, as we have said, of a remarkable power of learning, of forming mental concepts and of reasoning, so much so that he is capable of changing his immediate environment to a very marked degree. It should be noticed, however, that each stage remains dependent on air and mother earth for its supplies of oxygen and nourishment directly or indirectly. Higher animals depend on lower animals and plants, lower animals on plants only, while plants depend on soil bacteria for nitrogen. So, too, we may consider mind as slowly evolving until in man it has emerged free from the body yet dependent on it in a vast variety of ways. Although free it does not, however, lose its dependence on the brain, without which it cannot be shown to exist. Further, to a large extent it can be shown that there is no hard and fast line between the function of the nervous system and the mind for, as we have seen, reflexes, instinct and mind merge indissolubly into each other and together determine the total reaction of the individual animal to its environment. This function of mind, which is commonly overlooked by those who approach the subject from the more philosophical standpoint, is more likely to be appreciated by the physician whose assistance becomes necessary when a patient " goes out of his mind " and ceases to be adapted to his surroundings and becomes a danger to himself or his fellows.

The more philosophical view of mind has been amply discussed by Broad, and more recently by Ritchie, but however interesting this aspect is it does not appear to be able to contribute materially to the alleviation of human difficulties which is the chief concern of this volume.

This capability of forming concepts makes it possible, too, for us to construct a whole world of concept or make-believe in our imaginations. The subject is discussed further in relation to " Phantasy ".

The power of forming concepts is, however, not given to all equally. Some persons appear to have very good imaginations. In some circumstances, such as air-raids or surgical operations, this is a great disadvantage, but in others it is

an advantage, for men who have good imaginations are less liable to become bored than others. They can derive greater pleasure from books, and when they are alone are less liable to ennui. This difference between the intellectual and the non-intellectual is very marked when both are placed in similar circumstances in the desert. The more imaginative obtains interest from a host of things in which the other sees nothing, and his foresight is infinitely greater.

It is, indeed, possible to consider the mind as composed of concepts which are, in part at least, the results of experience. The study of how these concepts are built up and the various circumstances which affect them has become the special concern of academic psychologists and is in a sense the only Pure Psychology. It does not concern itself with the nature of the concept which affects feeling and behaviour. The latter are the concern of the medical psychology which in a sense may be considered Applied Psychology. We see a similar differentiation in pure and applied mathematics. Both have their place and both have added and may still add to our knowledge of mind.

The psychotherapist, by studying the feelings and behaviour of his patient, his heredity, and his experiences in so far as he can ascertain them, obtains an idea of what has happened to his patient's mind. His patients go to him because of their mental discomfort or inability to perform the normal tasks of life or because their reactions are not approved of by their fellows. The doctor recognizes that these feelings and reactions are profoundly influenced by certain stimuli or experiences he has had and by their instinctive drives acting upon a certain type of personality, and seeks to modify these feelings and reactions so that his patients may return to a state of mental peace and no longer exhibit the reaction of which his fellows complain. The psychotherapist is not unlike the practical man who mends a wireless set without knowing much regarding the higher physics involved in its design.

In concluding, however, we may remark that slowly but surely the concept of mind, like any other, is being shorn of its mystery. Much of what was previously thought to be mind will be agreed to be simple nervous reaction, but a

great central knot remains to be unravelled. It is here that Pure Psychology really begins, and it has already gone far in the study of the properties of mind as physics has elucidated electricity which originally was a much more abstract conception than it now is. This subject is discussed further in relation to the factorial school of Spearman.

Reality and Phantasy

Reality

Reality may be described as the physical world in which we live, the world we become aware of by our senses and the existence of which is generally accepted by others. It is the world we become aware of through our consciousness. It is that which is real and not imaginary. It is the environment in which all animals live and have their being. Without certain given realities such as food, water and oxygen they die and give no evidence of possessing any imperishable entity.

For the most part, most of us have found reality not too unkind to us or we should not be studying psychology at this time, but sooner or later all human beings come up against reality in some form or other. Those who read this book may never have to realize the sterner realities of lack of food and clothes, but there are many to whom the grim reality of war brought such things unexpectedly. We all, however, must sooner or later face death, and meantime we find many things which stand in the way of our desires. The realist politician accepts what is inevitable fact and the limitations of the situation, the dreamer politician ignores the disagreeable facts, such as the crude stuff that men are made of, and aims at ideals or too often merely reaches for the stars. His world is often like the moon, out of reach.

We shall see in a subsequent chapter that the life of man is urged on by many motives, towards several goals, but the world of reality makes many unattainable.

Phantasy

Phantasy is the world of the imagination into which all human beings escape from time to time. It is part of our

ideal world where all goes well for us. It is the land of day-dreams and make-believe where fairies live. Most of us pass through a stage when phantasy plays an important part in our lives. The part a doll may play in a child's life is typical, and the same may be said of many toys and childish games. The broom-stick becomes a horse, the toy train is a real train, and so on. Gradually, however, phantasy is replaced by the appreciation of the world of reality in which for most there are no genii of the lamp or fairies to do all the things we wish, and in which horses and trains require money.

Phantasy is the playground of the mind, but it is also whence come the visions, voices and the hallucinations of the lunatic. In phantasy the wishes which are unfulfilled in reality are satisfied. Ambitions in regard to work, love and prowess are achieved. A Romeo finds his Juliet, and a Juliet a Romeo. A private becomes a general, and a general a Napoleon or an Alexander the Great. A medical student becomes a doctor, and a doctor a President of the Royal College of Physicians or the Royal College of Surgeons, and even they have day-dreams.

Phantasy is not, however, wholly without value. It may provide a goal and even in science it may be largely responsible for a mental concept the proof of which may come later.

Symbols and Identification. In the child's mind, toys become identified with their originals in the outside world. The doll is considered to be a real person capable of feeling. The toes may become identified with the " little pigs " which went to market, and so on.

We must realize that in the world of reality symbols are extensively made use of—the cross, the sword, the dove, the Union Jack, the sickle and hammer, the colour red. The letters of the alphabet, indeed, are symbols of sound, but in hieroglyphics, and in the Chinese language, the symbols used represent subjects rather than sounds. In modern art, such as that of Epstein, symbolism goes still further; an idea may be portrayed rather than an object, but the symbols have not yet become conventionalized, and his art is therefore only appreciated by those who have taken the trouble

to study it. Symbols are extensively used in cartoons and advertisements, and for the portrayal of ideas in writing, especially in poetry.

Extensive symbolism characterizes dream content, and while those accustomed to the analysis of dreams recognize that certain symbols commonly appear, the great diversity of associations of any given individual makes the analysis of dreams very difficult (see Dreams).

In the condition of hysteria, phantasies may also be identified with different parts of the body; the subject imagines that he cannot move a part or that he has lost sensation therein. So far as the patient is concerned the paralysis and the anæsthesia are as truly real as the doll of the child is a living creature.

Art, especially the art of the theatre or cinema, is popular because it allows of easy phantasy which does not require any mental effort. The individual can identify himself in his imagination with the hero and thereby enjoy his fortunes, his passions or his misfortunes in a good cause and thereby live a life which is otherwise denied to him. As we shall see later, even adults enjoy such a world of phantasy as an escape from reality, and provided it is not excessive, it is not necessarily undesirable, as it may bring a mental peace and rest otherwise not obtainable.

Phantasy, as we shall see, also plays an important part in relation to the sex instinct.

In ordinary life the individual who does not allow his phantasy of an ideal world to override his realism commonly gets things done, if at the same time he puts forward his ideas in such a way that they do not run too contrary to the feelings of others. We recall the tact of Mark Antony in accepting the reality of the popularity of Brutus by stating so frequently "and Brutus is an honourable man", yet he eventually incited the crowd against Brutus.

Relationships to Reality

It is not the intention of this volume to enter into the time-honoured discussion as to whether mind or the objec-

tive world of the senses is the ultimate reality, but we must recognize the existence of both. The argument is briefly this. All knowledge depends on the mind; we therefore have no knowledge of the existence of the material world except through the mind. The evidence that any world of reality exists is then fundamentally no better than our knowledge of a phantasy, or even than of what we see in a dream.

On the other hand, in a world of reality we have no evidence that the mind exists apart from the brain. Some describe the brain as the organ of the mind, but others merely consider man's conception of mind as the greatest evidence of his conceit. This statement is true only of the higher animals, for admittedly it may, with some justification, be held that all animals, even those without nervous systems, have a mind. They have at least the will to live. The discussion is unending, and countless volumes have been written on it without any material contribution having been made to practical psychology.

The position is unsatisfactory, but the biologist recognizes quite freely that at least his physical being depends on a material world and that without oxygen supplied to him from his environment his material body dies, and his mind disappears in so far as it can be recognized as such in a material world. The function of the doctor is to assist in the maintenance of his patients in a world of reality, and when they leave it, his function ceases. Moreover, many of the patients whom a doctor may be called upon to treat become patients because of their lack of mental adaptation to the reality of a material world, and it is his function to treat them, to keep them in a world of reality and facilitate their adaptation to it. It is indeed this fact that makes it so desirable that medical students should be acquainted with psychology.

Similarly it is the function of the educationalist to inculcate into the young the adjustments which are acceptable by the herd and which are most likely to bring happiness.

It falls to the lot of the Church to complete this adaptation. It teaches that it may be desirable to " turn the other cheek " or to " render unto Cæsar the things that are Cæsar's ",

and especially how to find health, strength and happiness in a world of reality by appeal to another world, a spiritual world, which can provide all things for those who believe and ask.

It is such facts which make it so desirable that students of Medicine, of the Church and of Education alike should be slightly acquainted with the normal modes of thought and reactions of those they hope to instruct and guide.

In the psychological world the appreciation of reality means facing facts as in other spheres of life. Our ideal world is probably very much better than the one we live in, but we have to face reality and realize that we are dependent on this world, our environment; we can do very little to change it although we may modify the small part in which we are especially concerned. We cannot get rid of what we regard as human failings, such as envy and greed in others, however much we may imagine we have expurgated them from our own thoughts.

Adjustment to Reality. Adjustment to reality is the mental and physical adjustment to environment without which there cannot be normal health and growth. It has been said that a man's sanity is judged by his adjustment to reality and the proportion of reality and phantasy in his make-up. Although let it be said at once it would be a dull, stationary, and uninteresting world if there were no dreamers to see beyond the realities of to-day the possible realities of the future. For many persons, the difficulties presented, and forces concerned, are so great that they are quite unable to adjust themselves, their instincts and their emotions, to reality. It is the existence of such individuals which has brought the subject of Medical Psychology into being. When the reactions of individuals are such that they are a danger to themselves or to others, then they are termed lunatics and are forcibly restrained in institutions at the expense of the community in its own interest, but it is now realized that there are many borderline cases who are insane only in certain respects and only temporarily and who, with proper treatment, may readjust themselves and become again reasonably normal members of society. It is now recognized also that the maximum

benefit can be achieved if treatment is begun as soon as possible, that is before the reactions become fixed in the nervous system. This is particularly true of cases of hysteria which are not classed as insane but in which the emotional reactions, e.g., to fear, are quite out of proportion to the possibilities of reality. For this reason psychologists have become essential in the field force of a modern army.

Adaptation to the world of reality at large is essential if we are to achieve mental peace and content. We can say that "to err is human" and adjust ourselves to the errors of others and do what we can not to err ourselves. We must remember that fundamentally we are animals and that competition is as natural to the simple animal as in higher civilized worlds. We must understand that many men, for many different reasons, think quite differently from ourselves and are justified in doing so.

Science belongs to the world of reality. Its facts can be checked by the senses of many different persons. The things of which it deals belong to a material world, its facts depend on evidence, and the mental processes concerned belong to reason and logic which are essentially objective and emotionless. The only difficulty is that the human beings who toil at science are amongst the most emotional of people, and succeed much less often than they think in seeing their problems in the cold light of reason.

Science may, however, make use temporarily of phantasy in forming a mental concept of an entity whose exact nature is unknown. It made use of phlogiston before air was discovered, and even to-day our conceptions of the ether, electricity and atoms are but convenient terms to convey ideas of an unseen world of whose properties, however, we know much.

Medicine, in so far as it is a science, is coldly unemotional, but the moment it is that and no more it loses its full effectiveness, for without a sense of sympathy and feeling it is impossible to become aware of the difficulties, fears, hopes and full sensations of the patient. How often it has been said that no surgeon can ever realize how to treat a patient who has had a severe abdominal operation until he has had

such an operation himself. It is, for example, quite impossible for him, however much he may try, to appreciate the feeling of utter weakness and helplessness which is known to patients only. It is essentially the function of psychology in medicine to teach the processes of the mind in such a way that the doctor may have some idea of how the patient is viewing the condition of which he is complaining and life as a whole. Perhaps the day will come when, through the study of psychology, the doctor may be able to dissect and analyse the emotions of his patients as easily as he does his symptoms, but how cold the day will be when the warmth of human sympathy and affection lies stark and bare for all the world to behold.

From the more practical point of view it is, however, recognized that the world of phantasy has an important sensory significance. Patients may imagine they " are seeing things ". If they do and we don't, we doubt their sanity, but if they imagine they are feeling things, and this is much more common, we have no such check and may diagnose disease. To be able to differentiate often requires all the resources of Medicine, of which the finding of objective signs in a world of reality is by far the most important.

Religion is at a slight disadvantage in this respect. We are asked to believe in an " unseen world ", and to take the word of those to whom it has been " revealed " and to accept as acts of revelation certain facts in a world of reality. Of these, the progress of evolution probably appeals most to the scientific worker, the document of history as set forth in the Bible being insufficiently related to reality in the opinion of many.

Reasoning and Intelligence

The power of reasoning is the highest attribute of man and more than any other faculty differentiates him from the lower creatures and is a manifestation of intellect. It is not within the scope of this volume to attempt to discuss the exact relation between instinct and intelligence if indeed this were possible. Some, such as Bergson, have stated that they

have no relation to each other, since intelligence depends on consciousness, while animal instincts are independent of consciousness. Others, such as Lloyd Morgan, have emphasized that reason depends on the cortex, and instinct on subcortical areas such as the basal ganglia and hypothalamus. There is a vast literature on the subject much of which, especially that with a philosophical outlook, however, is beside the point in so far as it fails to recognize the wholeness of reaction of the animal. Stout points out that there cannot be any benefiting from experience nor anticipation of the future without intelligence, and as both exist in quite lowly forms, admittedly in diminished degree, intelligence according to the definition must be ascribed to such forms.

Some, such as Myers, consider the separation of instinct and intelligence as a purely artificial abstraction. This may be considered a justifiable position provided it is admitted that there is an appreciable variability in instinctive capability.

Although incomplete it is generally convenient to describe intelligence as the power to reason and to learn, due cognizance being taken of the accuracy and speed of doing both. Thereby some are more adaptable than others to their surroundings.

Many attempts have been made to assess intelligence and to determine on what it depends. There seems to be little doubt that it can be correlated to some extent with the efficiency of the senses which varies very much more amongst different individuals than is generally realized. There is similarly a great variability in motor capability, and the combination of both makes some individuals more capable than others in doing detailed practical work. At the same time there are many very intelligent persons, judged so by their power of reasoning, who have not this capability.

Most will agree that the power of reasoning is partly hereditary and partly acquired. A legal or scientific training is possibly the best method of acquiring this power.

An idea of the intelligence of any individual is obtained by the application of certain tests discussed more fully under "Tests of Ability and Educable Capacity".

Many of the higher mammals display a considerable amount of intelligence, but in most cases the animals have been pets, which have been trained, if not in the actual act performed, to do things of a very similar nature. Generally, however, such cases are sporadic, and it is not till we reach the higher apes that there is any evidence of their being able to put "two and two together" and carry out an act which from the beginning requires anything which can be said to be reason. There is an increased capacity for imitating and retaining memories of situations. This is seen in the power of remembering the position of buried food. (See Bastian and Fox.)

It is true that in many cases the problem has been of a very simple nature, but we must remark that there are very many human beings who are capable of little more and whose responses may be considered as much as the result of instinct as of intelligence, for as we have said, the satisfaction of the primary instincts is ever the master motive of the life of the average human beings. It is easy then to understand why they so readily become victims of propaganda of different kinds which appears to relieve them of the need for reasoning and appeals to their instincts or emotions. In war-time we have seen persons who were apparently quite intelligent in their own rut or limited sphere of activity shown to be well below the average intelligence when an urgent adaptation to new conditions became necessary.

The Solution of Problems

Theoretically the purest type of reasoning is to be found in pure mathematics, for this subject is quite independent of the senses and deals solely with abstract mental concepts. Even in that subject one mathematician may take a certain pleasure in proving that another's "proof" is wrong! The majority of problems, however, have a basis in a material world of that reality which is appreciated by the senses and therefore are liable to be affected by feelings and emotions. Moreover, solutions of such problems are commonly not accepted until they are checked by the sense-experience of others when this is possible.

A problem may be solved to the satisfaction of the individual, emotionally or unemotionally, or it may be escaped. The emotional solution is commonly dangerous and often wrong, but it is sometimes right. It is said to be specially developed in, and used, by women who tend to resort to intuition rather than to true reason. This so-called thinking is not, however, confined to women. (See Rationalization.)

Most persons are given to emotional or wishful thinking. If they try to give a reason it becomes evident that they are really rationalizing and refusing to believe what is fundamentally disagreeable. How often this is seen in expressions of opinion regarding the War. We have all had the experience of liking or disliking persons when we first meet them without having any real reason for doing so, or of having a "hunch" that this or that is right. Engineers have an adage that "what is right looks right". I am indebted to M. Alekine, the world's chess champion, for the observation that even first-class players admit that some play largely by intuition for they play some brilliant games which could not have been worked out and analysed in advance. The art of medicine claims to owe much to such intuition, but this is based partly on knowledge of the psychology of the patient and partly on experience of disease. It is in the last resort analysable, but like intuition in chess the analysis is very difficult and would take too long to make it worth while.

The good doctor knows that the patient is actually suffering, is ill, or is worrying before he examines him and may even arrive at a provisional diagnosis, on insufficient scientific evidence, but the more accurate knowledge he has, the more accurate he will be. At the same time there can be no doubt that what for want of a better term is called "clinical sense" is strikingly deficient in some very scientific doctors who may fail to cure a patient because of their lack of human understanding and capability of taking in his complete circumstances and the fundamental cause of his complaint and its effect on the personality of the individual concerned.

Science aims at objective unemotional thinking as in

chemistry or physics, but it is not always easy to put out of one's head the idea that such and such is true. It is difficult to consider the facts that do not fit into the theory which caused us to do the experiment, but that is part of the training of the scientist and of the lawyer. Jealousy, envy and competition are all emotions based on security and power instincts which have to be countered, but it is part of the business of the scientist to put these things out of his head and not allow them to influence his judgment. We all cherish the idea that we are logical and strictly fair, but too often we rationalize and persuade ourselves that we are doing the right thing when really we are not. The dangerous people of the world are those who refuse to consider the possibility that they may be sometimes wrong.

The reasoning of science is ideally so cold that it becomes as mechanical as a conditioned reflex and to safeguard its conclusions checks its results by the sense experience of experiments of a wide variety of persons. When having proved this or that and there is no escape from the conclusion, we say that we are "forced" by the evidence to believe that a certain thesis is true and we give the reasons. We see, too, quite often that individuals who have been trained in a certain way "naturally" take up a certain line of approach to any problem as truly as if their responses were conditioned. The training and experience of different persons is, however, never identical, especially in a biological subject such as psychology, and hence there may arise considerable arguments. In the more exact sciences such as physics and chemistry, argument becomes less possible as more of the facts are obtained under conditions which are as far as possible accurately known and controlled. The chief difficulty really is that they are known to such a fallible and uncontrollable entity as the human mind, which in this connection may be profoundly affected by the power urge which may cause a discovery to be claimed in advance of complete evidence.

The history of science gives many examples of men, in their own time deemed great, who for some reason failed to appreciate the value of new discoveries although this has

been obvious to many meaner intellects. There are many instances of learned societies with famous editors refusing to accept for publication papers of now recognized worth, although more often the research worker has thought too much of his own work. We will refer later (p. 156) to some of these in relation to Rationalization, and unfortunately science is as full of individuals " with an axe to grind " as any other walk of life, although they may be quite unconscious of it. The poet Burns summed the matter up in his words—

> Oh wad some po'or the giftie gie us
> To see oorsels as ithers see us.

Escaping the Problem. Too often there is no attempt to solve the problem, especially when it is difficult. We say in regard to minor problems sometimes consciously " I give it up ", but the same thing occurs in regard to large issues, we just don't do anything about it, dismiss it from our minds and do something else instead. We leave the difficult letter unanswered. When we cannot make up our minds exactly what to say, when we cannot decide exactly what is the best thing to buy, we put off making any attempt to say or buy anything at all just as we postpone the difficult interview or visit.

It was this escape mentality which prevented not only the nation but also communities and even individuals from preparing adequately for war. They solved their problem by repressing the disagreeable thought and supported their argument by rationalization.

Crowd Psychology

The behaviour of a crowd is quite different from a collection of individuals. In the animal world we see the fact that many birds may attack a cat although one would not dare. Persons may act quite differently from their normal and may, as is said, be carried away. The chief characteristics of crowd psychology are common aims and interests, exaltation of emotion and loss or reduction of responsibility.

It is only when there is a common interest or emotion that a number of people become a crowd or an audience. Then there is an enthusiasm which becomes infective, the crowds cheer what is admired. " Even the ranks of Tuscany could scarce forbear to cheer " the courage of Horatius. It is probably this exaltation of emotion which makes a crowd attractive to some persons. In a crowd, and when there is common emotion, strangers become friendly, barriers are broken down. This is true when there is common danger. The friendliness of air-raid shelters became proverbial. If there is anger, fear may be in abeyance. A crowd may do quite irresponsible things such as wrecking property and ill-treating individuals quite irrationally and unjustifiably. Sometimes a crowd becomes quite panic-stricken and fear gets the upper hand as in a theatre fire. Cruelty and unfairness are common in mob law.

In all cases there is an associated inability to take in the whole situation. The crowd sinks to the lowest common intelligence of the individuals who compose it and is like the hen which tries to get through a small hole.

The psychology of the crowd is seen in public or committee administration. The object to be supported may become the cause of an exalted emotion and many other relevant matters may be forgotten. A man on a finance committee may do things which he would never contemplate in a private capacity. The borough council, although composed of ratepayers, notoriously forgets the ratepayer. Often it would seem as if the instinct of the herd and the power urge became superimposed and while the particular part of the herd is in power it does the best for itself.

Oratory is essentially an appeal to the emotions of the crowd but not necessarily to its reason. The good debater appeals to both emotion and reason.

Crowd psychology is, however, not always harmful. It may acclaim the hero or public benefactor and its enthusiasms may not be without benefit to the community.

In war-time we see crowd psychology to advantage, in the excitement of " going over the top " or a bayonet charge in which individual fear disappears and may be replaced by

various savage emotions in which there is a glorification of killing in which a so-called civilized man counts his victims as a Red Indian might count his scalps. The subject of the "Group Mind" is discussed by McDougall.

CHAPTER XIII

SLEEP AND DREAMS

Sleep

THE inclusion of a consideration of sleep in a volume on Psychology is perhaps unusual, but the evidence is increasing that it is essentially a psychological state closely related to others of recognized psychological interest.

The evidence is very complete that during sleep there is a reduction of sympathetic activity and that sleep is the exact opposite of attention. There is a slowing of the heart, dilatation of the vessels of the skin and constriction of the pupil, all of which states occur when sleep is produced experimentally.

Sleep may be produced experimentally by applying an electric current or the drug ergotoxine to the mid-brain, a fact which suggests that this part of the brain has a special function in this connection.

Sleep occurs also as a conditioned inhibition. Thus if a dog has learnt that it will get no food for a time after a certain stimulus, e.g., on being shown a certain object, it commonly falls asleep if the object is shown. It seems probable that by a process of conditioning the sympathetic part of the nervous system is thrown out of action.

Sleep is also produced by narcotics such as chloral hydrate, and such sleep is quite restful and refreshing. Unfortunately patients are very liable to get into the habit of taking drugs which make them sleep, especially if the sleep is accompanied by pleasant dreams as in the case of opium and hashish. The desire for such sleep is, of course, just an escape from an unfriendly world. There is little doubt that in painful states the alleviation of pain by morphia makes sleep possible. We do not, however, know the exact difference between the various kinds of sleep and unconsciousness.

How far hypnotic sleep is related to normal sleep is difficult to decide. On the whole, the evidence is that it is not

unless it is accompanied by actual sleep at the same time.

Sleep is important in psychology in that it is commonly very incomplete and such disturbed sleep is not so refreshing as deep sleep. It can be shown, too, that even apart from dreams all cerebral activity does not necessarily cease during sleep.

Unconscious Mental Activity

The evidence is very complete that during various forms of unconsciousness, such as sleep, hypnosis, delirium, and partial anæsthesia, the brain is not wholly quiescent. It would seem that ordinarily unconsciousness occurs when a sufficient number of the neurones normally in touch with the external environment pass out of action, but this does not necessarily mean that all are out of action. Thus a subject who sleep-walks must have a considerable amount of his brain in use. The partial activity of the brain in hypnosis has already been referred to.

Dreams

Dreams have a special interest to all psychologists as they indicate an activity of the brain which is outside the domain of ordinary consciousness. The dream may be defined as an awareness of streams of impulses which do not reach that consciousness which is in relation to the external environment.

The exact nature of a dream is unknown, but it may be suggested that it is dependent on a localized activity of certain regions of the brain, especially of chains of neurones.

The psychoanalytic view of dreams is that they represent essentially the wishes and fears of the unconscious which in the ordinary way are not allowed to enter consciousness. The dreams are essentially wish-fulfilment. The behaviourist would believe that dreams are the result of stimuli which arise at the periphery. The two views are not, however, so incompatible as at first appears. It is convenient in the first instance, as in the case of forgetting, to consider that there are what might be described as memory dreams and those which might be described as emotional dreams, while there are dreams in which the two types may overlap.

Memory Dreams

These dreams are a simple continuation of the activity of the day. After a voyage or a long day's motoring our dreams may be those involving the sensation of motoring or sailing. These may be repeated on several nights immediately following. Or the dream may consist of an experience obviously dictated by a story in a book we have been reading shortly before going to sleep. Often the details of various items get mixed up although their origin remains recognizable. On a purely psychological basis it is easy to believe that certain ideas, or experiences, have set certain chains of neurones in action and that the impulses, being self-propagating, have not subsided by the time sleep occurs, although those groups of cells in more immediate contact with the external environment have done so. It may be that we are only partially asleep. After a lapse of years the author recommenced to play badminton and that night dreamt most vividly of the last occasion when he played that game in a hut in the Sinai Desert. In such circumstances it is easy to imagine that the peripheral impulses set up others along pathways which had years before been in use together. In general it can be said that dreams are commonly of subjects of recent occurrence in the life of the dreamer.

An interesting series of dreams were described by a physiologist in a German prisoners of war camp in 1917. When at first food was scarce, conversation and dreams were commonly about food. Sex was conspicuously absent. When, however, parcels from England began to arrive and the security instincts were reasonably assured, sex stories and sex dreams became a feature of life. Similar experiences have been described by various persons after imprisonment.

The effect of air-raid sirens has been very interesting and has demonstrated the "memory" factor in determining the content of a dream produced by the same stimulus in different persons.

In one it caused a dream of bees in flight, in another it was first interpreted as a warning against skating on dangerous ice preceded by a dream of curling in which the sound of a curling stone on ice awakened a train of "unconscious

memories"; in another it caused a sensation of hunger, it would seem because, for many years, the dreamer dined in a room in which the sound of trams and of cars changing gear was usual.[1] The significance of such dreams is commonly recognized by those who make no pretensions to psychological knowledge. Somewhat similar dreams occur apparently from time to time in pet dogs which may be observed to exhibit many of the signs of the chase, such as barking or the making of running movements.

The Emotional Dream is also quite a distinct entity. It has a similar nature to the day-dream. Freud has pointed out that dreams represent the primitive wishes and fears of the unconscious mind uncensored by social or spiritual restraints of consciousness. Thus to dream of death is to wish harm or to fear the death of the individual concerned. The dream of a child that he has unlimited choice in a fruit or sweet shop is an obvious wish dream. In so far as a dream may refer to a desire which becomes a goal in real life which may be attained, dreams may come true.

It is in this field that the work of Freud has its most universal acceptance, but it is unfortunate that he apparently refused to recognize the existence of the simpler memory dreams and that he gave a sexual interpretation to so many of the symbols of which the dreams are composed. Undoubtedly, too, he exaggerated the importance of infantile ife and neglected recent events.

There can be little doubt that most normal individuals have from time to time wishes and fears which they have never voiced, wishes and fears of which they may be ashamed as they conflict too fiercely with the social and ethical codes to which their friends and even they subscribe. Such thoughts flit through the mind during moments of solitary leisure but are not usually allowed into consciousness. They concern those we love and those we hate, thoughts of ambition and thoughts of failure. They may result from past fears.

Battle dreams are largely of this nature. The man may live again through the terrors and tortures of the battle-field with all its terrors and horrors and the conflicting emotions

[1] Several have dreamt they were on board ship.

of the sense of duty and of self-preservation, many so horrible that he dare not think of them during consciousness. They are indeed forgotten in the interest of the happiness of the individual. He prefers not to think of them. When they are brought to consciousness of the patient by the psychoanalyst they usually give rise to severe emotional outbursts.

It has become recognized that in neurotic subjects the dreams which are commonly repeated are those which have a strong emotional basis and in patients such dreams may give a clue to the cause of the symptoms from which a patient may be suffering. Many psychologists now believe, however, that often the content of a dream is like day-dreaming, so fortuitous that unless it is an oft-repeated dream any attempt at analysis may be misleading.

The Mixed Dream

Here we have a simple mixture of the memory and the emotional dream. The dream may have the setting of a recent experience. We find ourselves sailing or motoring with someone in regard to whom there is some emotional bias, or someone we hate becomes the villain in the story we have just been reading.

Dream Symbolism

As we have said, many dreams are readily understood and analysable, but many are not so simple, and we owe it to Freud that it has become recognized that a dream may have a " latent content " different from what appears in the manifest dream. The object dreamt of may have only some of the qualities of the object it represents. Thus as in a case, two red-hot pokers may represent spurting blood from the body of a man decapitated by a shell (Ross). What is dreamt of may be considered a symbol of something much more significant in the life of the individual.

A man may dream of being shut up in a room with closing walls which is really an obscure memory of his being terrified by being shut in a cupboard when a child.

Freudians would have us believe that the majority of the symbols dreamt of have a sexual significance. Thus a pistol

or a round hollow object with a hole in the end represents a penis, when it may as readily be a gun. At the same time it will be admitted there is a great similarity in symbolism and those accustomed to the analysis of dreams become very adroit in appreciating the full significance of the symbols which are determined by the " latent content " of the dream.

What is called the symbol is due to the incomplete appreciation of all the qualities of the object dreamt of as we might attempt to appreciate the significance of any object in the semi-darkness.

By studying the mental associations of the individual around the qualities of the object dreamt of it is often possible to obtain an insight into the significance of the symbol for the individual, while the distortions of the object may similarly be shown to have a meaning. According to Freud the distortion is the result of the censorship. The dream has been aptly compared to the cartoon, and this is especially true of the composite cartoon in which two individuals may be shown as one, or the picture with a theme such as a public man portrayed as Jack the Giant-killer. The significance of the cartoon may not, however, be understood if we do not know the circumstances to which it refers. Thus the idea to be conveyed regarding a cabinet minister may depend on the political colour of the paper in which it appears.

Sometimes the dream shows what is known as a " regression " to an earlier experience. Thus a patient may, after a period of stress, dream of being frightened by an animal which in fact frightened him years before. Rivers quotes an instance of a patient who after an aeroplane accident dreamt of a Chinaman who had appeared in similar circumstances in childhood. The original appearance of the Chinaman was, however, not accounted for.

A good description of symbolism is given by Ernest Jones in his book on Psychoanalysis, where such subjects are dealt with in greater detail.

The Biological Function of the Dream

There has been considerable discussion as to whether the dream may not have some biological significance. Freud,

as we have seen, considered the dream to be essentially a wish-fulfilment. Rivers, however, considered that dreams are attempts to solve, during sleep, conflicts which are disturbing to the waking life. He also suggests that at least some of the dream prepares the animal for activity appropriate to the stimulus. This is suggested by the study of sleeping animals, e.g., dogs, which commonly react with aggressive movements such as growling or barking, and it has been found that a sleeper may react differently to different kinds of stimuli.

Several psychologists have suggested that the dreams protect sleep in that in spite of the stimuli or conflict the subject does not awake. This, however, can only be partly true, for the typical nightmare which is associated with intense sympathetic activity, indicated by the rapid heart, cold sweat and pallor, is incompatible with sleep and causes the subject to awake at some critical moment. This is what would be expected if we assume the current view that sleep is normally associated with, if not actually the result of, diminished sympathetic activity.

In the present state of our knowledge it is probably best to look upon the dream as akin to consciousness and free association, the content of the dream being largely haphazard and depending on a vast number of associations. Often, indeed, it closely resembles a chain of free associations as described on page 80.

Other Unconscious Mental Activities

Sleep-walking must be considered to be a motor phenomenon analogous to a dream. A large number of the motor centres must be active and a limited number of sensory paths, but it would seem that many of the association paths are out of action.

Unconscious talking is a similar phenomenon and occurs commonly during the induction of anæsthesia, delirium and cerebral injury as well as in sleep. Some very interesting reactions occur which have, however, been insufficiently studied in relation to Psychology. I have known an instance of a lady who lost her normal speech and lapsed into broad

Scots after cerebral hæmorrhage, and of a widow who wept copiously during anæsthesia for teeth extraction when she had a " dream " of her late husband, who had been with her when she previously had this operation. The bad language used by patients during the induction of anæsthesia is often most revealing and indicates that there has been a considerable release of lower centres !

Unconscious thinking, etc. There is some evidence that thinking may continue during normal sleep. It is quite common for chess and mathematical problems to be apparently solved during sleep.

The sense of time is often retained to a remarkable extent during sleep. Some claim to be able to wake themselves at any stated time.

It is well recognized too, that individuals will awake more readily to some stimuli than others. A mother will often awake at a call of a baby which does not waken others, or a man tending a machine may fall asleep but is awakened the moment it stops. It would seem as if during sleep the brain could develop a certain set towards certain stimuli.

Dreams have been made a subject of study by Freud, Rivers, Ellis, Abrahams, Watt and many others.

CHAPTER XIV

SUGGESTION AND HYPNOSIS

We are all so familiar with the term "suggestion" that it would seem in the first instance at least unnecessary to attempt to consider it in any special or technical sense.

In the training of animals there are many movements and words which act as the stimuli of conditioned reflexes, but it would be merely a change of terms to call them suggestions. Certain movements, such as preparation for going out, suggest to the pet dog that it is about to be taken for a walk, which it indicates by its obvious pleasure.

In its higher form in man, suggestion means the setting in motion of a train of ideas or associations. The suggestion may be direct as in the proposal to do something, but it may be indirect or veiled and depend on the innuendo involved as in the funny story. Those who have not the corresponding or similar association do not "see the point" of the story.

In the same way scientific evidence may suggest certain conclusions to one person but quite different ones to another.

Suggestion, however, may not only set up an existing train of association, as it may do in ordinary word association already referred to, it may also initiate a new train of thought or as we say "put the idea into our head" and this even although the idea may not at first be pleasant. It is in this sense that it is not only of interest in medicine and law, but is a fundamental process in all education. From the time they are born, man and many animals depend very much on instruction. We see birds obviously being instructed to fly by their parents, and in our zoos we commonly observe young bears being taught to walk along the branch of a tree. We know, too, that animals are more readily trained for special tasks if associated with experienced animals in the training. This is common practice in the training of sheepdogs and horses for various purposes.

As has already been remarked in relation to the herd instinct, imitation ensures safety or satisfaction of the security instincts. Every child in its early days has thousands of suggestions, which it learns are in its best (i.e., security) interests, made to it at first by the parents and nurses and subsequently by the teachers at school. Instruction is subsequently necessary in order not only to obtain security of food and protection but even to facilitate enjoyment, for many activities are so artificial that they need to be learnt, especially those which sublimate the primary instincts. We must learn the rules of the game, of the road, of the state, of etiquette, as well as the rules of the occupation by which a living may be acquired. In each case we take advantage of the tradition into which we chance to be born and of the experience of those who have preceded us and often we find to our chagrin that many of the old rules, which were irksome at first, are really the best that can be evolved. In no sphere is this fact better seen than in the ordinary rules of society or in the medical curriculum in which most medical students see many desirable improvements without always seeing their disadvantages.

We are then soaked, as it were, in an environment of suggestion, and when the speaker " ventures to suggest ", he does so in the hope that the suggestion may influence the opinion of his hearers, although a dogmatic statement might not. In the nature of things we tend " to listen " to, and at first to believe those, who, we think, know: our parents, our teachers in turn and subsequently those who we think have specialized knowledge, or more opportunity for acquiring knowledge than ourselves. In the latter categories come those concerned with therapeutics, doctors and others, for we know that they could not have passed their examination, or have so obviously succeeded in their profession unless they knew. Sometimes in addition they have purposely acquired an " air " which is suggestive of knowledge but which may be quite spurious. It may be reinforced by many appearances of professional success which suggest to the patient that other patients have thought good of the doctor (or quack) concerned. Some merely look learned, or talk in a fashion

which suggests it, even although nobody could ever be so wise as they sometimes look. It may even be suggested, with some truth, that the verbiage of some psychologists is part of the play to suggest an inner knowledge of the admittedly difficult and abstruse problems of the mind. All cults, indeed, do notoriously acquire a special terminology, and science, too, abounds with facts and objects which are described differently in different branches of science. Thus the "transformer" of the physicist is the "induction coil" of the physiologist and goes by many other names in the hands of electro-therapists. Thus, too, we find expensive "electrical ray" apparatus, which suggests that it gives out something of much more value than the rays of an ordinary fire.

In virtue of our power urge we tend to believe what is suggested is put forward in such a way that it does not conflict too violently with our existing knowledge. Various phrases may be included to appease or reduce the possibility of conflict as did Mark Antony when he said "and Brutus is an honourable man", although at the same time he undermined his reputation. The writer of a detective story may deliberately draw a "red herring" to suggest a wrong solution.

There are those who habitually resent suggestions made by others, but if the suggestion is not made too obviously, at a suitable moment and with care not to "touch up" antagonistic susceptibilities, they may subsequently adopt the suggestion as their own idea.

In medicine an important aspect of suggestion is that regarding sensation.

In the chapter "The Effect of Mind on Body" it is seen that the significance of every sensation depends on the "psychological set" and direction of the attention at the time it is experienced.

The variation in the response to the pin-prick of an ordinary hypodermic injection is quite remarkable. Actually it is much less than a sting of a gnat and if given skilfully and without attention being drawn to it, it is practically painless. The surgeon is quite familiar with the value of exhortation

to the patient, that this or that will not hurt, or will hurt very slightly. The value of the action of a mother in kissing a child's injury "to make it better" depends entirely on suggestion, and it is remarkably successful. But such suggestion is not confined to children. Every practising doctor knows full well that in many cases the success of his treatment depends on suggestion, indeed, the profession uses the term "placebo" to refer to a treatment which does nothing but suggest a cure to the patient's mind while Nature does the rest. Such treatment must, however, be associated with an accurate diagnosis and faith in the doctor. Most doctors and certainly most patients prefer advice to be accompanied by a "placebo" of some kind, for the absence of treatment, especially the absence of "something to take", is somewhat naturally considered by most patients as a slight slur on their mentality. It is a strange sidelight on human psychology that few doctors could retain a successful practice if they told all their patients that their aches and pains were of no importance each time they thought so.

On the other hand, when the doctor says "Now you're not to worry, you'll soon be better," the peace of mind thereby instilled by the suggestion is a valuable adjunct to recovery.

Encouragement also depends on a mixture of suggestion and reason. How often we have to say to sick people, "Buck up, keep your chin up, you'll soon be well," and a host of other things which "do the patient good". Our language is rich in proverbs and sayings which give encouragement. The Beatitudes of the Sermon on the Mount are little else, and so too are parts of many popular songs, such as "Keep right on to the end of the road", "When Johnny comes marching home again".

Those who have taken a special interest in this subject have been particularly impressed by the fact that it may be possible to get an individual to accept an idea by suggestion rather than by discussion or argument. Suggestion may indeed be defined as the subconscious realization of an idea (Badouin) or as an appeal to the subconscious. These definitions carry with them the suggestion that somehow

the subconscious may, in certain circumstances, be more successfully approached than the intellect. It would seem, however, that this consideration throws undue emphasis on the effect of the subconscious on bodily activity such as may occur in the hysterias or in hypnosis, while in fact it will be generally admitted that suggestion is not without effect on higher intellectual activity and may influence *auto-suggestion*. Sometimes it is found that if the patient can be induced by some means or other to suggest to himself an idea he may subsequently believe it. This idea was the basis of Couéism in which the patient was taught to say, " Day by day and in every way I am getting better and better ". On the other hand, auto-suggestion is often the basis of many nervous complaints. Few people can discuss lice, for example, without a slight suggestion of skin irritation and scratching, and the medical student is notoriously liable to misinterpret minor symptoms in himself as those of more serious disease, and as he meets one new case after another imagines that he has all diseases until they become a mental blur and he realizes that that is impossible.

Quite apart from medicine, auto-suggestion is quite apparent in those who humbug themselves into believing that their particular work is the most important in the world. Such auto-suggestion appears to satisfy their power urge in a most remarkable way, till—as the cynic has said—a man of whom the world thinks anything at all must think twice as much of himself as anyone else.

Throughout the ages medicine has abounded with treatments for which their originators make most extravagant claims often quite unconsciously. The medical student rapidly discovers how each of his teachers over-emphasizes the importance of his own subject, and that specialists may differ in a very marked degree in regard to diagnosis. This, however, is not necessarily a disadvantage to the student but may actually be beneficial, in that by the time he graduates he has commonly come to the conclusion that he is as capable of diagnosing as correctly as anyone else ! In science this is very often seen, and by the serious mien and earnestness with which men describe their discoveries it is obvious that

they believe it. Often indeed it is this very auto-suggestion which drives them on to further work.

Mottoes combine both suggestion and auto-suggestion and most people use them consciously or subconsciously and so too do many songs which embody them.

The state of **hypnosis** was first brought to prominence by Mesmer, but the term is that of Braid. In the absence of any good explanation of the phenomenon it may be said that it is a state of extreme suggestibility and dissociation of personality produced by one individual in another. Commonly it is induced by asking the subject to gaze intently on an object such as a ring or mirror held slightly above the normal plane of vision. After a period it is suggested that the eyes are feeling heavy and that the subject is feeling sleepy. Eventually the subject passes into a hypnotic state. In this state the subject is not really asleep but is capable of appreciating sensory stimuli and is extremely suggestible. It may, for example, be suggested to him that usually painful proceedings are free from pain, or that certain objects cause certain sensations. The subject is capable of voluntary movement and will do what he is told in an almost automatic way provided he is not asked to do something which is grossly against his moral code. In his hypnotic state he cannot change his attention from one subject to another and when deeply hypnotized the subject is quite oblivious to anything except the words of the operator. In lighter varieties he may hear what is said by those around him.

It has been stated that only those who have great powers of concentration are easily hypnotized, but Brown, from a large experience, states that " hypnotizability is a pathological characteristic and not a normal characteristic ", although admittedly many persons apparently normal can be hypnotized if they wish to be. Cases of hysteria are, however, specially easily hypnotized. Repeated hypnotization, however, tends to make individuals less and less able to look after themselves.

There is no evidence that the hypnotic state bears any relation to true sleep although during the state the patient may become sleepy. On the contrary he is often quite alert

and is really in a state comparable with that of a somnambulist. Nor is there the diminution in brain volume which occurs in true sleep when studied in those with trephine openings in the skull.

Dreams may be produced during hypnosis (Klein).

Since hypnotism was first introduced by Mesmer about the middle of the 18th century, various claims have been made regarding its therapeutic value, but few have met with more success than Mesmer himself. It is a method by which it is sometimes possible to gain information regarding the unconscious levels of the mind. It has, however, been possible under its influence to suggest the absence of pain, and surgical operations of considerable magnitude have been performed under its influence. Its unreliability has, however, prevented its more generalized adoption for this purpose.

Allied to hypnosis in the study of the neuroses is depression of the conscious state by the use of narcotics such as pentothal sodium.

The nature of the hypnotic state is not understood, but several conjectures have been made. It would seem most likely that during hypnosis there is an inhibition of certain parts of the cerebral cortex while other parts remain normal. Whether or not consciousness is retained probably depends on the amount of cortex affected. According to Pavlov the inhibited area tends to be associated with any area of intense excitation and those easily hypnotized have brains which tend to focus intensely. Pavlov held that hypnotic sleep was simply partial or localized sleep akin to cataleptic states which can be produced in animals when faced with circumstances which they cannot overcome, such as being held in a fixed posture for a time. It will be realized that according to these views hysteria and suggestion are much akin, indeed, many hold that hysteria is simply the result of autosuggestion reinforced possibly by some external circumstance.

Detailed works on Hypnosis are by Bramwell, on Suggestion by Baudouin.

CHAPTER XV

FRUSTRATION AND CONFLICT

CONFLICT and frustration are common experiences in a civilized world. They occur when any particular emotion would cause us to respond in a certain way but for some reason the natural response is not possible. By far the commonest conflict is that in which there is incompatibility between the instinct of the herd or the rules of society and the other instincts. There are few of us who at one time or other have not felt the desire to do some of the things which are "not done". Sometimes individuals are physically or mentally incapable of carrying out their emotional desire and see no way of ever being able to do so. A man finds himself incapable of being the success in a particular sphere of life which he has chosen, a woman finds that she cannot have children. In many cases the sense of frustration may be accentuated by the attending circumstances such as the taunts of friends and relations and the sight of her neighbour's children.

Nor is such conflict confined to individuals. Communities may, for example, retain their enmities against a neighbour long after the cause of the enmity has been righted.

Patients consult a doctor in various stages of their conflicts. They may come to him because of illness which is really due to a dysfunction of organs which has been initiated from psychological causes but may have resulted in pathological changes, and here it may be said that the success of a practitioner depends very largely on his appreciation of the conflicts of his patients and his capability of assisting resolution. The patients may also come, or be brought, to him when the illness is entirely mental and not associated with pathological change or dysfunction other than that of the nervous system. In the past this condition has been described as "functional" but it must be realized that from the

patient's point of view, it is real illness which may lead to permanent disability if not to a lunatic asylum.

The conflicts themselves may not be direct but may involve associations. Thus a motorist who has fallen foul of a certain policeman may dislike policemen in general, while there are certain magistrates and policemen who appear to dislike motorists in general. A Cambridge man frustrated by an Oxford man may hate all Oxford men. The reverse, however, may occur! An Englishman who chances to have a good German friend may refuse to believe ill of any German. These association phenomena are sometimes called *displacements*.

Where an exaggerated instinct of self-preservation conflicts with the herd instinct of patriotism, the individual may become not only a conscientious objector, but an ardent pacifist and internationalist.

Conflicts occur between nations, groups of persons such as political parties, individuals and also between emotions. Hitherto it has been common to consider only the psychology of the individual but it must be realized that the same principles apply to all categories between whom conflict may occur, and all utilize the same mental mechanisms, although in some cases modified—especially by the effects of individuals upon each other.

Similar conflicts are seen between animals and between man and animals. An animal, such as a dog or a horse, may know and submit to its master but may not submit to another who attempts to direct its conduct. It would seem that the study of animals in association with man has not been brought sufficiently into formal psychology, although in relation to certain phenomena we sometimes refer to "the brute in man". As we shall see, the response to the conflicts shows very similar reactions.

Any conflict, whether it is between nations, individuals or emotions, must have certain results. One side may win and the other be beaten, or the fight may continue indefinitely. The same is true of all the plant and animal worlds in their conflict with nature. Nature may win and the plant or animal die, the conflict may continue and the plant or animal continue a stunted or warped existence, or the plant or

animal may adapt itself to its environment and flourish. These principles determine the normal distribution of plants and animals on the world surface and become apparent if plants or animals are moved to a new environment. The animal differs, however, from the plant in that it may be able to escape to another environment where conditions of life are more agreeable.

The mental conflicts of man result in similar reactions; there may be submission, it may be with compromise, the conflict may continue and upset the life of the individual, or there may be escape.

It is important that we should not forget the essential biological significance of the reactions. Each reaction represents a definite response of the organism to his environment. In the animal and plant world we observe the plant or animal struggling to achieve health and strength, and the latter happiness in addition.

It is possible to study simple instances of conflict in the "breaking" of a horse to harness or the training of a dog. There is at first intense conflict. The horse kicks and the dog is disobedient, but eventually they both learn that it is to their advantage to acquiesce, until eventually they appear to be quite happy in their acquiescence. Some submit much more readily than others, some only to certain masters but not to others, others are always difficult and are always likely "to kick over the traces". It is important to observe that submission is an inherited quality and the inheritance of difficult traits is well recognized.

We have similar differences between nations and between individuals. In some persons the conflicts resolve rapidly and easily. There are the stable, adaptable normal persons who form the bulk of society. When they submit too obviously we call them "yes men". In others, however, the conflict is longer and fiercer. They are the worriers, "the grousers", the rebels, who are in an almost constant state of resolving conflicts of one kind or another. Some of their conflicts indeed may belong almost to a world of phantasy rather than to one of reality.

Experimental Conflict

The agitated mental state which occurs during conflict may be seen experimentally.

This is well seen in relation to the conditioned reflexes. Pavlov taught a dog that it would receive food when it was shown a circle, but no food when it was shown a flat oval. When it was shown an intermediate oval the animal passed into a state of obvious mental distress similar to that found in human beings during periods of indecision.

In the nervous system there may be a conflict between two opposing reflexes. If a dog's back is scratched in the saddle area it will scratch itself with its hind leg in this region, but if another more potent stimulus is applied to another area it takes precedence and the scratch reflex is inhibited. Sherrington has shown that always the reflex which is of most importance for the survival of the animal gets precedence in the use of nerve-paths.

Types of Mental Reaction in Conflict

As has been indicated above, the types of response may be classified biologically in accordance with the laws of logic and of nature. Commonly the mental mechanisms have not, however, been arranged in their biological perspective. In all conflicts there are three possible results:

1. Submission.
2. Escape.
3. Continuance of the conflict.

These are discussed in subsequent chapters.

Of these it is evident that submission by one side or the other of the conflicting elements is the most satisfactory resolution. Escape may be partially so. Sometimes in the case of conflicting instincts some continuance of the conflict is inevitable.

In considering this subject it will be realized that every normal person has his conflicts which he solves in his own way. The more emotional, excitable or unstable persons amongst us give exaggerated responses, but these merge insensibly with the pathological and irrational. It is now

well recognized that there are many "on the fringe" of normality who, with adequate advice and treatment, may never require restraint in an asylum.

It is possible to interpret the solutions of conflicts in different ways, but the difference is largely a matter of words. Freud, for example, looks upon these responses as essentially attempts at wish-fulfilment; a man who commits suicide escapes from the unhappiness of reality of life, but at the same time fulfils his wish to be at peace and in the company possibly of those already departed. Such a view tends to become fatuous in that it makes it impossible for anyone to escape unless he knows where he is going. It seems, however, quite reasonable to believe that the simple desire for mental peace may be so strong that it seeks escape irrespective of any goal. The hunted animal will go to any potential sanctuary provided it escapes its pursuer.

It should not be overlooked that whatever their nature all such reactions looked at biologically are adaptations to environment which may or may not be complete, but as indicated in the first chapter, if they are not, there may be considerable interference with health and happiness.

The Church shares with Medicine the function of assisting those who have difficulty in resolving conflict. Each has its own sphere and method of doing so but at the same time it should be more amply recognized that one can help the other in individual cases.

CHAPTER XVI

SUBMISSION

SUBMISSION occurs when the individual realizes that a continuance of the conflict would not be in his own interest. It is fundamentally an immediate victory for his security instincts, although it may not prove so in the long run.

It is seen typically when a horse is broken to harness. It learns to respond to certain conventional codes imposed on it from without.

The average member of the community submits to the rules of his herd. The submission may be complete or partial. We see almost complete submission in relation to clothes which we allow to interfere very materially with our physical comfort. Even conquered nations learn to some extent that they must submit to the laws imposed by their conquerors and such nations show the same general reactions as individuals. In the present volume, however, it is the individual who concerns us. He may submit or the opposition may give way.

Those who submit easily to the laws of the community never get into trouble, they are good children, law-abiding citizens, good servants of the individual or of the state (in the case of civil servants). They are dull but stable members of the community, reliable and not likely to go "off the rails" which have been set up for guidance. If the world was governed by them progress would cease and life would have little sparkle.

We see submission in many walks of life. Even in science we see occasionally a younger man who does exactly what he is told and acts as the faithful servant to those he considers superior and by always agreeing with them may gain for himself such a completely false reputation for wisdom that it may pay to be a sycophant. Such persons are commonly not very strong personalities and go with the current of opinion and with the winning side. Sometimes, however,

they compensate in a most remarkable way for their submission by becoming excessively "bossy" in their earnestness to secure the submission of others, especially those over whom they may exercise minor control. The "officiousness" and petty tyranny of the minor official is notorious. Their "meekness" in the presence of those in authority is equally often seen.

Those who are not in positions of authority are often non-realists and have a tendency to find enjoyment in pursuits with an abstract basis such as religion, philosophy and art. They are given to good works or recreations and hobbies which do not obtrude. These are very common with those with very routine occupations. They often provide the mystics and become marked introverts. Their first thought is to obey. Real thought is no longer necessary. Physical and mental comfort is assured and there is content. There is little doubt that it is the desire for peace which leads to most submissions. It is often too much trouble to do other than submit. Some individual in authority may annoy us, but it would be such a waste of time and energy to argue or take legal proceedings, that we submit. It is probably this somewhat lazy attitude which results in so many individuals ceasing to do research. It takes too much time, patience, money, and energy. There are, too, pseudo-scientists to be found in every scientific department who teach much dogma unquestioningly just as there are students who prefer to read books which contain it. It is so much easier not to question the facts as written than to be a searcher after the truth and lose a certain peace of mind. But has the poet not written—

> What is this life if, full of care,
> We have no time to stand and stare?

In states of physical exhaustion submission occurs more readily than in health. This is the basis of third degree interrogation by certain police. Even distinguished physicians or surgeons, when seriously ill, will readily succumb to an authoritative practitioner of reasonable sagacity although they might think little of his opinion in their healthier moments. Submission occurs in many varieties which differ only in

detail. Some are just too weak to say no, others are beaten into submission. The average person will submit to considerable discomfort and restraint and often does so if he thinks that they are only temporary and are for his prolonged benefit. He will submit to rationing or to a surgical operation. Commonly he limits his food and drink according to his purse.

Occasionally we see individuals whose spirit is broken and is so weak that they can scarcely defend their own rights. Such persons and nations are easily driven. In the former this is admittedly one of the causes of shyness, but it may sometimes lead to intense depression. Some nations are less readily cowed in this way than others. Their spirit is never broken although they may be beaten.

It is interesting to observe that certain mechanisms of the nervous system tend to bring about submission. This is seen physiologically in the fact that sustained stimuli cease to excite by a process of adaptation at the nerve endings. The tick of the clock is not noticed, the hot bath appears to cool more rapidly than its temperature falls. We all become accustomed to many things in life which at first were irritating.

It is in fact quite remarkable the extent to which the average human being does submit to a host of trivial restrictions imposed on him not only from without but also from within. Possibly the most outstanding is the tyranny of fashion which is imposed in a subtle way from without in order to promote trade.

It must be understood that various types of submission, especially those to the community, become so automatic that we do not recognize the restraint, which indeed becomes the normal response. The restraint has instituted conditioned reflexes which are very difficult to overcome. One of the most striking and important in medicine is that in regard to micturition, which has already been referred to on page 8.

Sometimes we have to recognize that they are unavoidable and we " bow to the inevitable ", for " what cannot be cured must be endured ", and there is " no good cutting off one's nose to spite one's face ". Often we have to console ourselves by attempting to answer the question " what is the

alternative ? " only to admit that it may be worse. If we destroy, for example, many of the established institutions in the country, however much we may hate them, we would become barbarians. That is, however, not to say that many would not benefit from modification.

In the same way our thoughts have become fixed. Some persons are abnormally sensitive about clothes or about remonstrating against an obviously erroneous order and, in our present polite days, of even contradicting a misstatement at a scientific meeting.

Much of modern education has been freed of mental submission engendered by the older education which demanded strict obedience and a large amount of unnatural silence amongst children, a restriction from which many never recovered. The child was to " be seen but not heard ". Most of the younger readers of this page can have little conception of the restraints on the so-called " well brought up " children prior to 1910. Now, too often, we see the opposite extreme of young persons who have no respect for age, tradition or authority or indeed for anything which interferes with their own commonly selfish views. Since, however, submission to some degree is necessary in any community in the interest of others, it is certainly desirable that the restraint should be imposed at an age when it is least irksome and commonplace.

Religion of many kinds tends to promote submission, and most religions have their dogma the unquestioning belief and submission to which is essential, indeed it is the refusal to accept such dogma which has caused so much controversy in the past. Christianity teaches that a man ought to be content with his lot and do his best to perform whatever humble tasks are allotted to him. A vast variety of reasons are given for this and the spirit is chastened in a multitude of ways. Eastern religions promote an excessive submission, a fatalism. What is unavoidable is the will of Allah and is accepted without question. Throughout the East we see traces of a similar acceptance of circumstance. The Arabic words " kismet " and " malesh " carry that suggestion in their meaning.

The various types of rebellion are dealt with in regard to " Escape " and " Continuance of Conflict ".

Resistance. A characteristic of submission is the resistance to change or to anything which disturbs the even tenor or peace of mind. It is so much more comfortable to drift on downstream than to fight against it. This occurs noticeably as might be expected in those whose occupations involve unusual submission to regulations. The civil servant, whether he be highly or lowly placed, is notoriously static in outlook. The policeman has his routine type of enquiry and has his regulations, the politician has his party, the mediocre scientist and the doctor who "have made up their minds" tend to have over-dogmatic views. The older the individual the more fixed and resistant to change he tends to become. Many persons when they "make up their minds" really find it easiest to submit to having done so and stick to their opinions against all opposition as if in a debating society.

Mental Mechanisms commonly used in Submission

These mechanisms have been variously described. They may be regarded as defence mechanisms as they may be used as a defence against any form of mental disquiet. When a man submits in the face of opposition or fails to satisfy his primary instincts he is consciously or unconsciously ashamed. His *amour propre* is wounded. In submitting, his security may become more assured but his power urge is less than ever satisfied. He must excuse himself to his friends and to himself or "forget" the disagreeable thought. The latter process is much the most important in medical psychology and is discussed below.

Submission was well seen in the old army which is well expressed by Tennyson.

> Theirs not to reason why,
> Theirs not to make reply,
> Theirs but to do and die.
> Into the valley of death
> Rode the six hundred.

But submission affects all ranks and there is a tendency for a frustration of the power urge to find an outlet in the insistence of excessive submission. This is true especially of

those who have aggressive personalities. This accounts for many actions of sergeant-majors!

This fixation of reaction has a close similarity to the fixation of reflexes and it seems not improbable that there is a similar underlying process. It is evident, too, that repetition similarly has an important part in the fixation process, while the difficulty experienced in changing the responses is very like that found in the extinction of conditioned reflexes.

It will be recognized that such mechanisms all have the same aim, the promotion of content and happiness and the avoidance of mental pain or disquiet. In each it is evident that the agreeable mental state is attained by preventing the disagreeable thought reaching consciousness in a form that can be recognized. There is some discussion as to how far these processes may be conscious or unconscious.

Eventually submission becomes, as we have said, little more than the conditioned response to the primary instincts. The reactions are mechanisms by which the frustrated instincts obtain satisfaction in an oblique way which is acceptable to the community, or in a more general biological way they may be looked upon as mechanisms by which the individual adapts himself to his environment.

Repression

Repression of Disagreeable Thoughts—Emotional Forgetting

In relation to forgetting and errors it has been observed (p. 84) in many cases that commonly (but not always), things forgotten or mistakes made are related to disagreeable or undesired thoughts regarding those things.

This removal from consciousness of such disagreeable material appears to be a fundamental process which promotes the happiness and content of the individual and is known as *repression*. The process is therefore of the greatest importance in adapting the individual to his environment.

Freud considered that the disagreeable thoughts were repressed into the unconscious by the "censor" who is, so to speak, in charge of our happiness and mental well-being. There may be some disagreement amongst psychologists regarding the actual repressing force; indeed, Freud appears

to have avoided discussing its nature in detail, but a conflict of words must not blind us to the undoubted existence of the process which is accepted by all schools of psychology.

The existence of the process has been clearly proved by the study of soldiers suffering from various forms of mental illness which were found to be based on the intensely disagreeable experiences of war. The experience is forgotten but in a singularly complete way. Sometimes indeed, in the case of soldiers, quite large periods of time appear to have been forgotten following the shock of the experience. The shock itself may be mental, physical or both. Loss of memory of the happenings immediately before an accident in civil life is relatively common and in hypnosis it is possible, by suggestion, to recall to memory a very large number of experiences, pleasant or painful. In the case of the war neuroses, as they are called, it has been found that the recall of the happenings concerned gives rise to most expressive and painful emotions such as may have been produced at the original time of the experience—a phenomenon known as abreaction.

The repression is not, however, complete during sleep and the disagreeable thought may appear in " fear " or " desire dreams " which are discussed later.

In some cases the repression does not depend on consciousness, but in others the disagreeable or " evil " thought has been " put out of the mind " by an effort of will, and it is a recognized part of the treatment to exhort those who suffer " not to think " of the disagreeable thing that troubles them. Indeed, this treatment is beneficial in a very wide variety of sorrows, from the loss of a lover to the toothache. The average person represses all thought of death and seldom refers to it except as part of the inevitable or as a joke. In this case he shows that there is an existing conflict with his security instincts. (See Appendix, p. 259.)

Some psychologists differentiate between suppression and repression, one being conscious and the other not, but different psychologists use the terms in varying senses. Confusion is probably best avoided by using the term " suppression " as referring to conscious effort since Freud considered " repression " as an unconscious activity.

Repression of Instinctive Responses

In the process of repression there can be little doubt that eventually a conditioned habit of not thinking about the disagreeable becomes established and thus it is that our pleasant memories last longer than our unpleasant ones.

A process of repression is seen also in relation to the instincts. We have seen that the various instincts demand satisfaction (because possibly the stimuli concerned are constantly arising), but it is evident that the rules of the community to which we belong do not allow of their unfettered indulgence, and to these rules, for various reasons, we pay regard. It is indeed as if some variety of civilized response has been superimposed upon the instinctive response. We are not necessarily violent with the individual who jostles, nor are we necessarily rude to the person who is rude to us. Different communities of herds demand different responses. In certain groups there are certain things which are " not done ". The instinct of the herd has commonly a repressing effect upon the instincts concerning nutrition, protection, sex and power. Thus in war-time the instinct of the herd which demands emphasis on duty may completely repress the natural emotion of fear which is concerned with personal protection.

This variety of repression bears a considerable resemblance to the inhibition of reflexes and such responses can undoubtedly be taught to animals. Thus a dog may learn not to steal from the table, or not to chase sheep, in other words not to obey its natural instincts in a natural way. When two reflexes compete with one another for a final common path, that which is most essential for the survival of the individual takes precedence. Thus the reflex action of sneezing which occurs if the nose is slightly irritated, is inhibited if the upper lip is firmly pressed.

It would seem that the community response takes precedence over the personal if the individual is to survive happily within the community.

The Nature of Repression

The exact nature of the process of repression is unknown, but Rivers has suggested that it is akin to the well-known

inhibitory effect of the higher parts of the nervous system upon the lower, seen typically in the damping of the knee jerk by the pyramidal system. It may also be considered to be in part at least a conditioned response, especially where the individual has got into the habit of dismissing the disagreeable subjects from his mind.

It has been described as essentially an inability to face reality, a refusal of the personality to allow into consciousness any thought which is disagreeable or anti-social or which runs contrary to the communal or spiritual codes to which we adhere. By doing so it promotes the happiness of the individual and avoids him pain. This we have already noted is a function of the elementary nervous system in all animals. Repression may be considered simply as the mental analogue of the simple protective reflex of the spinal cord.

In relation to forgetting, the immediate advantage is self-evident. It is an instant response which protects the peace of mind but which, like the spinal protective reflex, may be superseded by a higher one. This may make us eventually post the letter which we have earlier forgotten—really did not wish—to post just as we may control the reflex withdrawal of a finger from which a friend or doctor is attempting to extract a foreign body.

In regard to what has been described as the repression of the primary instincts by the social or spiritual instincts it is a little more difficult to see that the process is quite the same as that described. It is easier to consider the responses as of the nature of a conditioned reaction or inhibition superimposed upon the unconditioned one. Psychologists, however, with their characteristic repression of biological and physiological terms, prefer to consider that the conscious educated system considers the normal response to the instinct harmful or anti-social and refuse to recognize it. The difference is one of words, the processes referred to are the same.

All are agreed that the instinctive response is altered. Some modern psychologists would claim that it is modified by the censor, but a biologist sees more clearly a process of conditioning through the influence of the herd. It will, how-

ever, be realized that this process differs from the conditioned reflex in that it is the response which becomes " conditioned " and not the stimulus.

Sublimation. By this is meant the substitution for the normal response of the frustrated instinct by another response more acceptable to the community or to consciousness, the censorship of which has been determined by the spiritual and social codes accepted by the individual. One of the best examples is the sublimation of the sex instinct which we have seen, in relation to the herd instinct, is very materially controlled by the codes of the community. It is often seen that the childless woman exercises her maternal instincts by lavishing kindness on pets, and in taking an active part in the conduct of institutions, especially those concerned with the care of the young. She may adopt a cause, especially one designed to assist those who, in her unconscious eyes, like children, need help. She is not indeed very different, mentally at least, from the hen who may rear ducklings, or the historic wolf who, by ancient legend, suckled Romulus the founder of Rome, or the cow who submits to a milking machine. It is the instinct of the female to lavish protection and food on whoever wants it. Many believe that love is essentially sublimated sex, but the matter is much debated and is discussed in relation to " Love ".

Sublimation of the instincts is evident in the popularity of all literature and drama bearing on feeding, fighting or sex, stories of which bulk so largely on the stage, cinema screen and in popular novels. Games, too, probably play a similar part in stimulating a healthy rivalry between those concerned and thus sublimating the competitive power characteristic of animal life.

The various processes which make submission with happiness possible have sometimes been presented in another way and this is well seen in the case of sublimation. It can be held, for example, that the instinct although submerged in the unconscious is still possessed of energy which must gain expression, and if it does not do so in the normal way will do so in another, like a spring which is obstructed and finds a more distant outlet.

Rationalization. Those who have submitted often support their resistance and their action by arguments which are not based on reason but on emotion. This is known as rationalization. We all know how ardently a politician will defend the tenets of the party to which he has submitted and will put up quite untenable arguments. Such men are not necessarily intentional hypocrites when they preach one thing, e.g., equality, and do another. They humbug themselves even more than they irritate others by their inconsistencies. Many good examples of submission to creeds are to be found amongst professional psychologists who very often scarcely take the trouble to try to understand other view-points. The different denominations of the Church act likewise, and in many other walks of life we know " there are none so blind as they that won't see ". The use of the process of rationalization is not, however, confined to submission. It sometimes provides a convenient excuse for a certain line of conduct which is to the benefit of the individual concerned, directly or indirectly. Thus the petty thief, who may not be dishonest in many matters, may argue that he is as much entitled to the article as the owner. Or a man may be unconsciously jealous of the success of another although he hotly resents the idea being suggested. Even a scientific man may refuse to accept an essential modification of his discoveries, and go to remarkable extremes to find good reasons for doing so ". Sydenham, now recognized to have been one of the greatest of British physicians, did not appreciate the importance of Harvey's discovery of the circulation of the blood, but Harvey would not believe in the existence of the lymphatics described by Bartholin. Sydenham incidentally was not elected a Fellow of the Royal College of Physicians during his lifetime, but his statue now adorns the building beside that of the founder and of Harvey. Simpson, who first used chloroform, did not support the work of Lister, the man who made modern surgery possible, nor indeed did many of the distinguished surgeons of London, some of whom put forward reasoned statements why Lister should not be appointed to King's College. On the other hand, Syme, who was probably the greatest surgeon of the day and who became Lister's father-

in-law, was opposed to Simpson's discovery but not to that of Lister. We must presume that such distinguished men had "good reasons" for their views—views which were "rationalizations" rather than scientific reasons. But such rationalization is not confined to Medicine and Science, although there they are most readily seen. Parsons' steam-turbine was refused by the Admiralty, Joule's paper on the heat equivalent was refused by the Royal Society; indeed, many new journals have been started and books written because men of authority have refused to accept new views. The unacceptance of works of art afterwards considered great is proverbial, indeed, such happenings in one sphere or other are of everyday occurrence and are an ever present hindrance to any change. Rationalization is the refuge of those with vested interests, indeed, is present in almost any argument. In war-time, for example, we see each side attempting to attach major importance to each small new item of news. Professional jealousy and the fact that a prophet has no honour in his own country, is possibly dependent on a similar mentality which refuses to accept the existence of capability in an individual known in other spheres to be ordinary. It is in part, too, a refusal to accede power to others who do not wear the same "school tie" or belong to the same herd.

Inversion. This is essentially the process underlying the fable of the fox and the grapes. The fox could not reach them, therefore pretended they were sour. The process is seen in many forms. The scientific and clinical sides of Medicine too often assert that the other knows little or nothing of the other's province, a fact which is true of the dullards of the profession only. Business men, a little conscious of their own educational deficiencies, tend to consider academic persons as being devoid of business acumen. University men, often impoverished, fondly imagine that business men have no mentality for anything except making money. A man leaving a post may believe that he resigned rather than that he was dismissed.

In the more practical professions such as engineering and architecture, we see the frequent jibing at the futility of examinations of the practical man who could not get through.

In Medicine, the man who has been unable to get through the matriculation examination commonly decries the value of a university degree, while later it is common to see a man who has not obtained a post in a certain university or firm make disparaging remarks regarding it. In another field the sentiment is recognized in the saying, " Hell hath no fury like a woman scorned ". Jung has pointed out, too, that the sin we most condemn is that to which we are most likely to succumb.

Projection is a somewhat similar phenomenon and is a common method of avoiding blame. It was seen in the early part of the war when German propaganda accused minorities of offences of which the Germans were themselves guilty or about to be guilty.

This is, however, a much more fundamental reaction than at first appears, and is seen in many forms. There is apparently an inherent tendency in human beings to shift the blame or responsibility for errors. In its earliest form it is seen when the small boy says that the other boy broke the window. The statement may or may not be true, but the making of it safeguards the security of the person saying it. Similarly, if a wrong decision at any meeting is made, someone is blamed, but in moments of greater national crisis a scapegoat has to be found and may be actually executed. To the onlooker it is merely " the pot calling the kettle black ".

A pretty projection is sometimes practised when a child falls and hurts itself against an object and the object is whipped as the offending agent.

We commonly find that a man will accuse another of faults which he has himself or even the reverse—praise qualities in another which the third person sees in neither. This form of mutual " back-scratching " is notorious in some institutions and is in a sense a submission to the spirit of " the old school tie ".

A somewhat similar projection is common in conversations with animals. We put into words what we imagine they would like to say, but really what we would say if we were similarly placed.

Other well-known examples of projection are those of the bad student who dwells extensively upon the inefficiencies of his teachers and examiners, or of the lovelorn lady who imagines that all attractive men are in love with her and often chooses those with whom she comes in professional relationship as the object of her affections. Dentists, clergymen, chauffeurs and doctors who have opportunity of intimacy, or any solitary male in a railway carriage, become the unfortunate objects of attention and may even be accused of attempted rape. Fortunately both Medicine and Law are familiar with such cases. The intense appeal of certain stage stars to some members of the opposite sex is also a form of projection, but sometimes the projection reaches the realm of phantasy. A widow may be visited by the ghost of her husband whom she will not believe to be dead, and many a maiden secures " a better man " in her dreams than would be possible in actual life. Symbolic, too, are bridal veil and ring of the nun who, as she takes her vow, becomes the bride of Christ and promises to devote her life to Him.

By the projection the individual obtains satisfaction of the wish to be attractive or to be considered free of guilt.

Why one person submits and another continues to resist is an interesting problem. Sometimes submission and resistance may alternate. As has been already indicated, it would seem that, generally, health and strength are important determining factors, and thus it is that we commonly see illness and mental depression together until the patient, if the illness is prolonged, has learnt to use the mental mechanisms which are so important in promoting mental peace and happiness. Heredity is, however, also important—see Personality.

SUBMISSION OF THE OPPOSITION

This occurs most clearly in the political world when the opposition has been local and has become dispelled as a result of a change of law. This is the most satisfactory result for the individual but it may not be to his ultimate advantage. Only too commonly we see that if a man gets his way too easily he tends to expect to do so again and to develop a

lust for power and a false idea of his own superiority. It is this reaction which is so liable to develop in the spoilt and petted child who has succeeded in wearing down the opposition of his parents. The advertisement " He won't be happy till he gets it " is based therefore on true Psychology, for the child will soon demand it again whatever it is.

It is the hope that the conflict will end by the submission of the opposition which causes so many conflicts to continue in the affairs of everyday life and very obviously in politics. The saying " to persevere is to succeed " suggests the value of the continuance, but on the other hand a sufficiently brisk conflict may, like a " blitzkrieg ", overcome opposition or, as we say, the opposition may be caught " in a weak moment ". In some cases individuals act in defence of what they really believe to be just causes and do thankless tasks, but in just as many instances the individual concerned obtains thereby a notoriety not otherwise possible, and satisfies his power urge. Sometimes they are very useful members of society, but they are often the reverse when they revel in being in opposition.

When, however, the opposition is within the individual it cannot submit completely and various kinds of resolutions of the conflict occur as already described.

CHAPTER XVII

ESCAPE

THERE are many circumstances, common in everyday life, from which escape may be desired. The escapes are designed, often unconsciously, to avoid circumstances which cause mental unrest and interfere with happiness and mental content. The escape may be of variable duration.

Generally it may be considered that escape is a weakness reaction, the individual not having the physical or moral courage to " stand up " to his difficulties although in some instances it may be an advantage " to give way " in order to secure something more important, as we would rest when fatigued or ill to secure the advantages of health.

Escapes may be classified according to how they affect or threaten freedom for the satisfaction of life's motives. It will be observed that in most cases they are caused by frustration of the power urge or threaten security. The lack of satisfaction may be real or it may be relative or imaginary. Thus an ambitious man having actually had no success, or less compared with somebody else, may, in the opinion of others, have been very successful but is merely " crying for the moon ". Escapes may concern the supply of food, physical freedom, sex, power, etc. We may also classify them according to whether the restraint is social, domestic or economic. Commonly there is a desire to escape from general restraint. The escapes occur not only from conflict but also from fears and anxieties of which there is infinite variety. Some authors refer to the escapes as essentially wish-fulfilments, but this is really only a different presentation of the same facts. The following are the common causes.

Authority. At school we see the escape before the master appears in the classroom and in the exuberance of play. The person who leads a dull life at home may become overexcited and irrepressible at a party. The student, away from parental authority for the first time, " kicks over the

traces" and "sows his wild oats". The man bullied at home may be quite different in the absence of his overpowering wife.

Monotony is also a common cause. The prospect of an office life or of working a machine indefinitely frequently leads individuals to escape to dangerous pursuits as soon as a chance permits. We have many examples of such individuals who have undertaken most perilous air flights. Some have been successful and many have not.

Social Conditions. In many cases the escape is seen in young men going abroad to seek their fortune in foreign lands, but not all make good. Some seek one escape after another and end in the gutter. There are those who find the demands of society unbearable and escape. Such cases were Byron, who went to Greece, Stevenson, who went to Samoa, Lady Hester Stanhope, who set up a queenly establishment amongst the Arabs in Syria, and many explorers and big game hunters. A similar reason drives quite a number of doctors to the more remote parts of the world.

Responsibility is commonly escaped, especially by those whose power instinct is not well developed and various rationalizations are over-developed. "We cannot all be at the top" is a common excuse for not doing many of the pieces of extra work which lead to the top. This is often the mentality of the man who refuses to do evening classes, yet grumbles because he has not the same wage as those who have sacrificed their evenings over long periods of years. An excellent private may refuse a commission, and any number of persons seek sheltered occupations in which their promotion depends largely on length of service rather than on their own exertions. Men may be afraid that they could not do the new job.

The Difficulties of Business and Professional Life involving competition and finance lead to the desire to escape.

The dishonest financier commonly attempts to flee the country with some of his ill-gotten gains to avoid the inevitable commitment to prison and the social disgrace involved. His mental state is one of escape.

A professional man may give up a good post for one which

is really of much less worth, while consoling himself that the prospects of the new post are better. In science we also see, too often unfortunately, a brilliant young man lose heart through the tyranny of editors of journals or examiners for higher degrees and leave academic life altogether.

Examinations are a frequent cause of escape, actual or desired. The student may fear the disgrace of failure or that he may not pass at a standard high enough to satisfy his power urge. It is indeed quite remarkable how often the conceited or bad student is prevented from sitting an examination by some form of illness.

Shattered Morale may produce a desire to escape, but this is closely related to the phobias which have already been dealt with. It depends on various associations through which the physical welfare of the individual is considered by him to be threatened. In war-time this is the primary cause of shell-shock. History relates many ill-conceived mass evacuations of towns at times of military crisis. In war-time the desire to escape "from the danger and horror of it all" may be overwhelming and may lead to a variety of types of escape.

Domestic and Marital Worries. One of the commonest causes of escape is unsatisfactory relations between husband and wife. Very allied are the love disappointments in which the unfortunate one sees a world of dreams disappear into thin air. Sometimes the reactions are remarkably sudden and the desire to escape becomes more urgent than life itself.

Fear of marriage may give rise to an acute desire to escape which may be merely not arriving at the church, but suicide is not uncommon. The individual concerned although cajoled into betrothal, may have an intense antipathy to the opposite sex or may be quite unable to face up to the responsibilities which marriage entails.

Fear and Anxiety States

Sometimes these become too unbearable and lead to a great variety of escape reactions. They are dealt with in their appropriate sections, but here it may again be noted in relation to submission that the immediate onset of these escapes

may in great measure be determined by physical health which may be undermined by disease such as infection of different kinds which may be toxic to the nervous system, or by prolonged stress which exhausts it, such as that produced by prolonged physical danger. This has become very apparent in war-time.

Guilt and Inferiority

These states, which are discussed in other sections, often produce states of intense mental disquiet which is so intolerable that there may be suicide.

Types of Escape

Biologically, the escape is an elaborate adaptation to an environment where the individual feels more secure.

In each case the type of escape depends on circumstances. It may be physical or it may be mental or both, and may be considered, as has been said, a wish-fulfilment or a solution to the conflict.

Physical escape is commonly resorted to, to avoid the result of wrong doing of diverse kinds. The individual runs away like the hunted animal, changes his place of abode or immediate environment like the bookie who " welshes " or the embezzler who flees the country. He begins his social life anew or that part of it which he dislikes. The mere avoidance of persons we do not like is in the same category. In the young, truancy from school is common for similar reasons.

Mental escape is more usual and may take several forms, some of which may be combined with a certain amount of physical escape, as in the all too common escapes of lying by which the liar hopes to avoid the results of his deed or statements. By such escape there is a removal of the conflict or frustration from consciousness. This is the form of escape which is of importance in Medicine as it gives rise to, and becomes confused with, illness. Most practitioners recognize those amongst their patients who enjoy ill-health.

Neurosis

The illnesses known as neuroses may be super-added to an existing physical weakness, indeed there are few patients who do not exaggerate their symptoms at the convalescent stage in order to prolong the sympathy and attention which they receive when ill. It would seem that the disease lowers the resistance in this respect for many patients recall doing things which they are ashamed of when health is restored.

Many bed-ridden patients belong to this class which gives doctors very much trouble. The unfortunate doctor is in the awkward position of wishing to tell the patient exactly the truth that there is no longer anything wrong with her, but knows full well that if he did so, she (for it is most commonly a woman) would simply go to another doctor who would show more sympathy. Great skill has often to be shown in judging how much " encouragement " the patient will stand, for few are prepared to accept the fact that they are exaggerating their symptoms. The reasons why an individual should desire to prolong the illness are variable. It may be an escape from work and responsibility. Amongst normal persons, escape from work and responsibility is the commonest cause and many, after an illness, confess to a feeling of dread at having to face the world after a stay in hospital. In many cases the states are brought about by a process of conditioning—movement of the affected part has become associated with pain, or general movement with fatigue, to such an extent that the pain or fatigue persists after the basal pathological state has disappeared. These states will be discussed in a later section.

It seems probable that the mental state is based on the unconscious idea that the power of self-preservation is reduced, and only those who have been seriously ill can appreciate the feeling of utter weakness and helplessness which may ensue. It is, however, important to emphasize that the patient, although quite conscious of the fact that he is mildly feigning, scrimshanking or " playing the old soldier ", is not wholly responsible for his actions. He is not ashamed

of his actions at the time but he may be afterwards. We see the occurrence of similar phenomena in pet animals. (See page 200.)

Where infection has occurred we are on rather more difficult ground, but from our knowledge of suggestion and hypnotism it seems not improbable that there has occurred, for one reason or another, a lowered resistance of a given part. This aspect of such cases has been emphasized particularly by Adler in regard to organ inferiority. By this he means that the patient has more or less accidentally, having had indigestion or a cold, come to the conclusion that a certain part of his body is inferior to the rest. He may have been encouraged in this idea by a parent or a doctor or may have other reasons for feeling inferior. Thus he may believe that his stomach or his chest is weak, and, in escape from emotional stress, develop illness in these regions whenever he gets into mental difficulties. In a similar way acute exacerbation of a minor disability, or of chronic ailments such as rheumatism or gout may occur. It has, for example, been suggested that the occurrence of lumbago is related to the idea that the subject has a greater load of trouble than he can bear. Such relationships, however, are often as fanciful and inventive as they are varied.

From the foregoing it is not suggested that all illnesses with an emotional background are necessarily escapes. They may serve other emotions ; illness may also be revenge against those who have to give attention, to secure the attention of a certain doctor, clergyman or nurse, and thus satisfy sex longings. Sometimes a mother succeeds thus in thwarting all the activities of a daughter she hates or the daughter thus succeeds and finds a good excuse for not doing what the mother wishes.

Hysteria. The physical impairment, however, may be unrelated to previous injury or illness and be purely mental and come " out of the blue ". The patient may suddenly become paralysed, develop abnormal movements, or lose sensation in almost any part of the body in a most dramatic way. The mental state becomes converted into physical illness and hence the term " *conversion hysteria* " is applied. It

is really a substitution, the disagreeable idea being repressed but finding an outlet in illness.

The exact type of physical impairment which occurs varies very much in different cases. Sometimes there is a paralysis or an anæsthesia which bears some definite relation to the emotional background concerned. These are seen in the cases given below. (See Appendix, pp. 260–261.)

The word "hysteria" denotes an association with the uterus and emphasizes its special occurrence in women under fifty, but although commonest in women it is by no means confined to them. The symptoms are not, however, haphazard as they might appear, but rather the reverse. They have often a deep-seated relation to the essential cause of the illness, although the relation may not always be evident. Commonly, the loss of the activity concerned prevents the patient from doing the particular work which she wants to escape. Often the impairment is obviously fantastic although the patient does not realize it. She may claim that she is unable to move her eyes and when looking sideways always (even when alone) moves her head. If, however, she is asked to look fixedly at a point she will continue to do so even if her head is moved passively, thus showing to the doctor that her ocular muscles are not really paralysed. She may be able to make certain movements when in one position but not while in another. She may be unable to speak but may be quite capable of making the sound "ah", of laughing loudly and of moving her tongue and lips, all of which actions include the essential movements of speaking. Sometimes there are abnormal movements, abnormal gaits, tics or habit spasms, especially of the head, eyes or hands. Stammering and writer's cramp are often also of similar origin.

Self-mutilation must be considered akin to a hysterical phenomenon. A man may injure himself to avoid fighting or disagreeable work. Most commonly women apply irritants to the skin or eyes and skin disease is simulated. The physician can sometimes "catch the patient" by telling his assistants or students that the condition most often occurs in a certain region where in due course it appears. How far such persons can be held responsible for their actions is

an interesting problem. To condone the offence would popularize it.

Occasionally a hysterical fit with gross abnormal movements may simulate an epileptic fit. It differs, however, in that the patient never hurts herself and avoids many of the less comfortable accompaniments of epilepsy such as biting the tongue or passing urine. Those who " throw a fit of hysterics " may shriek and apparently go off their heads but are usually brought back to normality by having their ears boxed or being otherwise violently treated.

The loss of sensation may also be of infinite variety, but here again the symptoms are often inexplicable on an anatomical basis. The so-called glove anæsthesia of the hand is typical, for anyone with a knowledge of the nerves of the hand knows that anæsthesia of the whole hand without any of the arm could not be produced except by damage to several nerves at the wrist. Sometimes the loss of sensation is intermittent. Thus I have seen a patient who lost all sensation on the right side from the neck downwards for several hours if she lay on that side for half an hour. She was " tricked " into recovery by the judicious use of an ordinary faradic current applied to the mid-line and made stronger as the half-hour neared its end.

Loss of vision or hearing is occasionally complained of by those who do not really want to see or hear. Some observers recognize the existence of hysterical pain—particularly hysterical headache. Some patients by claiming pain succeed in persuading surgeons to operate upon them and thereby effect an escape. Loss of memory (amnesia) is common.

Sometimes the autonomic nervous system is profoundly affected; there may be, for example, and indeed commonly, disordered action of the heart, spasm of the pylorus, bronchi or urinary bladder, all of which simulate pathological states to a very marked degree but which disappear like " the vapours " when the patient is adequately assured and possibly made thoroughly uncomfortable by enthusiastic examination. There is indeed no end to the variety of hysterical symptoms which may occur, often as a result of suggestion such as the death of a friend or some quite accidental remark

by a doctor or someone whom the patient thinks may know.

In hysteria, then, the symptoms do not depend on any pathological state but are merely due to a dysfunction of the mind. The states are therefore sometimes called *functional.* The essential dysfunction is the "*idée fixe*" of the patient that there is loss of function. Pavlov has suggested that hysterical anæsthesia is the result of intense focusing of the thoughts in other directions, rather like the failure to appreciate the pain of a severe injury during a game of football. He found evidence that round any area of intense cortical excitation there was an area of inhibition or "negative induction". The hysteric, however, shows no sign of being distraught in any other direction.

Shell Shock. This is really a bad term because it may have no relation to shells or explosions. It is a convenient euphemism for that hysteria brought on by the strain of war which may or may not be associated with any acute happening. It is not, however, otherwise very different from that seen in civil life. There are many well recognized varieties. Some cases are merely the exaggerated emotion of normal fear as indicated by continued tremor and leg weakness, but if associated with war strain and untreated the symptoms may persist or may merge into aphasia or other pseudo-paralyses. In relation to gas warfare, aphonia or aphasia or spasm of the orbicularis palpebrarum and ptosis of the eyelids may occur and these may merge into pseudo-blindness. Vomiting may also occur but it is not associated with the usual abdominal discomfort. In some cases there has been an associated injury, often a minor one, and from lack of movement and poor blood supply to the injured part, there may be trophic disturbance and considerable wastage. The injured part may assume contracted positions (contracture) or there may be the typical motor or sensory paralysis. Sometimes there may be associated concussion of the brain or spine with even a temporary evidence of acute spinal injury. There may be persistent headache or undue anxiety. Even conditions like fibrositis or sciatica may have associated exaggeration of symptoms. Almost invariably the disability

prevents the special duty which it has been the function of the soldier to perform. Self-mutilation by shooting through the hand or foot sometimes occurs. There is no doubt that such patients may "infect" each other with such things as abnormal movements.

It cannot be made too clear that a "functional illness" is genuine from the point of view of the patient, but it is of the mind not of the body. Great care, however, has to be taken by avoidance of over-examination not to suggest further symptoms to the patient. In the war 1914–18 the diagnosis of D.A.H. (Disorderly action of the heart) and its detailed study did much to make the symptoms persist—at least till the war was over. The essential nature of the condition has been confirmed in the second World War.

Usually the functional nature of the condition is recognizable by its incompleteness, its inexplicability on the ordinary grounds of pathological anatomy while the alleged cause is seldom adequate to account for it. The gait may be a caricature of nervous disease the onset of which, however, is never so rapid. It may be that the paralysis may be confined to certain positions, the sensory disturbance may not correspond with any nerve distribution. The patient may be "caught out" on certain movements such as in those examples already given. He may be able to make the desired movement in bed, or when asked to do something else. He may be able to open his eyes freely in a dark room but not in the light, he may be able to straighten his back in a bath or in bed but not in the erect posture, and so on. No simple injury, for example, would be likely to account for motor paralysis of the whole arm without sensory loss.

A great characteristic of such cases is the mental state produced. The patient has solved his problem by his "escape" and is therefore in a state of mental quiet. He can discuss his symptoms quite freely, a fact which facilitates conversation designed to bring about the cure of the condition. The mental state described as "la belle indifférence" by Janet contrasts markedly with the agitation of the anxiety neurosis.

To the layman such cases appear to be well nigh impossible

and the doctor who tries to persuade that the condition is "not real" or "hysterical" is only looked upon as unsympathetic. These patients seem to be quite indifferent to the misfortunes they bring on themselves and their friends. They must be treated therefore with great care if chronic invalidism is to be avoided, but on the other hand some patients may be made worse if they suspect that the doctor thinks that the illness is not genuine.

One of the problems which at present confronts Medicine is the *treatment of hysteria*. The immediate treatment is often simple and the patient may quite soon be able to return to duty or his normal employment. Many psychologists, however, believe that the breakdown is due to a basal defect in the mind of the patient and that if cured is very liable to break down again, "break out in another place" if not adequately analysed and the fundamental conflict treated. Opinion on the subject is divided in regard to the war neuroses, although time has shown that many affected in war do not necessarily give way in the less exacting times of peace. All are agreed that an all-important factor in the treatment is its commencement at the earliest possible moment before the state becomes fixed, no doubt by a process of conditioning.

Once the hysteria is recognized the insignificance of the injury must be emphasized and rest and idleness reduced to the minimum. Paralysis and contracture are treated by preliminary relaxation and free passive movement merging into active movement in the recumbent position (Hurst). Some who have considerable experience of treating such patients, emphasize the desirability of reducing social contacts to a minimum (Bramwell) and of making life in hospital as uncomfortable as possible within reason. In most cases if the patient's condition is recognized soon enough, full return to normal can be secured very quickly, even in a matter of hours by simple measures of persuasion and suggestion facilitated by the use of narcotics.

Aphonia and the like are treated by coughing merging into simple sounds and speech, pseudo-blindness by persuading the subject to look while the eyes are held open.

The classic work on hysteria is that of Janet. War neuroses

have been dealt with specially by Mott, by Yealland, by Bartlett and by Gillespie; special sense disorders by Hurst.

Fainting and Vomiting. Fainting occurs when the desire to escape is sudden and the environment inescapable. It is as if the individual was completely overwhelmed by his environment. It must be understood that the fainting referred to is that produced in normal healthy but susceptible persons. It occurs in sudden events such as an air-raid warning, a train accident, the seeing of a surgical operation or merely the seeing of blood. Sometimes the very thought of such occurrences produces the reaction.

The actual faint is the result of failure of the blood supply to the brain. The heart slows and the blood vessels generally (other than those of the skin) dilate.

Various other similar phenomena related to fainting occur in relation to the alimentary canal. There may be a distinct sense of nausea and even vomiting at seeing a disagreeable sight or there may be diarrhœa or polyuria prior to an inescapable ordeal such as an examination, the giving of an unaccustomed lecture or the playing of an important football match.

Vomiting, like fainting, may occur in hysterical subjects as a result of an intensely disagreeable thought, but how close we all are to this reaction is suggested by the saying, "The very thought of it makes me sick." Vomiting is to be looked upon as a protective reflex by which the body gets rid of a harmful stimulus to the stomach or anything which interferes with the entrance to the larynx.

In all these instances the reaction is the opposite of that produced by fear and anger. In fainting, sympathetic activity becomes acutely and temporarily depressed, leaving the parasympathetic predominant.

Similar states are seen in the animal world. Many animals when threatened commonly feign death and curl up, e.g., spiders, glow-worms; but hedgehogs may react likewise, and occasionally a rabbit chased by a weasel apparently becomes incapable of flight. Even cats and dogs may do the same in circumstances which they cannot overcome.

Suicide is the complete escape and is at the same time

complete adaptation to environment as dust. Sometimes there is evidence of contemplation of suicide but sometimes it is a sudden impulse, so intense does the desire to escape from life and reality become. The increased frequency of suicide in summer compared with winter suggests that the mental state is aggravated by conditions which tend to make the most of the world happy.

The actual method of suicide may depend on a large variety of causes depending on circumstances and the occupation of the individual. Often there is obvious imitation, as is seen by the occurrence of the same types at close intervals. On the whole, men tend to adopt more violent means of suicide, women prefer poisons and gas-ovens.

Specialists in psychiatry become very adept at determining those who are liable to commit suicide or become homicidal. Those patients who have already escaped by developing what they believe to be true illnesses (see above), do not commonly commit suicide even if they threaten to do so because they are too fond of themselves and are already trying other means of escape. Those, however, who are depressed by their fears and anxieties commonly do. It is not suggested that all suicide is necessarily an escape. It may, for example, be an atonement for guilt real or imagined, or it may prevent the individual from doing a forbidden act. Sometimes injured pride, vanity or remorse may be sufficient, but in all such cases it is biologically an attempt to secure mental peace and adaptation. *Suttee* in India and *hari-kari* in Japan are, however, little more than mere adherence to social convention. They are in the same category as codes of honour which are to be found amongst all groups of persons, good and bad.

Alcohol and other drugs are common both as a temporary escape of the average man and as the more sustained refuge of the chronic addict. The less unfortunate drown their sorrows, but the average man who likes refreshment from time to time is fundamentally not really different, although by the exercise of control he does not overstep the bounds of social convention.

The value of this escape in promoting health is indicated

by the fact that Pearl has from an elaborate statistical study concluded that " moderate " drinkers have a slightly higher expectation of life than the average.

> So let us with old Omar Khayyám drink
> And drive our sorrows where we cannot think
> At least a while.

" Heavy " drinkers, however, die early from the poisonous effects of the drug.

At the same time it must not be forgotten that alcohol is essentially a paralyser of the nervous system as larger doses show. Even quite small doses owe their effects to their paralysing action on the higher parts of the brain, and although subjects feel more confident, they can be shown experimentally to be less efficient in performing intricate tests.

It is considered that since self-consciousness is a sense which is acquired late it is most readily paralysed. Hence the shy person tends to be less reserved and the timid man to obtain Dutch courage. What, however, is most important is the fact that judgment of one's own capabilities is impaired and there is no measurable activity which cannot be shown to be affected. Hence the danger of driving a motor-car while " under the influence ".

Mohammedans, amongst whom alcohol is forbidden, have resorted to opium, hashish and other drugs. These escapes are becoming more and more taboo and considered anti-social by the herd in civilized countries.

Social Escapes

The foregoing escapes have for the most part been those in regard to which the subject may become a patient. The social escapes, while recognizable as such to psychologists, are so common that they are not considered anti-social and therefore are accepted by the herd. They are of such great diversity that classification is difficult. Many have already been indicated in relation to the causes of escape.

Escape into Phantasy. Escape from reality into phantasy

is very common and may indeed be considered one of the antidotes to the pressure of modern life. It has been described as the "ivory palace" of man.

Sometimes the attempt at escape may occur during sleep and it is not an uncommon experience for an individual to dream he is in an extremely dangerous situation, or is being hunted or chased by some animal or man from whom he finds escape most remarkably difficult. His legs may refuse to carry him but at the point of capture he awakes. In some cases the danger is so fearsome that the subject awakes in a state of terror and may call out. Often it is quite easy for the dream to be analysed and for its symbolic nature to be recognized.

Day-dreaming provides a complete and pleasant escape from a modern world. The soldier may dream he is a general, the medical student that he is a doctor, and so on in infinite variety.

In a modern world phantasy may take several forms. The individual may become an addict to a cult which is on the fringe of reality. She may develop an interest in spooks or other supernatural phenomena, astrology, abstract literature such as portrayed in Faust or obscure religions. The ballet and certain types of plays come into this category.

The theatre and cinema fulfil an important rôle in providing an escape into phantasy especially for those too fatigued, too ignorant or too lazy to provide any other escape for themselves. For the better educated they supplement books. The vogue for stories of crime and adventure amongst those who lead tame lives such as those of the professions is quite remarkable in this respect—indeed, the average book for a railway journey is of this type.

The day-dreaming may merge into the dreams of sleep. To promote this, certain drugs are taken, notably opium, canabis indica and certain varieties of mushrooms (by the inhabitants of Siberia).

Travelling, Visiting, Playing Games and Gossiping. For the individual who has nothing much to do and with time or money, games, travelling or visiting friends provide an escape from the boredom of doing nothing. We are frequently

surprised at how little the individual has seen or learnt in a so-called tour. And most of those who are busy in offices or laboratories are familiar with colleagues who just talk and thus avoid work. This is commonly seen amongst demonstrators in a practical class.

Arts, Crafts, Literature and Academic Life. Of hobbies there is a vast variety. They provide not only an escape but also a satisfaction of the power urge to those who see no good prospects in their work or whose work is of a routine nature. Sometimes the intense work at a hobby may alternate with intense activity at their occupation. This is remarkably common with some of the most active professional men, but it should perhaps be pointed out that such hobbies are as much a rest as an escape.

Sometimes the individual takes up an occupation which is so leisurely that it is an escape from the reality of hard work. The world abounds with second-rate artists and writers and pseudo-scientists who are simply " born lazy ". If they succeed in obtaining a post they do the minimum possible work and complain bitterly at their emoluments, sneer at the successful and are generally dissatisfied with the unfairness of the world. In university life such drones are tolerated because students' fees are so low and the universities must employ cheap labour. Unfortunately they sometimes satisfy their power urge by becoming minor administrators and make university administration what it is. On the other hand, with some the hobbies may become more important than their work. A famous scientist has stated as his firm conviction that true science has progressed more as a hobby than as paid work. Many men of letters began writing as a hobby. Many of the best poems of Burns were composed when he was ploughing.

Safe Occupations. In this category are included all occupations in which there is promotion by seniority and probably pensions. That is not to say that all members of the public services, clerks in banks, insurance companies, in fathers' businesses and the like are necessarily escaping. A few fortunately do work more than the minimum and appear above the almost inevitable rut.

Jokes. It has been usual to consider laughter as an escape, but it is doubtful if the generalization is wholly correct. Laughter may be also an indication of pleasure. It occurs in quite young babies. In laughing at a joke we express pleasure at its wit. Laughter at comic sights is also an expression of pleasure, but why certain things are comic is difficult to explain. Incongruity of circumstance, loss of dignity on the part of someone else possibly produce laughter because they temporarily enhance one's sense of security, superiority or power, but there is much in fashion in this respect. In our time we have seen a marked reduction of laughter at comic sights produced by disease. Medical students are instructed that they may laugh with, but not at, a patient.

The subject of laughter has been discussed in detail by Freud, Greig, Gregory, and by Hobbes.

The probability that jokes are an escape becomes apparent when we study their content. A large number of jokes are on subjects on which ordinary social conversation is not allowed in the community, or serve to hide underlying conflicts: sex, landladies, Scottish meanness, mothers-in-law, etc. etc. In regard to the last, the wit has remarked that there is no subject more amusing in public and more serious in private.

The joke gives expression to the otherwise unvoiced emotion, like a pop-gun: the greater the emotion and the more sudden the release the more the effect. In many cases the joke has as its basis the grimmer realities of life such as coffins or death, the ordinary discussion of which would be disagreeable if not painful. The basal reality of a joke becomes apparent from time to time when a person "having his leg pulled" loses his temper.

Commonly a joke is made to escape from some unassailable argument, indeed, the antagonist may throw down the challenge by saying "laugh that off if you can, big boy", and as we say, there is many a bitter truth said in jest. Often a man will show his dislike (due to frustration of power) of another by poking fun at his weaknesses. A man may hide his misfortune by a gaiety and thus, to the outside

world, preserve his composure or satisfy his power urge. "Even in laughter the heart is sorrowful." It has been remarked upon how gay airmen are whose daily patrol is over the North Sea compared with men of anti-aircraft units living in the same camp. The more dangerous occupation is thus at once put out of the mind by the gaiety.

A similar mental reaction is involved in the exhortation "to make the best of it", "just grin and bear it", or "learn to take it".

Marriage and Divorce. There is little doubt that many a woman marries because she wishes to escape the nightmare of a lonely and often penurious old age, while many marry simply to get away from home and escape authority. So urgent is the latter cause that many quite young girls marry for this reason.

Those married may, on the other hand, so feel their loss of freedom and desire to escape that, although naturally moral, they become temporarily immoral for the purpose of securing a divorce.

Miscellaneous Escapes. Typically in this category is the trick of changing the subject when the conversation becomes embarrassing. Many common sayings and acts also indicate the escape mechanism—"while the cat is away the mice play", the speeding of youths in motor-cars, undue hilarity at a party when the parents are absent.

Sometimes the escape is desired but not possible for social reasons. Thus a man bored by a visitor may find himself doing things such as reading a letter when his visitor is talking, or a student bored by a lecture looks frequently at his watch.

War Escapes. These take many forms and while many amount to obvious cowardice, it must be realized that there is a great variability in the possession of morale capable of standing up to the demands of war. Not only individuals but whole nations vary in this respect. Fortunately the British belong to a nation which can achieve the ideal abandonment of self in a cause, especially when that cause is their native land or liberty.

Military escapes include desertion and self-infliction of

wounds, but much the most important medically is that variety of mental illness known as hysteria which has already been discussed.

Recreation, etc. In a sense all games and real recreation which are carried out for the sheer joy of doing them are an escape from the more mundane things and for those who have no work to do an escape from sheer boredom. At the same time there is a change of occupation and a rest from the fatigue of work, mental or physical. A change of work, when it is pleasurable work, is as good as a rest.

In all "escapes" their essential "object" is the production of mental quiet and release of tension and the satisfaction of otherwise frustrated instincts or urges, which is so essential for both mental and physical well-being.

Religion. We have already referred to the escape from the unhappy things in the world which is provided by religion. (See page 74.)

The Formation of the Escape Habit. In many instances it becomes apparent that the escape just becomes a habit. It is, for example, quite common to see persons who have recently acquired an escape pastime, such as cards, billiards, golf, drinking, to become "so bitten" that they neglect their more necessary duties and waste time and money unnecessarily. The escape acquires all the characters of a conditioned reflex which has to be broken by all the methods which are used to extinguish such a reflex, although in some more fortunate cases accidents occur, such as illness or a run of bad cards, which break the spell.

The Relationship of Escape to Repression, etc. Although for convénience escape has been given a separate chapter it will be realized that fundamentally such processes as repression and substitution are really the same biological reaction in that they provide an escape from a disagreeable thought. They all constitute a striving for mental peace and happiness. Many activities, although for some escapes, are done for the attainment of pure and simple happiness. The taking of alcohol in moderation may then be just a simple pleasure like eating sweets.

CHAPTER XVIII

CONTINUANCE OF CONFLICT AND ANXIETY

SUBMISSION is seldom complete,—indeed, from time to time everyone rebels against things, in thoughts and words if not in deeds. The horse " kicks over the traces ", the dog runs away, the child in whom restraint is not so complete may become petulant if not actually rebellious.

In the adult, however, severe conflict becomes a much more serious matter. Conflict may continue for several reasons. Usually it continues because there is frustration of the power urge (i.e., the *amour propre*) or of the security instincts and there is the chance that the other side may give way, but where the conflict is confined to the one individual it is often more difficult and escape can seldom be complete. If the conflict is sufficiently severe it may lead to a nervous breakdown from fatigue. We have already noted the effect of experimental conflict in animals. The animal which has been trained to react to a flat ellipse and a circle gets into a state of great mental unrest when it has to decide the exact significance of intermediate forms. In man similar causes are extremely common. The individual has to choose and cannot make the choice. The instincts or urges pull different ways.

Such continuance of conflict we see in the woman who cannot make up her mind to get married. She cannot balance the satisfactions to be gained with those which are to be lost. It may be that comparative comfort of the father's home has to be exchanged for the pleasure of being a " young man's slave ", or a profession or work which brings in a handsome dress allowance has to be given up in exchange for penurious domesticity. There is often the problem of leaving aged and infirm parents,—indeed, there are the many such subjects which occupy the problem columns of the women's page of so many weekly journals.

For a man there are many similar problems. His getting

married may interfere with his professional prospects. He may no longer have money to spare for foreign study.

All these, however, are insignificant compared with the great problem of war-time in which the instinct of self-preservation is in conflict with the instinct of the herd which tells him that " England expects that every man this day will do his duty ". The man may not even be afraid when faced with danger, but he is afraid of being afraid and of letting himself and his colleagues down. Often he succeeds in compensating and may be very successful until some minor injury or excessive fatigue undermines his strength, and his compensation fails and he is overcome by the threat to his security and becomes a victim of **anxiety neurosis,** which is the commonest form of nervous breakdown.

Anxiety, as we have said earlier, is an irrational fear, but there is no hard and fast line between what is rational and what is not, for it may appear different to different individuals. Fear is a perfectly normal reaction to a physical threat, especially to those with imagination, but those who experience the emotion are commonly ashamed of it especially in the presence of others. They may compensate by remarkable and even foolhardy exhibitions of bravery, especially in war-time when such compensation is to be encouraged. In the first European war it was found that an unusually large proportion of officers, invalided because of anxiêty neurosis, had decorations for bravery (Schneider), and many a winner of the Victoria Cross has later frankly admitted that he was acutely afraid at the time of his heroic act.

Such conduct is the true bravery of devotion to duty, i.e., to the herd, and is exactly the reverse of that of the boasting braggart who is trying to hide the fact that he is really a coward in whom the instinct of self-preservation is uppermost. The subject has been discussed under Fear.

In many cases of anxiety the basal conflict is so " buried " that it is not evident. There is an irrational fear of not being able to perform a certain task which may or may not be associated with real lack of capability of doing it. Conflict occurs between the demands of the herd and the security instincts which may also be in conflict with the

power urge. A man does not like to have his inefficiencies exposed.

It may be that the anxiety is about work. The teacher may feel that he is no longer able to "get it across" or control his class, the research worker finds that his observations do not work out as he had hoped, or that others will not believe his conclusions. He forgets temporarily that few investigations are straightforward according to plan and that many of the greatest discoveries have been disbelieved by quite eminent men. The anxiety may be financial, most people being quite forgetful that starvation is of very rare occurrence in a normal peace-time world.

Anxiety over examinations is very common,—indeed, a small proportion of undergraduates have to give up their studies because of it. If, however, they reach the stage of examination they put up quite good performances. This anxiety is not, however, to be confused with nervousness during the examination which is a condition which comes on acutely and is not present prior to the examination. The subject is pale and trembling. Too often, unfortunately, this condition is associated with lack of preparation, but if not it rapidly passes off as the examination proceeds. In either case there is frustration of the power urge and there may be a threat, real or imagined, to security.

The separation of anxiety neurosis from other neurotic states was made by Freud, in 1895, who considered it to be due to sexual stimulation without complete gratification, but although the term has been retained generally its original meaning has been lost except to Freud's most ardent disciples. Actually we all recognize minor degrees of anxiety in our friends, and our friends bring ours to our notice. Only the more acute states are brought to the notice of the physician. (See Appendix, p. 262.)

It is generally accepted that there is a considerable "hereditary" factor in anxiety. Anxious children, like those with phobias, are the offspring of anxious, worrying parents, but whether the anxiety is bred in the nervous system or depends on the post-natal association between parent and child is not certain. In such persons the immediate cause of the

anxiety may be almost any problem which normally confronts the average man.

Anxiety, like fear, cannot be considered abnormal. Every normal person feels anxious about different things from time to time. It is only when the anxiety becomes excessive that it becomes abnormal. Often the anxiety can be allayed by a good talk with someone who understands. Many psychologists hold that, in many instances, the basic cause of the anxiety is not the immediate conscious worry or conflict but some circumstance in early life which has given a deeper significance to the conflict. Thus a child of an anxious parent who has always been warned to take care, to be a success in life, etc. etc., is liable to be self-centred or to have what Freud called an *inflated ego libido* and have the instinct of self-preservation unduly developed and find it more than usually difficult to respond to the call of the herd to risk his life in war. How different it is from the state of the child who has been taught that it is his duty and privilege to fight for his country if it needs him. The anxiety may not, however, be personal, but may depend on the possible danger to a loved one.

The symptoms produced are essentially those of "restlessness" in the nervous system and exhaustion. Most of us have experienced this at some period in the war. There is difficulty in going to sleep and troublesome dreams—in war-time battle dreams, in peace-time the various events of the day. There is difficulty in concentration, general weariness, lack of interest, tenseness, and a tendency to be unduly alarmed, e.g., at anything which sounds like an air-raid siren. There may be disorders of judgment and irritability and a tendency to excessive alcohol, tobacco and petty rebellion against convention or authority.

In the severe cases, seen amongst soldiers in war-time, a functional stuporous state like unconsciousness is described, associated with acute terror, with dilated pupils, cold sweat, trembling and inability to perform any movement. Breathing may be shallow. Subsequently there may be mental confusion and loss of memory.

We all recognize the worriers of the world. They are

obviously upset by a quite minor illness, when there is anything essential to do they fuss unduly, they insist in being much too early for their train, they are in trouble about their luggage and a hundred other little things which arise on a journey.

The chronic effects of fear and anxiety, commonly known as worry, are well known. A man may "worry his guts out", which is a vulgar way of saying that his whole alimentary canal may become upset. Actually we know that worry is a most potent cause of dyspepsia and ulcer. It is well recognized, too, that anxiety is an important factor in circulatory disease, notably high blood pressure, and it is believed that there may be reduced resistance of the body generally to illness. There can be little doubt that many illnesses tend to accentuate anxiety. Some of course do so because of the loss, financial and otherwise, sustained by the illness, but in some, notably influenza which depresses the nervous system generally, the misery produced may be so acute that suicide may result, or a prolonged period of depression may ensue.

The anxiety neurotic is to be differentiated from the patient suffering from conversion hysteria (see above) who has escaped from his conflict and is therefore in a state of mental rest. The hysterical subject recognizes his symptoms as abnormal, and discusses them freely but cannot control them. For similar reasons a severely wounded man is seldom neurotic. He needs no escape, nor does the prisoner of war. It is of interest that American statistics indicate that conversion hysteria occurred almost entirely in N.C.O.'s and men, while so-called neurasthenia (i.e., anxiety neurosis) was most marked amongst officers, no doubt because of their added responsibility.

(The term neurasthenia is now confined to nervous exhaustion with fatigue.)

In the nature of things an anxiety neurosis is a much more serious state than a conversion hysteria because of the exhaustion, and because there are often underlying the immediate conflict, conflicts of a more basic nature which have become fixed. A case may, however, commence as an anxiety neurosis but subsequently become one of hysteria, in which

there is mental quietude. The chief difference between hysteria and anxiety is the mental state.

In conclusion it should be said that those who inherit the anxiety state cannot be considered the weaklings of the race. What have been called "the psychopathic tenth" of the population who are liable to develop neuroses in war are commonly the most imaginative and best thinkers, and as such may be considered the most evolved amongst us. They are often "the salt of the earth" and contribute in the greatest measure to the advancement of mankind. We have only to read the life stories of many of our greatest men to appreciate this point.

Treatment consists essentially of securing a relationship between the onset of the anxiety and the emotional cause of the conflict, but severe cases can only be dealt with by those who have had extensive experience of them. Further, it is not to be understood that the reaction to any given conflict is always constant, at one time there may be submission and at another escape. From time to time also an anxiety may be temporarily resolved by an escape into hysteria.

Open Conflict may take the robust form of open rebellion against the force which frustrates. The conflict may be personal or it may be on behalf of the herd. Those who rebel on behalf of the herd are those who support causes. They are the fighters of the world and are never defeatists. Theirs must be a world in which they must all be powerful. As a last resort they rely on their own physical power and courage, often forgetful that in a modern world, man cannot prevail against brains, organization, steel and modern explosives.

More often the rebellion of the adult is simply against that which restrains on behalf of the community. It is essentially a continuation of the rebellion against the authority of the parent or schoolmaster who failed to exercise authority properly, commonly because they have not been reasonable, have given excessive punishment or have been themselves unworthy. In a democracy there is a traditional conflict against the state on behalf of the freedom of the individual or the various herds of which the community is composed.

There is, however, a great variation of response amongst individuals. Some merely grumble volubly and are often guilty of the things they complain of, notably the laziness and inefficiency of others. Some pugnacious personalities appear to rebel almost on principle, they are the " difficult ", uncompromising and contentious people of the world, so afraid of being thought inferior if they give way, that they fail completely to understand the feelings of others who may be involved. In their enthusiasm they bring more unhappiness into the world over which they have authority than they dream of. Often, however, they are the individuals who get things done, because by ignoring the feelings of others they disturb the existing order of things which too often has become static and not infrequently full of vested interests. These vested interests are the dangers of a democracy, for they are by no means confined to any special class of the community.

In a sense many of the robust reactions to the frustration of instincts are a continuance of conflict. These have already been discussed in relation to the various instincts.

Summary of the Responses to Conflict

It is convenient to present the various types of response in the first instance in concise form in order to show the general picture in which it will be seen that in each type of response there are several degrees. When a normal person has a conflict he reacts to it in a rational way. The more emotional, excitable and unstable person gives an exaggerated response which, according to the degree of instability, may merge into the irrational or pathological. It is, however, important to emphasize that there is no hard and fast line between the normal and what is deemed the abnormal, but that there is a gradation from one into the other. As has been said elsewhere, " every man has a sane spot somewhere " and " all men are mad ".

Submission

Normal.—Clothes, surgical operations, loyalty.
Exaggerated.—Feelings of inferiority, guilt, unworthiness, temporary depression, sycophancy.
Pathological.—Delusions of persecution, prolonged depression, melancholia.

Escape

Normal.—Jokes, phantasy (theatre, cinema), alcohol, hobbies, etc. Physical escape.
Exaggerated.—The above to excess, fainting.
Pathological.—Chronic alcoholism, hysteria and other illness, suicide.

Conflict and Frustration

Normal.—Struggle against adversity, submission with compromise.
Exaggerated.—Compensated inferiority giving conceit, old maidishness, rebellion, bossiness, bullying, bad dreams.
Pathological.—Anxiety neurosis, mania, homicide, suicide.

From the above it will become apparent that the author does not differentiate between the psychoneuroses and incurable mental disease which is studied by psychiatrists, because it is held that any differentiation, although convenient from the point of view of prognosis, is psychologically artificial.

Summary of Symptom Production

The foregoing chapters and that on The Effect of Mind on Body indicate positive symptoms to be due to pathological states which may be thought arise from the following:

1. The result of a conditioned reflex (see page 199).
2. As an escape as a means of gaining an end.
3. As a response to a conflict but the actual symptom may be a symbol of the conflict as is common in hysteria, or a sign of the conflict as in the case of fear.

CHAPTER XIX

PERSONALITY

PERSONALITY is one of those things which it is easier to appreciate than define. It is the whole human being considered in relation to the society in which he lives. It is somewhat different from the individuality which exists independently of the social situation.

It is a most important quality which goes a great way towards success, especially that of a doctor or teacher, in whom the personality which inspires confidence is of the utmost importance. It is noticeable, too, amongst modern psychologists there is an increasing tendency to emphasize the existence of the " psychopathic personality ", when seeking to explain why one person is able " to stand up " to the demands of life and another not. No doubt as more accurate knowledge becomes available, part at least of this personality will be explained and, like the rickety or tuberculous diathesis, disappear, and only what is hereditary will remain.

Personality appears to depend on a number of qualities, physical, intellectual, emotional, social, moral and spiritual. It is the sum of the reactions to the master motives of the average person with whom there is inevitable comparison.

Physical qualities are shown by his health and energy, his appearance, expression and habits.

Intellectual qualities are shown by his capability in a vast number of directions.

Emotional qualities are shown by his liveliness, cheerfulness, enthusiasm, industry and thrust.

Social qualities include all the things the average man likes in social life: kindness, co-operation, adaptability, tolerance, etc. etc.

Moral qualities include reliability, honesty, thoroughness.

Spiritual qualities include the altruistic acts, idealism, love, sympathy, forgiveness, respect for God, interest in the future and welfare of mankind.

A consideration of what has already been said indicates that personality is the resultant of the total forces concerned with the formation of the mind, the heredity together with the personal experience of the individual as shown by his relations towards his fellows and their institutions.

It is possible to classify personalities in a vast variety of ways. The classification of Sadler is as follows:

The Deficients who depend on others and are mostly in asylums. The Criminal or delinquent. The Depraved or perverted. The Stupid or backward. The Isolated or lonely. The Emotional or cheerful. The Neurotic or frustrated. The Eccentric or queer. The Moody or depressed. The Insane or demented. The Diseased. The Well-balanced.

They have also been divided by Jung into three main groups: The **extroverts** who are the cheerful optimists with a good herd instinct, the **introverts** who are thoughtful and lonely, good and scholarly, imaginative, sensitive, and the **ambiverts** who are partly both.

It would seem that personality depends largely on hereditary factors, for in any family is commonly found an individual who, as we say "takes after" the parents or grandparents. It is quite reasonable to believe that just as their external appearance resembles that of their parents, the detailed arrangement of their neurones does also and so influences their reactions and capabilities. Most observers, especially those with children, recognize differences in personality at quite an early age, and that astute observer of nature, Wordsworth, has recorded "the child is father of the man".

As has been pointed out already, animals also vary to a similar extent in what might be described as their natural traits some of which are of particular importance in relation to the domestic use of the dog and the horse. Pavlov attempted to put such facts on an experimental basis and observed that dogs vary very much in relation to the ease with which conditioned reflexes were established and in the way they responded to difficult problems. A described a choleric or excitatory type in which agitation or depression might occur, a quiet or phlegmatic, the lively or sanguine, and a weak or melancholic which are in constant fear and

anxiety, and which are under constant inhibition and cannot endure intense external stimuli.

Various attempts have been made to relate mental types to certain physical characters. One of the best known is that of Kretschmer, who recognized four types:

1. The pyknic type. The round broad man rather like John Bull—an extrovert or cycloid.
2*a*. The asthenic. Thin limb type with slightly insufficient sex glands.
2*b*. The leptosome. The bony graceful sportsman.
3. The athlete. The hefty "rugger" forward.
4. The amorphous. Nondescript, often with signs of degeneracy. Small face and head.

All but the cycloid Kretschmer considered schizoid, or shut-in, i.e., unsociable, shy and indifferent and in general introvert. Admittedly we are familiar with these types, but we also know so many exceptions that generalization is very difficult. Various others have extended the principle in detail by claiming to judge character by the study of skulls, of voices, of hands, of writing and of faces. The last has most popular support. We commonly say that he or she has a good, bad, poor, weak or strong face, and the poet has written that "the face is mirror of the soul". How far the expression is merely the result of frequent emotions is difficult to decide, but everyone will agree that the emotions may change it temporarily. If we are to believe in the benefits of child guidance and education, all we can conclude is that structure may determine potential or at least probable qualities.

In an ideally ordered eugenic society we might breed out the undesirable features of man just as the fighting propensities have been largely bred out of the bull-terrier, or the kicking out of carriage horses. So far such breeding has been confined to the few who think, but admittedly many sensible parents do what they can to prevent the marriage of their families to those with undesirable traits of health or mind. But although Nature deals the cards, the individual plays his own game of life, and a great deal can be done to assist him to do so properly, to combat anti-social or undesirable tendencies if they are recognized early.

Personality then may be looked upon as the outward expression of the multitudes of patterns of mental activity which have been partly inherited and partly acquired.

Personality may be looked upon as the sum total of what is in the conscious, foreconscious and unconscious minds. Some authors give it an indefinable spiritual quality linked to that of God and passed on by Him to man as a creative act or revelation. (See Haldane.)

It is to be noted that the qualities which determine personality are observable and for all practical purposes are behaviour, and as such are of special interest to physiologists, but the variable effects of heredity prevent it being possible to foretell with certainty what may be the response to any given situation.

Personality would appear to depend, like other unconscious mental activities, on a large number of definite patterns of thought. The exact group of patterns in operation at any given time may cause considerable change of mood. Some personalities change their moods much more frequently than others, especially women. We sometimes say that we met a certain person who was in this or that kind of mood. The mood is sometimes determined by circumstances; the individual may be depressed because of the overwhelming effects of some misfortune, or elated because of some success, but it is the sum total of the moods which makes up the personality.

Personality is as a rule fairly stable and does not change, at least suddenly, over a period of years. Changes in personality are, however, often seen as a result of environment, emotional stress, and even hormonal changes. Thus a prolonged sojourn in prison, such as may occur in war-time, or a severe illness may be effective in this way. We commonly say that a person has never been the same since the death of a loved one, or a professional or business disappointment. In women distinct changes in personality are apparent as a result of tumours of the adrenal cortex which produce a state of virilism in which feminine characteristics are lost and male-like personality appears. In some women the menstrual periods, especially at the menopause, are associated with such

profound changes of moods as would be indistinguishable from a change of personality if they were prolonged.

In disease there has been observed commonly since the earliest times, certain mental states associated with pathological or subnormal states. The cheerfulness and hopefulness of the dying tuberculous patient contrasts vividly with the misery of the dyspeptic.

When the sum of the mental reactions changes we say that the personality changes. In different plays an actor may be called upon to play the parts of characters with very different personalities, but many instances are on record where, for emotional reasons, the personality has actually changed for prolonged periods or has become dissociated into two or more parts.

The classical example of dual personality is Stevenson's story of Dr. Jekyll and Mr. Hyde. By day Dr. Jekyll was a respected member of society, by night a footpad, more animal than human. Such cases exist in real life but their story is not told so well. Another well-known case, quoted by James, is that of the Rev. Ansel Bourne, who one day drew money from the bank and was seen to enter a tramcar. This was the last he remembered. Two months later he awoke in a fright and asked those in the house how he came to be where he was. He had rented a shop, stocked it with stationery and confectionery and had carried on quite a successful business under the name of A. J. Bourne. When he awoke he had no remembrance of his shopkeeping activities. From time to time we read of such cases in the newspapers.

Morton Prince put on record the remarkable case of Miss Beauchamp whose personality completely changed for long periods several times. (1) She was an impressionable girl who had an unhappy home. At 16 she ran away, at 18 she became a nurse and had an affair with a man which gave her a severe emotional shock. (2) Her whole personality changed to state B_1 during which she was a student and which lasted six years. This was a reality state but she was hampered by ill-health. She was rather shy, weakly, studious, unsociable. (3) One day in the presence of Prince she was changed after another emotional shock. B_1 became

latent and B_4 appeared. In this personality she was assertive, bad-tempered, quarrelsome, vain, disliking everybody. (4) During a fourth period, personalities B_1 and B_4 alternated and had no knowledge of each other.

A fifth period began during deep hypnosis when a personality B_2 appeared which seemed to be a fusion of B_1 and B_4 with the good and bad qualities of each.

B_3 was a personality which was found to occur during the time she was B_1. She was an impish child who called herself Sally and did what she liked, but Sally B_3 was aware of B_2 and could control B_1 but was obliterated by B_4 who did not recognize B_3.

These cases are somewhat gross, but it will be realized that similar instances of persons leading a very marked double life occur. An ardent churchman has been known to run a flat for his girl friend. Many a man has Sunday and week-day codes of ethics. On the Sunday he is full of ideals and good thoughts, and on Monday would do all he can to get the better of his neighbour, consoling himself that business is business. Or again, we have certain codes of fairness which are emotionally cold but when roused we say that all is fair in love and war.

The actual personality which we display from time to time is always coloured by emotion, possibly dependent on stimuli recently received. That in turn may be affected by health, especially in early life when personality is in process of formation. It is also quite remarkable how the same man may appear to have quite a different personality to different persons. Sometimes he appears most affable to those whom he sees occasionally, e.g., his doctor or vicar, while to his family he may be quite the reverse.

It would seem that a theme can dominate all the thoughts for the time being, such as occurs in the case of the great actor or barrister. Moreover in such cases the theme has a strong emotional background. If you can only wake up the British Lion, it will fight. Sometimes a hobby or vice dominates all thoughts. We all know people who take up activities or causes and run them to death and then drop them.

Personality is important in Psychology from many points of view,—indeed, many would make it the essence of Psychology for, more than anything else, it represents the unity of the organism we know as a human being. To the academic psychologists with a philosophical background, the personality is the outward expression of an immaterial entity, the mind. To the Freudians it is the resultant of the conscious and the unconscious minds reacting together in relation to human society.

From the point of view of medical psychology it is important as it may indicate the basal complexes which may underlie the abnormal state which is requiring treatment. Any good doctor, or indeed anyone who is observant, recognizes that all personalities differ very much and must be allowed for in treatment. Some will do what they are told while others just will not.

The Cultivation of Personality. While personality is quite a distinct entity there is little doubt that environment may alter it slowly but quite appreciably. Thus a boy may cease to be so aggressive or truculent, and so on. Probably one of the most potent factors in the development of personality is the placing of the individual in circumstances in which he is compelled to be self-reliant.

Some young men under the advice of a tutor in whom they have confidence and for whom they have respect succeed in repressing the less disagreeable qualities of their personality. Unfortunately in a modern world the robust honest personality usually finds out that his outspokenness " does not pay ", and while the world may be less efficient it becomes thereby a more happy place to live in.

Various aspects of personality are dealt with in books by Aveling, Allport, Brown, Gordon, Haldane, Pearl and Valentine.

Haldane has particularly emphasized the spiritual nature of personality and the inadequacy of mechanistic views.

CHAPTER XX

THE EFFECT OF MIND ON BODY

VARIOUS mental states have a profound effect on the activities of organs of the body and may so disturb them that pathological states may result. There is, indeed, no hard and fast distinction to be drawn between functional upset and pathological states, for one may merge into the other.

By far the most important change which occurs is increased activity of the sympathetic portion of the autonomic nervous system. The effects are well seen in the circulatory, alimentary, renal and nervous systems. This may be looked upon as *the positive reaction.* It occurs in forms of mental activity, involving alertness, attention, concentration, but is intensified in fear and in its antitheses, anger and rage. Anxiety produces less intense but more chronic states. Essentially the changes are those which prepare the animal for physical activity and make the muscles more efficient.

The circulation of the blood through the muscles and heart is increased. This occurs as a result of an increased blood-pressure accompanied by dilatation of vessels in the muscles and heart. The rise of the blood-pressure is produced by the constriction of vessels in the organs not to be used, which has the dual effect of driving the blood out of them and the raising of the resistance to the flow of blood through them. The organs particularly affected are the skin, spleen, stomach, intestines and the large veins. At the same time there is an increased output of the heart because there is an increased filling and an increase in the cardiac rate.

These facts are of special importance in medical examinations, for the presence of the doctor or the application of the unusual sphygmomanometer cuff may be sufficient to cause a considerable rise of blood-pressure and heart rate. The rise of blood-pressure produced by special excitements may cause cerebral hæmorrhage, or even cardiac failure. The death of Sophocles at the pinnacle of his achievement is the

most classical, but in more recent days sudden deaths from excitement during air raids are common. Paroxysmal tachycardia is frequent, and sometimes an attack of angina pectoris may occur, as in the case of John Hunter, who before his death said his life was in the hands of any rascal who could make him angry.

At the same time there is an increased respiration of which a special feature was made in the portrayal of emotion in the days of the silent picture. Occasionally in cases of acute anxiety in young women the over-ventilation produced may produce the typical twitchings and muscle spasms of tetany. I have also observed this in a dog frightened by air raids.

The activity of the alimentary canal is reduced and may cease altogether. There is a reduction both of its movements and secretions, and also of its blood supply. Constipation is therefore common. The reduction of the secretion of saliva is evident by the undue thirst experienced by those about to speak in public when the tongue may " cleave to the mouth ". A reduction of the secretion of the stomach was demonstrated by suggesting to a hypnotized aviator, while he had a stomach tube in position, that he was in difficulty in the air. This brought about a fall in the amount of hydrochloric acid of the stomach. In some persons a complete loss of the tone of the stomach wall and a dropping of the organ has been observed by X-ray under conditions of mental stress. The reduction of the blood supply of the intestine, as shown by pallor, was observed in a dog whose colon had been brought permanently to the surface of the abdominal wall.

The effect on the nervous system is seen by the increase in the reflexes generally and by tremor which may or may not be felt. There may be a dilatation of the pupils. At the same time there is a liberation of glucose from the liver; this results in a rise of the blood glucose. The increased circulation of blood, rich in energy-giving glucose, puts the muscles in a favourable position for commencing physical activity.

All the effects on the circulation, alimentary canal and blood sugar are still further increased by the secretion of adrenaline from the medulla of the adrenal gland which

occurs as a result of the increased sympathetic activity. The evidence for the secretion is fully set out in Cannon's monograph "*Bodily changes in Pain, Hunger, Fear and Rage*".

Some of the changes which take place in the body may be experienced by the subject, and because of them he may seek medical advice. The increased heart rate may be complained of, especially when it is excessive and the heart may be felt thumping in the chest. The tremor may cause the subject to feel nervous, although it does not necessarily, contrary to popular view, impair his efficiency; indeed, it may increase it (see p. 29).

It has indeed been suggested that if we did not experience these physical changes we would not know we were afraid or excited, and admittedly, many people may show signs of emotion, notably pallor, without being aware of it.

Disturbances of digestion are common. Sometimes the patient experiences acute pain in the region of the pylorus when a disagreeable mental situation occurs.

All these effects may be sustained and the circulation and alimentary canal may become seriously and permanently impaired, and it is of interest to remark that diseases of the circulatory and alimentary systems are on the increase in civilized communities, and it is the usual medical practice to advise patients, in whom fear and anxiety produce such signs, to retire from the sphere of work which is responsible for producing these states in them.

It is important, too, to emphasize that the stimuli which cause such emotional upset may become "conditioned". It is common experience, too, that many activities cease to produce nervousness once it is realized that the fear is irrational. The dog referred to above was at first afraid of the sound of exploding bombs and of anti-aircraft fire, but later, overventilation, salivation, and tremor were produced by the sound of an air-raid siren only. Eventually when, like the human beings, it became accustomed to the real value of the sounds, the abnormal symptoms were no longer produced.

The negative sympathetic response is most dramatic. It occurs when the individual is faced with a situation over which physical effort is of no avail, or impossible, because

of its admission of inferiority. This we recognize typically in the individual who faints, or the animal which is paralysed by fear and " rooted to the spot ". It is seen in the rabbit chased by a weasel, and the bird " hypnotized " by an adder. It occurs in some individuals from the sight of blood, anticipation of severe pain, in medical students who witness their first operation, in circumstances of panic as may occur in those unaccustomed to air raids. The faint is essentially a psychological escape, and has already been considered.

In such circumstances the sympathetic temporarily passes into abeyance, and the parasympathetic is so predominant that the condition has been called a vaso-vagal syndrome. There is a marked slowing of the heart and a fall of blood-pressure. Whether the unconsciousness is the cause or the result of the fall of blood-pressure is unknown, but the fact that consciousness may return while the blood-pressure is still quite low suggests the former. This I have observed in students who have fainted at operations, but it is well recognized that unconsciousness will result from a fall of pressure in the cerebral arteries.

The diarrhœa and irritability of the urinary bladder which occur in excitable persons before important events, notably examinations or important games which they must take part in, are probably similarly produced.

As will be seen below, many instances of negative sympathetic response are also induced by a process of conditioning. In all such physical responses there must, too, be a localizing factor. This is presumably why some subjects suffer from complaints of the digestive system and others from cardiac disturbance. It seems most likely that the localization is the result of some accidental association process akin to conditioning.

It may be true, on the other hand, that there is, as suggested by Adler, an " organ inferiority ", that is to say, that we have certain inherited weaknesses of physical structure which are liable to lead to functional breakdown. Certainly a number of complaints such as those of the stomach and certain varieties of cancer and heart disease appear to run in

families. Some diseases, like hæmophilia, and the allergies, asthma, hay fever and eczema, are proved to be hereditary.

The Psychogalvanic Response

The response of the skin during intense mental attention has, for many years, been of special interest to psychologists as at first it appeared to be outside known physiological phenomena. It was first discovered by Gildermeister that acute mental attention or fear brought about a fall of the electrical resistance of the skin. This was subsequently found by others to be associated with a fall of the electrical potential of the skin.

The reaction is really one to a conditioned sensation and is produced by a variety of stimuli.

Thus not only does stimulation of the eyeball lead to the eyelids closing, but also any sudden movement or sound. A blow apparently aimed at the head will bring about closure of the eyes and in man an attempt to ward it off. But the reactions caused in such ways are not confined to responses of which we are conscious. A pin-prick anywhere on the body leads to constriction of the vessels of the skin, but so also does a threat of a prick provided the subject is convinced that the pricking will be carried out.

The reaction is really the same as would occur if there had been a sensation of pain.

At first the reaction was thought to be due to a secretion of sweat, but this has subsequently been completely excluded by the fact that the changes occur in persons who suffer from excessive sweating (Golla) and may be readily obtained if the skin is soaked and fluid electrodes used (Densham). Moreover, the reflexes are not prevented by atropine which effectively prevents sweating (Waller).

Many years earlier it had been observed by Mosso that similar mental states produced a diminution in the volume of the hand placed in a plethysmograph, or air-tight chamber by means of which the volume of the part may be recorded. His observations are preserved in his monograph *Fear*, but he showed that even such small mental effort as passing

from accustomed to unaccustomed Latin translations was sufficient to produce the reaction. Mosso realized that the diminution was due to the withdrawal of blood from the skin, and this accounted for the pallor of fear and the sensation of cold which may accompany it.

Subsequently Aveling and McDowall, finding that the fall of electrical resistance was produced in animals by the injection of adrenaline, suggested that it, too, was due to the withdrawal of blood from the skin, and subsequent work has confirmed this. Densham and his co-workers in association with McDowall have demonstrated that any procedure which withdraws blood from the skin diminishes its resistance, while engorgement produces the reverse effect. Since it was shown, by Lewis and Zotterman, that the resistance of the skin (50,000 ohms when dry) is located almost entirely in the superficial and avascular layers, it was assumed that the change of resistance, which may be 30,000 ohms, was due to changes in the shape of the avascular superficial cells. This, Densham subsequently demonstrated to be true with portions of human skin removed from a cadaver and studied with fluid electrodes.

Depriving the skin completely of blood causes the changes of resistance to disappear, but the change of electrical potential remains (Goadby) for reasons not yet explained. It may be associated with changes in the underlying tissue, for even in animals a small response may be obtained from areas below the skin.

The importance of such a reaction is that it demonstrates, easily and conveniently, that mental activity in man which is considered to produce negligible or no body changes may thus be shown to produce marked effects. The mention of words which, for the individual, have special psychological values is often sufficient, even if a threat of bodily harm is ineffective. It has been shown, however, that a once ineffective threat becomes effective if the subject has in fact been caused pain by the procedure threatened. Thus a subject (Hemingway) did not react when he was threatened with having an artery forceps applied to the ear, but once it had been applied the mere rattling of the instrument tray caused

a response. The response indicates, too, how much of the stress and strain of busy professional or business life which is often ignored until it is too late, must produce considerable bodily effects, and suggests why many of the most highly successful men of our time die early from cardiac failure or cerebral hæmorrhage. It emphasizes, too, the importance of relaxation as a measure of personal mental hygiene.

The Psychology of Sensation

It is usual to consider sensation to be a function of certain parts of the nervous system. We know that all sensations arise as the result of stimulation of certain nerve-endings in the eye, ear, skin, and so on. Nerve impulses are set up and conveyed by the nervous system to the brain, and if they reach certain parts of the cerebrum they are perceived as sensations. These facts we know because if these certain parts are removed or damaged there is ample evidence that perception does not occur. If the occipital lobe of the brain is destroyed blindness results, if the temporal lobe of the brain is damaged there is deafness. We do not, however, know exactly how and where perception takes place, not only so, we know that even if all the nervous pathways are intact and there is adequate stimulation of nerves, perception may not take place or may be distorted. We have already seen how under hypnosis or in hysteria, sensation, even that of pain, may be quite absent. These are somewhat extreme and unusual states, but there is ample evidence that the sensations of different persons apparently experiencing, or who have experienced, the same thing are not identical. We have already referred to the footballer who gets a kick on the shins sufficient to cause material damage, yet he does not recall having experienced any pain at the time of the injury. Actually use is commonly made of diversion of attention in essential work on some horses. Thus a horse which kicks furiously if any attempt is made to shoe it, may become quite passive if a loop of cord is put round its lower lip so that it can be twisted if needed. A child, too, may have its attention so diverted by a picture-book, that it

may not be aware of a needle being put into one of its veins. A cat may be given a hypodermic injection apparently painlessly, for it continues to purr and is quite undisturbed if it is stroked at the same time.

There is, indeed, a whole subject of sensorial or introspective psychology which has collected a vast amount of data on the subject which cannot be gone into here. The best collection of evidence on this subject is to be found in the writings of Boring.

It can, however, be said that all sensations are relative to others. There is no pure sensation. Everything we can experience occurs at the same time as other sensations, including those which make us aware of time and place, and our perception is affected thereby. We are familiar with a great variety of optical illusions in which it can be shown how erroneous our judgments may be if the objects are removed from their usual associations, or if some constant is altered. If, for example, the size of the lamp-posts in a drawing of a street is altered, our ideas regarding the size of the other objects in the picture are wrong. A well-known experiment is that of placing the left hand in a basin of hot water and the right in one of cold water. If immediately afterwards we attempt to judge the temperature of a basin of water at body temperature, one hand will tell us it is warm and the other that it is cool. As we read this, every word has a certain significance and each, as we have seen, may set up a train of thought which is different in all. We are, indeed, quite unable to describe sensations without using words which have other uses.

If we carry this argument to its ultimate conclusion it will be evident that what we perceive when we receive any stimulus depends on other experiences past and present. It is from this conclusion that pure behaviourists feel justified in stating that sensation is conditioned by past experience. Argument on this subject is limitless, futile, and may be left to the philosophers. For our present purpose it is important, however, to recognize that our sensations and emotions, although they usually bear some constant relation to our physical environment, they may not necessarily do so. They

depend on what may best be described as our psychological set and how attention is directed at the time of the experience.

It is evident that all such considerations have an important bearing on the symptoms of which a patient may complain. Of those which may be affected the most important is pain because it is commonly associated with serious disease, but other sensations, such as spots before the eyes, noises in the ears, excessive beating of the heart, trembling in the limbs, and itchiness of the skin are the most common complaints which are usually considered psychological if there is no obvious reason for them. It is but a step from these to the delusions of the lunatic. It should, however, be pointed out that in some cases what are thought to be abnormal sensations are really sensations which we normally ignore or to which we have become accustomed. If we put on a coarse under-garment we are conscious of its presence only at first. We become accustomed to it as we do to false teeth or spectacles. We do not normally feel the movements of the intestines but after a general anæsthetic which has rendered the intestine quiescent for some time the recommencement of peristalsis is quite readily appreciated. In certain circumstances we may become aware of sensory impulses which do not normally impinge on consciousness. The hypochondriac who is always "thinking about himself" by concentrating his attention on his body may become aware of large numbers of sensations, but at the same time it should be recognized that certain physical as well as mental states may contribute to this hypersensitivity.

We can in a more objective sense educate our senses to a most remarkable degree. Most medical students are appalled at how little they hear at first with a stethoscope, how little they feel when they palpate an abdomen, and how little they see when they first look down a microscope compared with what is said to be experienced by the teacher.

The Psychology of Pain

In various sections of this volume reference has been made to the effect of the mind on sensation. but it is desirable to

have a more complete view of the problem, the more so as its treatment by psychologists has not been satisfactory because these cases do not always go to them.

In Physiology we learn that pain arises as the result of impulses being set up in various parts of the body and transmitted to the thalamus where they may be appreciated crudely in consciousness, but detailed sensation, such as gradations of temperature and localization, depends on the impulses passing to the parietal lobe of the cerebrum immediately behind the fissure of Rolando. From this point we cannot trace them, but we know that if this part of the brain is removed sensation is lost. Pain is produced by damage or excessive heat or cold to the skin, but in the internal organs and muscles these stimuli do not produce pain. In these structures the effective stimulus is chiefly, if not entirely, tension. This is sometimes the result of distension, of excessive contraction, of asphyxia, or of the sticking together of peritoneal or pleural surfaces. Pain may also arise from inflammation or irritation of afferent nerves which are presumably stimulated thereby.

Pain is usually felt at its site of origin but not necessarily so. For various reasons it may be referred to superficial regions from which the patient has had previous experience of sensation. Thus if the foot is amputated stimulation of the ends of the nerves in the stump will cause a sensation of pain apparently in the foot that is off. For a more detailed consideration of referred pain the student is referred to medical works.

The importance of Psychology in relation to pain lies in the fact that the extent to which certain impulses give rise to pain depends on the psychological set of the individual, that is, any given injury may produce pain out of all proportion to what might be expected, or may not produce the pain it should or would in the average person. Both phenomena are common.

Conditioned Pain

ere is good evidence that pain may often be a condi-

tioned phenomenon established by repetition like conditioned reflexes.

A common example of this is the pain which becomes associated with injury and which is so important in surgery. After injury, pain associated with movement is very common and persistent, but it is now well recognized that the pain may persist much longer than its initial cause. This pain is seen in pet animals. A dog if injured may continue limping indefinitely, especially if it has received specially agreeable treatment during its injury. Occasionally when chasing a cat or a mouse it " forgets " its injury and the limp disappears. Some authors prefer to call this a " memory pain " because it bears many resemblances to memory, its dependence on the amount of attention paid to it being a marked feature.

Pain on movement may occur in injury to the foot, or knee, or in sciatica, but once established such pain may be extremely difficult to cure, especially if the subject benefits in any way from having the pain. The pain is commonly an excuse for absence from work (see " The Escapes "). It is now well recognized that after injury, recovery is much more likely to occur if a lump sum is paid down by an insurance company than if paid by instalments.

There are many varieties of this conditioned pain; a doctor may not have the typical symptoms of gall-stones until they have been definitely diagnosed by X-rays, or he may develop all the symptoms of cancer until he is convinced, by continued life, that the symptoms from which he suffers have a simpler cause. A man who thinks he has exposed himself to venereal disease may develop an abnormal sensation in, or even inflammation of, his penis.

Fear is a phenomenon closely related to conditioned sensation, but is entirely a threat and may or may not have been associated with the sensation of pain. The emotion of fear is experienced in relation to any kind of threat to security and is therefore dealt with in an earlier section.

A point which has come to light since first the author used the term conditioned sensation has been the treatment of pains, localized in muscle tendons or ligaments, by the injection of local anæsthetics. These drugs can only act for a

short time, but they often cure the pain permanently. The cure probably depends on the extinction of some conditioned process, and the realization by the patient that the part can be moved painlessly while he does not know exactly how long the action of the anæsthetic lasts.

Psychological Reduction of Pain

The most dramatic examples of this phenomenon are seen in hysteria in which the individual may be quite insensitive to injury to the skin. It is possible to cut or burn the patient without any sensation being produced. Such a state may also be produced by hypnosis, but suggestion will also reduce pain. Often the doctor makes use of suggestion in saying " this is not going to hurt ", " it is only a pinprick ", while the mother makes the hurt child better by a kiss. There are many examples, too, of " faith cures " of diverse kinds masquerading under many names. The subject has already been discussed in relation to " Suggestion ".

Pain can also be reduced by a form of repression or suppression by strong-willed persons. Typically this is seen in the case of toothache, but also in many other chronic ailments, such as mild neuritis, fibrositis, gall-stones, rheumatism, etc. The patient may be exhorted just to " forget it " or not to think about it, not to let it beat him, and so on, and the pain often disappears miraculously, although in some cases, such as a carious tooth, the cause certainly remains. Most headaches can be caused to disappear if the individual's thoughts are diverted in another direction. In this connection it is of interest to remark that we have already referred to the importance of attention in relation to memory, a fact which suggests the probability that in many cases the pain may be a memory and not the result of stimuli set up at the time. This subject is discussed further in relation to conditioned sensation. It is stated that some drugs relieve pain by obliterating its memory.

The Psychological Increase of Pain

This is one of the most difficult problems of Medicine, for no doctor can ever really be certain that there is no satis-

factory pathological reason for the pain and, whether there is or not, the patient consults a doctor to be rid of the pain whatever its cause. Minor changes, such as mild distension of internal organs, may give rise to more alarm than they warrant, especially in nervous subjects in whom "a little knowledge is a dangerous thing".

Sometimes a condition of anxiety is initiated by the illness of a friend and any abnormal sensation may be mistaken for something more serious. Thus excessive gas in the upper part of the stomach may be mistaken for pain in the heart, or gas in the cæcum for appendicitis, and so on. In the sphere of pain it is hard to distinguish between anxiety neuroses and hysteria, for in many cases the patient by claiming the pain succeeds in escaping some disagreeable duty. A lady is usually given the benefit of the doubt when she says she has a headache and cannot do what really she dislikes.

It is obviously quite futile to tell a patient that he has not a pain, for he alone is the sole judge in the matter, but from our own experience of pain and the extent of his injury we can sympathize or tell him to be brave or not to make a fuss, as the case may be. If nothing can be found to account for the pain we can only tell him so. In many cases the patient feels reassured and the pain disappears, but unfortunately in other cases evidence of a deep-seated reason may occur later. I have myself had the experience of being dubbed a neurotic when in fact I had as yet undiagnosed gall-stones which were subsequently removed. Moynihan records that cases of duodenal ulcer were commonly considered a neurosis before their true nature was discovered. It is, however, well recognized in Medicine that many patients are better not to know the exact cause of their complaint. This is true commonly of inoperable cancer. Even if the condition found is harmless the patient is likely to develop symptoms if he knows it exists. A lady with a needle embedded in her hand for ten years only complained of it when she was frightened by an inexperienced doctor. Reassurance caused the symptoms to disappear.

It would, indeed, seem that the anxiety state can obtain escape by passing into the hysterical state which may be

engendered by an over-sympathetic doctor. Escape into hospital or nursing home is remarkably common, and many patients, when they get really well, can look back to a stage when they did not wish to leave the hospital and face the world again. In fairness to patients it should be stated that generalized physical enfeeblement tends to produce such neurotic states. Some psychologists call the pain hysterical when it can be cured by simple psychological means, but it is doubtful if this is justifiable, for real pain can be prevented by hypnosis. Thus they talk about hysterical headache but deny hysterical toothache, both of which may sometimes be treated psychologically. There is, indeed, no hard and fast line between the pathological and the neurotic, and one may readily become superimposed upon the other. The differentiation is part of the art of medicine which is difficult to acquire. The family practitioner is at an advantage in knowing the mental habit of his patient and this has been used as an argument against the regimentation of Medicine, but on the other hand it may lead to a pathological lesion being overlooked.

The Psychological Production of Motor Symptoms

We have already seen that loss of the power to move a part of the body is a common symptom in hysteria (page 162) and that abnormal movements may be produced.

Apart from hysteria, there are several " diseases " in which the psychological factor often plays an important part.

This has become well recognized in *asthma*; a patient sensitive to roses has been known to develop an attack on entering a room with artificial roses, and if we may judge by the effects of treatment in no fewer than 25 per cent. is it primarily concerned. Workers for the Asthma Research Council have demonstrated that this percentage of cases has been successfully treated by the hypodermic injection of ordinary salt solution (0·9 per cent. NaCl) administered with due ceremony. This is important as it indicates that the psychological element may predominate in any treatment

whatever its nature. It is well known, too, that asthmatic attacks do not commonly occur in asthmatic patients when they are admitted to hospital. In such circumstances we must consider that the unusual environment brings about increased sympathetic activity which prevents the condition, for we know that the injection of adrenaline, which acts like the sympathetic, relieves an attack.

Vomiting has often a psychological element. This is important in early pregnancy and a large number of other conditions. It has also been produced experimentally; thus Dixon, in investigating the action of apomorphine, which causes vomiting, found that eventually the dog vomited as soon as it saw the syringe. Hysterical vomiting and difficulty in swallowing are also common.

We have already referred to fainting and irritability of the urinary bladder and diarrhœa as escapes, and this opens up the very interesting possibility that all such diminished sympathetic activity which leads to over-action of the parasympathetic is of a similar nature. In this category, too, we would then include excessive secretions of mucus by the large intestine, or the so-called mucous colitis. Theoretically it ought to be possible to diagnose all such parasympathetic conditions by means of atropine, full doses of which paralyse parasympathetic activity and thus cut off connection between the brain and organ concerned. Such full doses, however, are very disagreeable.

Conditioned Fatigue

This condition can scarcely be appreciated by those who have not experienced it, but it is a perfectly normal phenomenon. It is, however, an important factor in convalescence and unemployment.

A patient who has been ill often suffers very much from a sense of exhaustion and fatigue which may be very considerable. This is experienced typically after influenza, and still more so after a major abdominal operation, in which case it may continue for months. It occurs in all classes of workers after prolonged unemployment. Unless the subject

is expecting and understands it, it is most distressing and depressing. Not only so, it is extremely difficult to continue to make oneself "do things", and serious illness may be suspected, or the patient may fall a victim to the many subtle advertisements which claim to restore vitality.

It is not to be wondered, therefore, that in many, this sense of fatigue becomes associated with a quite small amount of work. Many patients tell their doctors that they simply cannot do this or that, say walk five miles, yet to do so is within the reach of every person who is not suffering from any diagnosable ailment other than fatigue. "That tired feeling" and the fatigue-complex are very closely related to work-shyness and, psychologically, to a fear of the sense of fatigue and an escape from the reality of work.

It seems probable that conditioned fatigue is a factor in premature senility. There comes a time, usually about the age of forty, when a man can no longer be a first-class athlete. Few men find they have the time and energy to indulge in the more active sports after this age and many get out of training. They hate to be beaten by younger men and some get so depressed that they give up games altogether, with the result that they get worse and become old before their time. At this stage many become patients and only require being properly told that they are out of condition but otherwise quite healthy.

It seems also most likely that the disinclination of many to do mental work is due to a similar train of circumstances.

The treatment of conditioned pain or fatigue is difficult, for the doctor may, by the slightest indication that he thinks the symptom complained of is "not real", simply cause the patient to go to another doctor who is more sympathetic and often less scrupulous. Commonly, too, the patients come to hate the doctor who genuinely may be trying to cure them by encouraging them to try to ignore the pain. The hate may spread to a hatred of all doctors and a cure can then only be possible by a non-medical man who admits the pain but claims to cure it by treatment which can only have a psychological value. Electricity, mysterious appliances, manipulations, faith-healing have their adherents and, if used

with sufficient ceremony, may effect cures. The most satisfactory procedure is generally for the family doctor to pass on the patient to a consultant whose name, fee and address contribute to the success of the treatment.

It is essential in treatment to obtain the confidence and co-operation of the patient, for it must be remembered (and this, Psychotherapy has taught the older physicians) that the ailment is real, and that it is as much the doctor's business to treat it as it is to treat an existing pathological lesion. The blunt suggestion that the patient is malingering, or treating him as if he is, by some variety of solitude treatment may produce such resentment that the cure may become even more difficult. Exhortation, combined if possible with incentive to recovery, such as pointing out that the complaint is usual, combined also with a modicum of sympathy and attention, is needed. Sometimes all the wiles of the quack are needed to assist, and the honest doctor must not forget that the patient goes to him to be cured, and if he does so, he is not dishonest simply because he does not confide the true nature of the complaint to his patient or his friends. (See Appendix, p. 255.)

Psychology in Relation to Fatigue

It is not possible in this volume to give more than an indication of the importance of psychology in relation to fatigue, which really owes its general acceptance to its study during the war of 1914–18, and to the finding that the proper spacing of work and leisure not only led to an increased output of munitions but gave the workers more time for relaxation and contributed materially to their health and happiness. It is of interest that the national drive in aeroplane manufacture which followed the disaster in France of 1940 resulted after a comparatively short period in a reduction of output. Workers were described by practitioners as unfit for work, although they could not be diagnosed as suffering from any definite complaint other than fatigue.

We are all familiar with physical fatigue but by a simple experimental study it can easily be demonstrated that if the

maximum amount of work is to be carried out in a given time, adequate rest periods must be given. This can probably best be shown by moving, with a finger, a ratchet wheel round the spindle of which is a cord which passes over a pulley in the ceiling to a movable weight. The height to which the weight is raised in a given time with and without rest pauses, can be measured. A record of the extent of each movement of the finger can also be obtained.

This finding has been applied to many varieties of industrial tasks, and ample confirmation of the universal application of the basic fact that unless adequate rest is given, fatigue rapidly sets in and defeats the purpose of continued work. It has, however, been pointed out to me by a works' manager that while this is true, there are those who go so slow that they do not appear to suffer from fatigue.

It is not generally recognized that these facts which are so easily and so well proved in relation to physical work, are equally applicable to mental work also, and there is evidence that industrial fatigue is partly mental and only partly neuro-muscular.

In the more purely nervous aspect, fatigue has been studied in relation to continued mental effort, whether concerned with the acquisition of knowledge or mental output, and the effect of lack of sleep. It has been shown that such continued effort produces a state of fatigue which can be ameliorated by rest, and that the maximum amount of mental work which can be done in a given time, is done if associated with properly spaced rest pauses. Experimentally, it is less easy to demonstrate the falling off of mental than physical efficiency because of the difficulty of obtaining mental standards in ordinary business or professional life.

Gross mental inefficiency is, however, often quite obvious, and quite apart from inaccuracies it is found that the man suffering from brain fag is liable to make bad decisions which he would not make when rested. There is little doubt that public life suffers much more from this fact than is generally recognized, especially in war time.

CHAPTER XXI

THE EFFECT OF BODY ON MIND

One of the unfortunate results of the separation of the spiritual and material concepts of mind has been the tendency to look upon the lunatic as the unlucky possessor of an infirm mind, the product for the most part of inherited weakness from which recovery was seldom possible. It is also a regrettable fact that the majority of asylums are not equipped for the adequate study of their inmates, too many of whom linger within their walls until they die. It is now, however, becoming recognized that many of these cases if properly investigated at an early stage in their disease are recoverable, while many of those " on the fringe " and who are classed as " queer " may be restored to normality by proper treatment. Further, it becomes more and more evident that disease of the body and disease of the mind are so interdependent that they can no longer be separated. It is now not enough to deplore that a man has gone " off his head ". Instead we should ask why he has become so afflicted and by so doing we shall slowly add to our meagre knowledge. Already it is clearly evident that different general states act on specific faculties. Thus syphilis may produce delusions of grandeur ; sepsis, depression ; alcohol, loss of restraint, and so on. On the other hand, alcohol, for example, does not affect all individuals equally. Some become aggressive, some depressed, and some " just happy ". All these are the problems of the practising psychologist of the future. Meantime an indication of the effects of recognized pathological states on mind is of interest. An attempt has been made to classify them into groups, but it must be realized that this is intended to be merely tentative and suggestive. It may, too, be added that a great deal of the work needed in this field of investigation does not need fully trained medical men. A large amount of it could be done by any intelligent person working under supervision.

Mental Senility

We are all unfortunately familiar with the mental deterioration which occurs in some persons in old age, although the actual age at which this appears varies very much. It is common to refer to the changes as a return to second childhood, but before this stage is reached there are a number of well-recognized changes. One of its most striking features is loss of memory for recent events while those of early days remain fresh. This forgetfulness tends to result in repetition in conversation, especially in regard to questions, which is aggravated by a dearth of ideas. Fabrications to fill memory gaps are common. Before this occurs there may often be a period of loquaciousness sometimes unfortunately seen in very distinguished persons before they retire from public life and typified by the garrulous old woman. On the whole, there is a certain lack of alertness and adaptability to new surroundings with a fixity of reaction and appreciation with which it is often difficult to cope. Interest in new subjects is extremely difficult to arouse and the mind tends to dwell in the past. There is general lack of sociability which may be associated with extreme quietude or quarrelsomeness.

In some there is really a return to "second childhood", when, as its name suggests, the individual is no longer capable of caring for himself.

All these features require further study, especially in those who have been psychoanalysed and whose mental histories are recorded, for it would seem that the last additions to mental content are lost first. How far such changes depend on lack of blood supply and how much on actual senility of nerve cells is unknown. There seems to be little doubt that in some cases of senility, especially when premature, there is some degree of cerebral anæmia which is secondary to degeneration of the blood-vessels of the cerebrum. The chronic effects of alcohol may in part be due to like causes.

The Influence of the Sex Hormones

The occurrence of lunacy and lesser degrees of mental upset at the menopause in women has long been recognized, but its successful treatment by ovarian hormones has placed the

subject on an experimental basis. The fact that changes in the sex instinct are affected by ovarian hormones has already been referred to, as has also the effect of adrenal tumours on female mentality.

The occurrence of lunacy at puberty and during pregnancy and lactation is also known and may be a related phenomenon, while the term hysteria suggests its relation to the uterus, although admittedly it is common also in men.

Insufficiency of oxygen

Anoxæmia has a marked cerebral effect. In its simplest form it is seen at high altitudes where its effects are usually described as like those of alcohol. This drug, like anæsthetics, acts, we believe, by reducing the oxidative processes in the cerebrum. Similar changes occur in coal-gas poisoning in which we know the oxygen-carrying power of the blood is reduced. Clouston describes cyanosis and also an anæmia curable by iron as causes of actual lunacy.

A characteristic of all these conditions is the loss of inhibitions which have been imposed by the herd. Self-consciousness is reduced and the sense of capability increased, while experimentally it can be shown that skill in performance is reduced, provided the task chosen is not one which is normally interfered with by self-consciousness. There is an increased sense of well-being and the sexual and fighting urges may be above normal, but there is a great variability in this respect. Some persons become quiet and miserable after alcohol, depending, it is thought, on the circumstances in which it is taken (Dixon).

The changes which occur during the induction of anæsthesia are similar. Sometimes restraint in relation to language is thrown off to a most remarkable degree. Many hypnotics act similarly but more slowly, and advantage is taken of this in the study of cases. Under the influence of such drugs, of which pentothal and amytal are most popular, it is often possible by thus reducing consciousness to investigate the subconscious and unconscious mind to a most remarkable degree, and use is made of this procedure to uncover unknown conflicts or repressions.

Here it may be pointed out that there is still an enormous field for investigation in the study of the effects of drugs on the mind and on mental processes. Thus caffein has been found to facilitate the formation of conditioned reflexes, while alcohol has a reverse effect and reduces inhibitory reactions.

Infection. Septic Psychosis

The occurrence of mental disturbances in diseases of bacterial origin is well recognized. Clouston, who was one of the earliest to make a systematic study, describes lunacy as occurring in rheumatism, tuberculosis of the lungs, nephritis, influenza and in toxæmia generally. Of recent years great attention has been paid to septic foci, particularly of the tonsils, teeth, ears, uterine cervix and the various nasal sinuses which are all so liable to be overlooked. The difficulty in assessing these is that these diseases undoubtedly occur without any mental manifestation. The occurrence of temporary changes in rheumatism, influenza and during acute tonsil attacks is, however, most suggestive, and most who have suffered from acute influenza are well aware of its depressing effects which are a recognized cause of suicide. Hunter has pointed out that the incidence of such septic conditions is extremely high (76 per cent.) amongst mental patients in asylums, and has received the support of Adolf Meyer and of Moynihan. More recently this has been emphasized by Pickworth. It is, however, difficulty to obtain good evidence on the subject. How far infection within the asylum is responsible is difficult to assess, but the occurrences of rapid recovery after treatment such as those quoted in the Appendix are most convincing. I can personally vouch for the occurrence of the great mental depression which is associated with sinusitis and septic tonsils. (Appendix 265.)

The effects would seem to be the result of toxic absorption and not unlike that produced by jaundice.

In the acute fevers the occurrence of delirium is common, but this in part may be due to the high temperature.

Cerebral Syphilis. The occurrence of the typical mental change peculiar to general paralysis was known long before it was realized that the state was due to cerebral syphilis.

The state is characterized by general mental elation accompanied commonly by delusions of grandeur which may lead to great embarrassment before the exact nature of the condition is recognized. The identification of the self with that of an historical personage or another superior in status to the individual concerned is very common. In this case it would seem that it is the presence of the spirochæte of syphilis and not its toxins which causes the mental state, for it is a late manifestation of the disease, and widespread syphilis which may include the spinal cord does not necessarily have the same effect.

Metabolic Disorders

Lunacy is described as occurring in diabetes, gout, under-action and over-action of the thyroid gland, but to remark on these would be but conjecture.

More recently it has been pointed out that acute mental depression with an abnormally heightened sensibility to sensation, especially to abdominal sensation, may occur in vitamin B deficiency, when a variety of other symptoms referable to the cerebrum and mid-brain may also occur. These facts are particularly suggestive as we know that vitamin B plays an important part in the oxidative processes in nervous tissue. It seems not improbable that many toxic states also really act by affecting the metabolic processes.

Trauma

The occurrence of a temporary mental disturbance in normal persons after cerebral injury is relatively common and most remarkable changes may occur. The author is aware of one case in which an individual lost the power of speaking French after an assegai wound in the head, but continued to speak English.

The concussion produced by a blow on the head may result in a wide variety of changes which are commonly recognized in Rugby football and especially boxing. The most notable changes are loss of memory of events which precede or may follow the blow. Cases are recorded in which a man has been able to continue and win a fight yet

be unaware of the result later. The more prolonged amnesia which may follow explosions are often more severe forms of the condition but may merge into and may become confused by hysterical states.

Less acute forms are seen in boxers who may become "punch drunk" and behave as if intoxicated.

Very often, however, mental changes attributed to injury have merely been exacerbations of existing mental weakness, and it is probable that this may also be present in the toxæmic cases.

Much more definite are the cases of cerebral tumour which get admitted to lunatic asylums before they are diagnosed. Tumours of the frontal lobe may produce no other symptom than lunacy, and here it may be added that a large proportion of patients who die soon after admission to an asylum may be looked upon as suffering from some primary pathological state which has been progressive.

The mental deterioration which is liable to occur in epilepsy, frequent hypnosis, and chronic narcotic poisoning would seem to be somewhat similar to that occurring in trauma, although the effects are less violent.

The mental "shake up" which occurs during the convulsions and coma produced by a large dose of insulin or of cardiazol is of special interest since these substances have been used with advantage in cases of schizophrenia or split personality in which the patient appears to be shut in on himself, i.e., in a state of extreme introversion. No satisfactory explanation has yet been put forward to explain the results but, as we have said, the occurrence of benefit in such cases has made psychologists realize the dependence of personality on physical states. Such cases are often admitted to asylums and many have recovered after such treatment.

It has also been shown that in cases of depression an increased sense of well being can be produced by cutting the white fibres passing from the thalamus to the frontal lobe.

Mental and Physical Exhaustion

In relation to conflict we have already remarked that the

physical state of the individual may determine whether he fights or submits in a conflict. It is, as we have said, the basis of so-called third-degree investigation by the police in some continental countries. How far such exhaustion may be a basal factor in many toxic states is a problem which should not be overlooked, and we are reminded of the Roman tag, " Mens sana in corpore sano "—a healthy mind in a healthy body, indeed, the word *sane* is derived from the Latin word meaning health.

Physical Defects

In many cases physical defects produce a very great variety of states of depression or a sense of inferiority. These may be present from childhood or may be the result of injury. Of the acquired defects facial disfigurement from burns or paralysis are most common and may lead to the subject being " sensitive about his appearance " and becoming a depressed recluse. Sometimes the subject discovers that he is sexually deficient. There may be failure of the testes to descend in the case of a man, or in the case of women failure to have children for a variety of reasons.

Conditions present from birth are referred to in more detail in relation to " Inferiority ".

Gross abnormalities in cerebral development may grievously impair mentality. The most striking is the state of the anencephalic idiot whose cerebrum has failed to develop. Such unfortunates are completely incapable of looking after themselves and are more brute than man. Bolton has emphasized that the development of mental activity is closely related to the development of the cell layers of the cerebrum. Provided the innermost layers are developed, the instincts may be present but little more. In the case of the thyroid, already referred to, the lack of development is general and the subject but for treatment would be an idiotic dwarf.

CHAPTER XXII

THE EVOLUTION OF THE INDIVIDUAL

In an early chapter of this book it was pointed out that adaptation of the mental life of man to his environment is no less important than the physical adaptation which is so well seen in the lower animals. It must be evident that mental adaptation is a lifelong affair because there is not only a slow development of mental processes but the environment is ever changing as the worlds of the child, the adolescent and adult unfold themselves and make demands.

Mental development is at first rapid, in adolescence the power of absorbing new material is remarkable. In the adult it begins to slow down, but it never really ceases although it may become more static in some cases than in others. Thus we see fixity of thought and failure to accept new ideas more marked in certain individuals.

From the moment of birth a great variety of forceful stimuli impinge on the nervous system and affect the mental development according to the upbringing of the child. It is convenient to consider the chief of these as occurring at definite age periods during which the individual becomes aware of the more important influences of his life. Each new influence as it comes along may, for the time being, be paramount but, like footprints on sand, never completely obliterates the earlier impressions, however much it obscures them. Excess of the normal impressions during any particular age period may cause an excessive reaction to that impression which may be difficult to eradicate.

It must be understood that considerable overlapping may occur but the earlier impressions are always the most important, probably because they utilize a greater proportion of the available mentality or functioning neurones at the time of their reception and because subsequent mental development is based upon them. They constitute the earliest evidence of the security instincts to which reference has already been made.

In an earlier chapter we have already discussed " Infantile Sexuality ", but it is little more, as has been seen, than this appreciation of comfort, and it must be agreed that if the child has any feelings at all it must find the world upon which it has been thrown a cold, hard place and must derive much comfort and pleasure from anything which makes it otherwise. The pleasure of consuming hot milk or of having a warm dry napkin must be considerable, and most adults appreciate comfort, if of a less simple kind, throughout their lives, although it must be admitted that comfort is largely a matter of habit, as is well seen by the different kinds of beds in which people can sleep.

In our present connection it is important, however, to recognize that it is at this stage that the child has its first experience of pleasure and of a world other than itself.

How far these very early cradle experiences permanently affect life is difficult to say, but the consensus of opinion would be probably very little and certainly no one could check the statements. After the age of three when memories begin to be laid down the matter is quite different.

The idea has been suggested of a tree which slowly grows but never loses the traces of the various factors which may have affected its growth. Heredity, early injury, severe climate, proximity of other trees, etc. etc., all play their part in determining the total shape (Maclay). This simile gives some idea of the development of personality, but reaction is probably given better by that of a sandy sea-shore immediately after the tide has gone out. The first person who goes across makes clearly-defined footprints, especially when the sand is soft. Others may cross, but the original footprints are never really obliterated although they may be obscured, they could be traced by careful analysis of all. Certainly early experiences do leave a greater mark than later ones on the cerebral reaction.

The subject is discussed in more detail by many authors, notably by Stern and by Miller.

The Ten Ages of Man

Shakespeare gave to man seven ages : the puking infant in

his nurse's arms, the whining schoolboy going unwillingly to school, the lover with his poem to his mistress, the soldier fierce and full of strange oaths, the round-bellied justice with formal air, the bespectacled old man with lean shanks, and finally second childhood " to end the strange eventful history ". The psychologist sees many such stages but would subdivide some of the earlier ones.

It is convenient, therefore, to tabulate these according to the approximate ages which are most important psychologically, but it must be understood that the factors overlap very considerably.

0– 2. The appreciation of comfort and pleasure.
2– 5. The appreciation of protection.
3– 7. The appreciation of restraint.
3– 7. The appreciation of physical power.
5–10. The appreciation of competition and the development of the desire to compete and of jealousy.
5–13. The appreciation of mental power.
13–20. The appreciation of sex.
15–30. The appreciation of the desirability of earning a living or of leading a valuable life.
40–50. The attainment of a sense of values.
50–70. A fixity of appreciation.

The Appreciation of Comfort and Pleasure

During the first few years of life, food and physical comfort or protection appear to be of paramount importance. There is, however, considerable argument regarding what may be described as petting the child, for there is no doubt that the average baby prefers to be held in the arms to being left in its perambulator. This has been maintained by some to have a sexual significance on the part of the child and to indicate its appreciation of love. It is, however, just as possible that the fondling of the child satisfies its desire for protection and promotes its hope of being fed, the more so as fondling is usually associated with feeding times. The environment is for practical purposes the mother or her representatives through whom all required blessings

come. If by accident the child learns that by crying it is likely to be fed or fondled at unusual times it very rapidly begins to cry almost incessantly, although the mother usually can with practice distinguish between such crying and that which really requires attention.

Pet animals exhibit many of the characteristics of babies and some much more than others. Dogs, cats and young monkeys appear to appreciate the protection of man although there is often what is called "cupboard love", that is, the animal is often primarily interested in what food it may, by a display of affection, succeed in getting. Many pet animals show, however, distinct appreciation of petting apart from food. The cat purrs, the dog wags its tail, some horses obviously like to be patted or stroked.

This satisfaction of the security instincts may be looked upon as a primary consideration of life not only of the young but of all animals of all ages. Without food and protection, life becomes seriously endangered and impossible if the want is prolonged. It is not surprising therefore that the reaction to lack is usually very intense and violent and that if it occurs during youth its influence on the mentality of the individual may never be wiped out. We are all familiar with those who, having been brought up under great hardship, retain the scars throughout all their lives. The novels of Charles Dickens testify well to this as do the speeches of many of our most ardent social reformers. Often, indeed, they may be so affected by the existing evils of our social system that they fail to see its advantages, for many of these evils could only be abolished by a loss of cherished individual liberty. It is, however, so important that the child should not be taught to cherish security too much, otherwise, should an abnormal security reaction become fixed, he may subsequently be markedly lacking in enterprise, be unwilling to take risks or undergo physical discomfort.

The Appreciation of Restraint

At a very early age the baby has to learn the rules of its herd and it soon becomes necessary to train children as one

would train a pet dog, the same principles applying in both. The necessity for this arises primarily from the need for cleanliness of habit, economy of time and labour. The child or young animal is taught that there are regular times of feeding and fondling and readily accepts the inevitable. Special facilities for excretion at regular intervals are provided and these very soon become almost automatic. Lack of observance of these times becomes associated with certain minor penalties, such as evidence of obvious disapproval which at least appears to jeopardize in the child or animal mind continued protection and food supply which the young creature realizes is essential for a comfortable life.

With increasing years a restraint becomes necessary which may be more than that demanded of a pet animal, and it is here that the greatest harm may be done by restraining to excess and by allowing too much freedom.

It is clear that as soon as possible the child should be made to realize that the restraint is in its own interest. If it breaks things it cannot have them, that if it goes too near the fire the result is likely to be painful.

Noisy play by children, however annoying it may be to adults, cannot be looked upon as abnormal any more than the bark of a dog during a ball game. It can, however, be limited to certain times and places, and as soon as possible it can be pointed out how disturbing it is to others. The noise of children should be considered by adults to be in very much the same category as the wireless or gramophone of the neighbour next door. It is inevitable, but is only a nuisance in excess or at the wrong time.

The old view that "children should be seen and not heard" has fortunately largely passed into abeyance. Its enforcement undoubtedly led in the past to many instances of children who reached adult life with a dread of expressing themselves freely and not infrequently to stammering, embarrassment in the presence of strangers and lack of initiative and self-confidence. Undue parental admonition tends to produce what Jung has called the "introvert" who finds himself always in difficulty with his environment and shrinks from social contacts. He tends to live unto himself

and take up pursuits which might be called lonely, such as research, literary work, accountancy, and even medicine.

The child who has too much freedom and gets all it wants or cries or sulks until it gets it, on the other hand, tends to develop undesirable traits. We are all familiar with the reactions of the spoilt child. In adolescence he is frequently opinionated, selfish and careless of consideration for others. Later when the opposition of the world is inevitable he takes hardly with it and he feels the world is against him. When up against it he sulks and is unhappy, attempts to escape the conflict or may rebel violently. Such persons can seldom compromise because they fail to appreciate the point of view of others and thus become ineffectual members of a modern society in which all degrees of give and take are necessary. In this category are many of the tragedies of modern life, especially when the individual concerned has capabilities beyond the average.

Sometimes as a result of some childish ailment the child has been given a freedom which would have been denied to one healthier; and sometimes the mother still recalls the undue restraint she herself suffered at an early age.

In later life the restraint of the parent is replaced by the restraint of the community, that is the customs and laws of the country. This is sometimes called the cultural determination of personality. Thus certain groups of persons may, because of the society in which they have been reared, develop their personalities along certain lines. The group itself may, however, be influenced by the laws and customs prevailing in the country at the time and by the hereditary tendencies characteristic of different nationalities. Thus the German and the Chinese tend to be submissive while the British and American stock tend to be independent.

Respect for authority is born of respect for the parents, but both must be worthy of the respect. Thus a parent who through selfishness leads the other parent or children an unduly difficult life may not only forfeit authority at an early stage but engender in the children a rebellion against authority in later life. The children of such parents benefit enormously through being sent away to school.

For the protection of societies certain restraints have been laid down in the Ten Commandments which, although first given to Moses in biblical times, have received general acceptance, although in many instances they restrain instinctive desire. At an early age stealing, lying and truancy are the commonest difficulties in bringing up the young, but each is a perfectly natural response exhibited by animals also in so far as they can. Their importance at an early age, however, is that if not adequately checked they may persist until they become sins against society which in return may take serious measures in its own defence. These subjects are discussed by various authors in the book edited by Miller.

The Appreciation of Physical Power

The possession of physical power is appreciated as soon as the child realizes that it can do things, but the psychological importance of this becomes more marked when the child grows a little older and can compare its activities with those of others of its own age. Competition in running and ball games are probably the two commonest activities in which comparison may be made. There is ample evidence that physical defect may have an enormous psychological effect on the child and the young person. The reactions produced are dealt with below in relation to Inferiority.

The Appreciation of Mental Power

This begins whenever the child goes to school and has the opportunity of comparing its mental capabilities with those of others. At this stage the teacher plays an enormous rôle in adjusting the outlook of the child, for it is well known that different children do not develop mentally at the same speed. Various mental tests have been devised to determine the intelligence of children at different ages. There are many examples of men who were dunces at school and who have become very successful in many walks of later life and of brilliant schoolboys who never did much afterwards. At the same time any concerned with teaching at a later stage

know full well that there is an enormous variation in human capacity both in speed and in accuracy. Difficulty at school may lead to a hatred of books and of practically all things scholastic. With an undue hatred of books may come a dislike or distrust of the more fortunate on the educational side. An attempt to enforce learning may lead to unfortunate consequences, especially in regard to those who are responsible for the forcing. Rather the dull child has to be led along those paths of knowledge which are most essential for his future life. (See "Inferiority" below.)

Great success at school is probably no less a handicap as it gives an early sense of superiority which may not be readily recovered from when the time comes when qualities other than those of the schoolboy may be really more valuable. This type of snobbishness or superiority complex is not uncommon too amongst those who, on schoolboy merit, have been able to win University scholarships.

Such "clever" boys often react badly to competition and are unduly hurt when others are preferred for posts on grounds not evident to themselves, and often become sour and disgruntled with life no less than the dull boy who at an earlier stage has become adapted to his dullness.

It should be understood, however, that there are many examples of those who have been extremely capable at school retaining a capability above the average in after life.

Inferiority

The appreciation of physical and mental efficiency in the nature of things leads to comparisons, especially to comparisons with one's own performance of a given task. The comparison may be favourable or unfavourable to the individual who makes it. If it is favourable the power instinct is satisfied and every success is envisaged for the future. As has been said, success breeds success, although not infrequently conceit. When, however, the comparison is unfavourable, a quite different set of reactions set in, their nature depending very much on the personality and upbringing of the individual concerned, but so intense may be these reactions, they may

so materially influence the mentality and general outlook of the individual, that they can be recognized in his behaviour. According to this view, inferiority is the antithesis of the power urge. It is as if the individual is in doubt regarding his chances of surmounting the difficulties of his environment.

Adler made Inferiority or Inadequacy a central feature of his so-called Individual Psychology in which the personality is considered as a unity having the definite purpose of making the individual supreme in his sphere, and each man is an individual striving towards the attainment of some ideal or goal which may, or may not, be apparent to his conscious self. The inferiority may be inherent or conditioned.

Inherent Inferiority. Such inferiority may depend on physical infirmity or mental incapability. It may be inherited or fortuitous as a result of physical accident. Commonly it is evident to others, but it rapidly becomes evident to its possessor when he pits his efforts, physical or mental, against those of others. Apart from gross infirmities there may be other defects, such as urticaria, asthma, tuberculosis, bronchitis, tonsillitis, gastritis, or defects which may have occurred during childhood and leave the individual with a sense of weakness in some part of the body which tends to become a source of special attention, or of symptoms when the subject is, for any special reason, " up against it ". This is specially the case if the individual has been pampered and has had special attention and sympathy paid to his ailments during childhood. Admittedly it is always difficult to be certain that there has not, in fact, been a persistence of physical weakness which becomes exaggerated at times of reduced resistance.

Conditioned or Induced Inferiority. In this variety the individual may have about average physique or intelligence but suffer from ambitious parents who were frequently bringing him into relation with those of higher ability. This is often the fault of the parents and teachers who induce in the children undue striving to be " at the top of the class ", and cast a stigma on those who are " at the bottom ", forgetting that however good the pupils they cannot all be at

the top. Emphasis should be placed on the standard of efficiency rather than on the relative position. In this connection it should be pointed out that the idea of placing pupils in an order of merit is to be deprecated. Since, however, it is to some extent unavoidable it should be done for each separate subject to permit the boy dull in one subject to show his efficiency in another.

In later life conditions of employment may engender an inferiority. This is particularly liable to occur at the beginning of a new job, especially when there is an impatient employer or teacher. This is the common experience of students and residents in hospital, and a certain robustness of character is needed to overcome the despondency it may bring about. It is important that employers should realize that some persons are more sensitive than others in this respect, and that correction should be mingled with exhortation and encouragement. It must, however, be understood that undue criticism is often, as we shall see, the simple reaction of inferiority on the part of the critic.

There is good evidence that stammering and stuttering may be induced by bullying, usually by a parent or teacher, which undermines self-confidence. Eventually, if the subject becomes sensitive regarding his speech defects, a vicious circle may be formed. Stammering may also occur as an escape and less often from faulty respiration. (See Rogers, also Fletcher.)

The sense of inferiority which may be caused in early life by lack of promotion and failure to be selected for a certain post is often very marked and may lead to acute depression and mental breakdown which can only be counteracted by reasonable argument as to why the successful one was more suitable. Some of such unfortunates become so depressed that they consider escape by suicide.

The sense of inferiority may be the result of pampering. The child is assisted in every way. In some households the father or mother takes full charge of affairs and continues to do so even when the children become adults. When they go away from home or are faced with real problems they are quite incapable of dealing with them and resort to all

kinds of devices to avoid them. The pampered or spoilt child has to face reality sooner or later and when he does so, finds the restrictions of the community irksome. Thus he finds himself antagonistic to his parents, callous and seeking revenge upon those he imagines have "done him down".

Such is the lot especially of the only or first child.

The protected child, sooner or later, finds the world a hard place unless he or she succeeds in finding a very indulgent mate, and is resentful of those who do not flatter or dare to criticize. When the child has in fact been brilliant at school or university, and the parent has some excuse for pride, the greatest care must be taken by the parent to prevent the child thinking himself a superior being, for has it not been said that in some, success is like wine, or as is said in the country the man cannot "stand corn", a reminder of the fact that certain horses when given too much corn forget their training and become unruly. Such an individual will expect the wife or husband to be like mother or father who will continue to spoil them. He or she may often take as a partner someone much older who may give parental rather than marital affection. In difficulties the wife may attempt to mother him but she can never succeed in replacing his mother whose qualities she may frequently hear extolled. For this reason mothers-in-law are notoriously a source of friction in a household, especially the husband's mother, who is so liable to criticize the domestic arrangements of her daughter-in-law.

Adler would have us believe the common error in the make-up of woman is that she feels the inferiority of not having the capabilities of man, but whether this is true or not, any likelihood of its being so can readily be counteracted by instructing parents not to tell female children that their sex is a disappointment and by rightly emphasizing that the human race is as much dependent on females as on males and that care of the young is as important an occupation as being the bread-winner.

The Two-child Problem. Some psychologists consider that the children of a family of two of approximately the same

age show definite characteristics peculiar to their upbringing. Each tends to take the place of a great deal of the world for the other. They supply each other with companionship and share friends, joys, hopes and troubles at first at school age, and then later, when the parents are not available. Commonly one becomes dominant and the other more subservient although there is no suggestion of real homosexuality. In a world in which there is a deficiency of men we often see two sisters living with each other throughout life mutually admiring and adapted to each other to such an extent that there is even an unconscious barrier to marriage. It is essential then that such mental states should be avoided by deliberately educating such children as differently as possible.

An opposite state may also be engendered by parents who encourage undue competition between children with the result that there may be eventually an almost unnatural rivalry between them which may turn to hate and complete estrangement in later life. The frequent lack of friendliness between cousins is but an extension of this rivalry fostered by the parents.

Reaction to Inferiority

Persons who suffer from inferiority show various types of reaction. These reactions are really varieties of adaptation of the individual to his environment in an attempt to secure peace of mind. The inferiority may be ignored, escaped or compensated for and these may be considered the normal adaptations. There may, however, be very complete submission, with a souring of the temper, and intense jealousy which may show itself in various ways, especially in spitefulness, revenge, and cruelty, all of which are well seen in children as natural responses and later in adults sometimes in a more disguised form.

Neglect of the inferiority is the ideal to be aimed at in treatment. Fortunately this is often successful and we are commonly surprised at the mental content of hopeless invalids from childhood. This happy state is greatly assisted by the fact that, commonly, we deliberately appear not to notice and do not refer to physical infirmity. In the case of mental

inadequacy little is attained by bullying, and unfortunate indeed is the dull child who has over-ambitious parents. Constant upbraiding and emphasis of his dullness may so draw attention to his inferiority that he may never recover from its thraldom and may subsequently be quite unable to put up even a normal amount of compensation. Instead the child may be encouraged to plod on and be reminded of the fable of the tortoise and the hare. Not infrequently the inferiority may be such a stimulus to work and perseverance that its possessor may be highly successful. No doubt the statement that genius is but an infinite capacity for taking pains is in part based on this.

In assessing inadequacy it may be an advantage to test out the child on known standards. These are discussed in Appendix I: "Tests of Ability and Educative Capacity".

When it is impossible to ignore the inferiority, mental content may be attained by escaping it. Thus the child who is physically inferior tends to become a voracious reader and may excel in examinations and the mental dullard takes to games. Both reactions must be guarded against in the mental and physical welfare of the child who must be encouraged to undertake studies and play such games as are within its capabilities. Even at school persons with these varieties of inferiority tend to be contemptuous of each other.

Those who have not been satisfactory at book-work are not, however, necessarily unsuccessful in later life as they may have other qualities of commercial value. Subsequently, however, they tend to deprecate the business efficiency of the professional man, while the latter reacts unfortunately by too often imagining that the possessor of money is necessarily "brainless".

The most unfortunate response to Inferiority is that of subjugation with resentment as it often brings with it unhappiness and ill-health. Sometimes the individual becomes so depressed that he may commit suicide or require institutional restraint. In its milder form Inferiority causes lack of self-confidence and makes its possessor incapable of tackling any job of which he is somewhat uncertain. We are all familiar with the individual who says he can't do this or that

and will not (because he is afraid to) try. They are sure they will make a mess of things, yet when circumstances or persuasion have made them try they may perform quite well. In competitive games they are beaten before they begin, so much so, that it is well recognized in tennis and golf that a man once beaten in an important match by a certain opponent is very liable to be beaten again. Those who have been incapacitated from physical illness and submit are in a specially unfortunate position; they may bewail their misfortune and use it as an excuse for any lack of success they may experience, they may feel a grudge against the world in general and the healthy and successful in particular. They are often the bitter critics of the world and are often quite successful political writers or speakers. They may be perfectly honest in their convictions and perform great public service. They are often unfortunately masters of rationalization. The most typical ideation is their demand for this or that in the public interest, apparently often quite oblivious (it is hoped !) that what they demand is in their own private interest more than anyone else's.

Apart from professional grumblers, who make a living by writing what they imagine to be the grumbles of others, it is quite fair to say that most of the grumbling in the world is done by those who suffer not from " inequality of opportunity " but from their own lack of grit and perseverance. They commonly project their own inefficiencies on to others.

Compensation is the robust way of overcoming inferiority, although when exaggerated it gives rise to a variety of states which are usually misunderstood. Physical inferiority we see commonly compensated in the strut and pomposity of the small man or the intolerance of physical or moral weakness in others. Psychologists have attributed the remarkable arrogance of Kaiser Wilhelm II to the early paralysis of his arm; but many men have succeeded in turning a physical deficiency into an asset, for a man who succeeds in doing so commonly secures the admiration and sympathy of the world. In our time we have seen the success of President Roosevelt, Lord Snowdon and Lord Halifax in this respect.

The reactions of adults to frustration of the power urge,

which is a closely related subject, has already been discussed on page 51.

Why an individual should react in one way or another is an interesting problem. Sometimes, as has been said, the compensation to an inferiority may have been the result of specific exhortation by a parent or teacher. There can be little doubt that physical health plays some part in determining the type of reaction, although we are all familiar with sick men who have continued " in opposition " for years. Injury and certain diseases may be completely recovered from, but others may continue to exercise a harmful and insidious effect for years, and it is in this connection that chronic infections and malnutrition bring about their well-recognized effects. Of these chronic infections the nasal sinuses, tonsils and appendix with dyspepsia are probably most usual and most commonly overlooked. Such conditions " take the fight out " of the individual, and are notoriously liable to lead to mental depression (see " The Effect of Body on Mind "). On the other hand, there are the aggressive people of the world who are " the victims of rude health ". See the writings of Adler and Cameron.

In support of Adler's view that women struggle against their sense of inferiority at not being men, there are the typical mannish women who want what the men have, not necessarily for any reason except that the men have it. By not having it their power urge is frustrated. They tend to be non-co-operative with men and in a state of constant and excessive defence of their rights if not actually aggressive. Some affect mannish clothes or cropped hair and may become the " male " partners in homosexual activities. This state may in part be the result of abnormal activities of the ductless glands, but it may be induced by the common desire of parents to have male children and by their telling female children of their disappointment forgetful of the fact that females are as essential to the race as males and have a valuable feminine rôle to play. Most books on social problems written by women refer, directly or indirectly, to the handicaps of women in relation to men. That there are such handicaps is undoubted if women attempt to aspire to all

the physical and mental standards of men. Often, however, especially when men and women have to work together in a professional capacity, women forget, or have been unaware of the fact, that men are often quite sharp, if not rude, to each other in the interest of efficiency or discipline. A woman often mistakes such "instruction" for a rebuke to her sex or a personal affront, when it is but a normal method of procedure amongst men which hitherto she may not have experienced since, socially, men usually defer to the opinions and wishes of the gentler sex. (See Appendix, p. 267.)

The Appreciation of Sex

As has been stated earlier there are many reasons why sex plays a predominant part in psychology, but the chief probably is that the other essentials of life, namely food and protection, are commonly assured. To Freud we owe a great debt for overcoming undue prudery in emphasizing its importance, although there is little doubt that many disciples have carried it to extremes.

In the appreciation of sex it is my intention to use the term, not in its complete Freudian sense but in its usual sense, that is, in relation to the physical acts concerned in the reproduction of the species. Followers of Freud prefer to consider sex as being manifest in the cradle. This has been dealt with on page 44. The unnecessary dragging of sex into early biological acts has done incalculable harm to Psychology and has done much to obstruct its general acceptance. It would seem more reasonable to consider an early reaction such as suckling to be primarily concerned with the supply of food and protection and to confine the term sex to the stage when the reactions are definitely male or female.

Conscious desire for the company of the opposite sex develops at very different ages. In some it begins at 12 or 13 years, in others not until 20 and in some not at all. Its development no doubt depends largely on conditions of life. Children whose early life has been in association with animals become familiar with the physical manifestations of sex at an early age, although in an impersonal sense. In regard to

the personal appreciation of sex, the development of ductless glands, especially the pituitary body, testes and adrenal cortex, is of the greatest importance. It is now clear that sexual desire in the female at least is not at all dependent on the pelvic organs as it is present after complete removal of the ovaries and uterus.

Various factors affect its development, notably general physical fitness. Those on whom school or home conditions throw a considerable strain may not have the spare energy which appears to be necessary for this.

In those in whom sex develops early and strongly its satisfaction becomes an increasingly difficult problem which is really only solved by completion of the reproduction acts, but this completion is to many impossible. It must be realized, too, that marriage does not of itself solve the problem, but may even accentuate difficulties if one of the partners is for one reason or another incapable of giving all the other desires. Only those who are themselves highly sexed can realize what this means. It is indeed difficult for the average man to imagine the state that will drive men to stand in a queue at a prostitute's door as I have seen done by men who in war-time have been removed from women's company for years at a time. Such reactions are comparable to a queue at a lavatory.

The average person eschews sex until married for various reasons, but to most men marriage is eventually possible. Occasionally family and economic conditions make it difficult. The case of women is very different, for it is not possible for all women to be married. There are fewer adult men than women and many men approaching marriageable age are killed in war. With the passing of the years her case becomes more and more desperate. At first there is temporary substitution and sublimation, in adolescent men and women, love and sex stories are notoriously popular, but when the normal waiting stage is over crises occur and abnormal reactions may appear which bring the patients to the care of the physician. Various more permanent substitutes are taken up. These are dealt with in regard to "Sublimation".

Occasionally sex becomes almost entirely repressed as a result of early upbringing. All matters pertaining to sex and the sex organs have been taught to be taboo if not actually unclean. Instruction in what are commonly called " the facts of life " may have been completely omitted, with the result that the young male may be completely at a loss to understand his sensations and the phenomenon of erection. Masturbation may be practised in secret and the total effect may be the development of a shyness and secretiveness which may make the individual almost incapable of facing up to his elders or his colleagues. Attempts to bully him out of his state merely intensify it. Complete instruction in sex matters alone will restore normality.

In relation to " Projection " and " Inversion " we have already referred to the possibilities of disinterested males becoming the objects of abnormal affection. If the object of the affection dies, conscious adoration can obviously no longer remain, but if it has been sufficiently strong the effect of the association may remain at unconscious levels and still so colour the life of the individual that she may be incapable of behaving normally and become hypochondriacal and subject to all varieties of phantasies and hysterical states. If the physician succeeds in bringing to consciousness and discussing freely the object of the affection the subject may again become normal in health and outlook.

All spinsters are not abnormal although many have the eccentricities and peculiarities inherent in their state, but let it be said quite freely that by no means all unmarried women have suffered from complete sexual neglect. Many, indeed, prefer the attentions of an illicit lover and freedom to the restricted activity of parsimonious domesticity and ill-suited companionship.

Most succeed in achieving content by devoting themselves to causes, especially those in which their sex interests can be sublimated. The old maid's cats are perhaps the most typical, but the activities of many societies are in the same category.

Love and Marriage

To discuss the psychology of love is to play with fire, for it is indeed a burning problem. We may ask, is love simply sublimated sex or is it something more? "That secret whisper sweet, that silver link, that silken tie" and so on, the poets have written. Huxley has written as follows: "The biologist can talk a great deal about the mating habits of monkeys or the songs and displays of birds. But that is not love in the real sense of the word. All we can say is that the lower organisms show us the raw material out of which what we human creatures call love has been developed." There can be no doubt that it can be quite free from any conscious emotion of sex in the ordinary sense.

Love has certain characteristics. It is violent and irrational, it releases many early inhibitions and repressions. "Because it links up unfulfilled aspiration and repressed impulses it gilds commonplace reality with the rays of the ideal. The cynic says love is blind; the idealist, that love reveals the glory of life—and both are right" (Huxley). The language of poetry appeals to the lover because it removes the emotion from the commonplace, and it is well to recall those most beloved poems "Sonnets from the Portuguese" which were written by Elizabeth Barrett Browning long before she had ever thought of publishing them, but when she was overcome by emotion. Poetry, indeed, may be said to be the language of the emotions, instincts and the unconscious.

The emotion, once the object of the affection has been fixed, may prove stronger than the will to live itself and many sacrifices for love have taken place.

It is difficult, it is true, to get away completely from the effect of literature and herd psychology, for almost everyone has at some time read stories of love and of the conventional sacrifices.

Most are agreed that falling in love is more or less accidental (the idealist would say the hand of fate) and depends on the two persons being brought together frequently or in circumstances which become associated with happiness. Each of the parties finds a unification of their essential life interest

—food, protection and sex. Often a character absent in one is advanced in the other. Timid men marry forceful women, tall marry small, and so on.

At the same time there is considerable evidence that the young man in search of a mate sets himself a certain ideal. Certain psychologists would have us believe that the ideal is his own mother and suggest that there may be associated the ideal of the Holy Virgin. If this ideal is not forthcoming or if it is shattered for one reason or another, subsequently it has been found that there may be a tendency to various forms of delinquency, especially sexual. The conception of the mother image, as it is called, may or may not be correct, but whether it is or not, it may be considered quite natural for a man to look upon the individual who has nurtured him and guided his footsteps as a standard below which he does not desire to stoop in searching for his life mate. Moreover, his mother is the woman whom a man usually knows best up to the time of his marriage.

The comparison between mother and wife is always, therefore, more than usually odious, and inevitably leads to friction, the more so as it is forgotten by some men that the duties of a wife and mother are not identical and a man cannot expect his wife, who may be already very busy with her new offspring, to devote to the husband the same attention and self-denial practised by his mother in his earlier years.

The Appreciation of the Desirability of a Successful or Valuable Life

There can be little doubt that many of the activities of man are coloured by the great desire not to be a failure in life. Often it is a desire to satisfy the power urge though in many it amounts to a spiritual urge, but in the majority there is the simple necessity of earning a living and supporting a wife and family. In many, however, there is inculcated by the parent or teacher at quite an early age a more intense desire to be successful or to lead a life of service to others. We can all recall teachers who have talked to us in such a strain, and this, too, is a common theme in religious talks.

The parable of the talents, of the sower, of the prodigal son, the story of the Good Samaritan, all tell the same type of story at an age when young minds are very impressionable. In many instances the success to be sought after is not of this world, but in a world hereafter which is most desirable, especially if the alternative is Hell.

This appreciation often leads to very obvious imitation. The subject of imitation has already been referred to in relation to the instinct of the herd, but there is also a most definite and personal imitation. Young boys tend to imitate the elders they admire, and even in later life we see juniors imitating the qualities of their seniors. Academic life has several examples of this imitation which, however, is not necessarily conscious and may extend even to less desirable attributes such as accent or even habit-movements.

The Attainment of a Sense of Values

In the average man the attainment of a true sense of values does not materialize till about the age of forty. Then there is a considerable retrospect of life. Lessons have been learnt, some enthusiasms have waned, others have gained momentum, the place likely to be attained in the world is becoming apparent. The chances of success or failure are evident from the study of the lives of men who have held similar posts at the same age. A man may from time to time become introspective in an attempt to decide whether or not he has had his deserts. Those who feel they have not, tend to become disgruntled, those who feel they have done well become smug, but between the two there are the majority of well-balanced persons who have learnt how to take success without becoming unduly elated and to take their knocks, realizing that they are inevitable. The relative importance of work, ability and patronage has become clearer. What we call the common reactions of human nature have become apparent. It is realized that the old school tie, the sign of the freemason, the muffler and cap, the red tie or black shirt all mean in one sense the same thing, namely, that their possessors belong to certain defined

groups and will tend to support the individuals of that group —a mere herd instinct for collective security and as natural as the packing of wolves or the flocking of sheep.

It is realized that there are certain forces at work in the world which cannot readily be influenced, especially that the powerful agent public opinion only becomes effective when it has been properly educated. Unskilful argument may merely provoke conflict and not persuade.

And finally we learn most men, considering their heredity, their environment and their experience, have perfectly good reasons for acting as they do, or rather react as they might be expected to react.

The Stage of Fixation of Reaction

This stage we see in our elders at whatever age we are. Modes of life and thought have become fixed and their reactions to many situations can be predicted with almost mathematical certainty. Thought has ceased to be imaginative. The elders become, therefore, men of proved stability unlikely to be unduly swayed by new ideas if not, indeed, too irresponsive to new views. They have developed by a process of conditioning a habit of mind as truly as younger persons may develop a physical habit.

From the above it is not, however, to be understood that such persons are necessarily valueless to the community except as stabilizing agents. Some who have made it a habit to be swayed by new ideas, although they may have none of their own, become really valuable as they have the advantage of being able to recall past experiences and are able to evaluate the new ideas of younger men. They are less liable to be influenced by more recently acquired stimuli and the emotion of the movement because they have learnt that changes are not always improvements and that first impressions may be misleading.

In industry and in science the elders are therefore a mixed blessing. Many a business and many a scientific department is ruined by a conservative disregard for the youngers, but in both science and industry there are many examples of

each which are an inspiration and guide to those who follow.

But who is to judge whether a man should retire from responsible posts at 55 or 70? It is not possible to be dogmatic. Each case should be judged on its own merits, at least theoretically, for the acid test is: Is the man or woman continuing to do the job effectively? Many men are old at 55, others are young at 70. Many heartburnings are avoided by fixing an arbitrary limit for all, and those who feel that compulsory retirement is coming too soon can show their worth by seeking other worlds to conquer before it is too late, but worlds in which they may not be a hindrance to youth.

The subject was discussed at length by Cicero, who was as doubtful about it as we are to-day, although, on the whole, he concluded that gentle work on the land was probably the best occupation for the aged. The best advice probably comes from Persian literature:

> On parent knees, a naked new-born child,
> Weeping thou sat'st while all around thee smiled
> So live, that sinking in thy last long sleep
> Calm thou mayst smile, while all around thee weep.
>
> Trans. by Sir W. JONES.

CHAPTER XXIII

THE VARIOUS SCHOOLS OF PSYCHOLOGY

PSYCHOLOGY has been torn apart by various schools of thought. It is easy for those who do not know to jibe and to suggest that it is all very contradictory and confused, but no sane person will deny that each school has played a part in the building up of the subject if only by showing how different explanations and names can be given to the same facts. But for Freud we would not have had the concept of repression, but for Adler that of inferiority, but for Trotter we should not have realized the importance of the herd, and but for McDougall the rôle of the instincts, while but for Spearman we would not have had a concept of a mind with properties which are capable of experimental study. Each individually gives but a poor picture of the whole, with one part in relief and the rest out of focus. Generally, I have been somewhat shocked by the ignorance and intolerance of professional psychologists of the viewpoint of the schools to which they do not belong. The psychological schools behave, indeed, not unlike religious sects. A good example of this is seen in Spearman's *Psychology down the Ages*, whose words have to be read to be believed. It is, however, such independent attitudes which have kept the various schools alive. They at least act as correctives of each other. In many what has been described is put another way and with emphasis on particular points. This is particularly true of the schools of Freud, Jung, Adler, McDougall, and of Behaviourism. In other schools, such as the Factorial or the Gestalt, the whole subject is viewed from another standpoint, and this is true of those schools which have developed outside Medicine and from a more philosophical basis. Some of the different schools may now be considered.

The history of the subject indicates the development of the various schools, but not infrequently descriptions are biased. They are given by Flugel, Spearman, Brett, and by Murchison.

Freud's Analytical Psychology

It is fair to say that the teaching of Freud of Vienna has influenced the practice of psychotherapy more than that of any other. Many of the terms which for ever will be used in the subject were first used by him and through his genius we were provided an explanation of many mental reactions which were not previously understood.

Freud has succeeded in presenting the facts in a way which is at once as picturesque as it is dynamic. He gave his conceptions active personality. The total self which is presented to the world is the conscious Ego which is adapted to the environment through the Ego instincts. It corresponds largely to what has been described as the herd instinct. It keeps in check and censors the activity of the primary instincts which were classified as one—the Libido or Id—of which the sexual instinct was considered to be all-important. Later he used the term Eros. In keeping the Libido in check the Ego has the assistance of the Super-ego which is analogous to the conscience which, according to our view, may be considered partly due to the herd instinct or more largely spiritual. A balance is maintained between the Ego and the Libido. Just as the Ego is considered to be the conscious self, the Libido is looked upon as being active in a deeper personality, the unconscious. The Libido is a wild animal thing always demanding gratification. It seeks pleasure and avoids pain. If it cannot be satisfied in the conscious reality of a modern world it becomes repressed into the unconscious mind which is considered to be another psychic system. Here it is not simply latent as it was in earlier views of the unconscious, notably that of Samuel Butler, but it has a definite dynamic character and still strives to obtain gratification in some other way. What have been described as escapes, substitutions and sublimations become wish-fulfilments and evidence of the internal struggle.

In sleep, the conscious Ego and Super-ego are in abeyance with the result that the desires and fears of the Libido obtain full gratification in the dream, while occasionally

similar wishes and fears bring about forgetting and other errors. It is in relation to these, indeed, that Freud made his first and most generally agreed contribution, although it is obviously not correct to consider all dreams to be of this kind.

Many of the earlier writers on Psychology have discussed the subject of instinct in almost exactly the same way as moderns do the " unconscious " of Freud. The independence of instinct is possibly most evident in the writings of Bergson, who saw it antagonized by conscious intellect. General reading of this kind indeed indicates the evolution of the idea of the " unconscious mind "—which may be described as the instinctive mind—but it is just a little doubtful if it is really as unconscious as Freud and his supporters would have us believe.

This fundamental idea of the personality of Id is not so new as at first sight appears to those who have not troubled to search beyond Freud's teachings, although admittedly by applying the conception to a modern life he imbued that occult personality with a new and modernized vitality. The Id bears a most remarkable resemblance to the Ka or soul of the ancient Egyptians. In the hedonism of the ancient Greeks we have a similar philosophy of life based on the simple avoidance of pain and pursuit of pleasure. Such a philosophy, especially the avoidance of pain, itself is based on the natural behaviour of all animals. It is this fundamental and incontrovertible basis in biology which unwittingly is the stable element in Freud's theories without which the universe he has created would fall to pieces. To those who study the nervous system it is evident that its elementary reflex reactions, which are quite independent of the brain, are those which protect the body against pain, and even in the lowest form of animal life with little or no nervous system, we find this protective withdrawal from injury exercised by single cells capable of contraction. Thus we begin to realize that the avoidance of injury or its counterpart, pain, is the fundamental consideration of the nervous system, of instincts and of the mind alike, in almost every psychological school of thought.

It is true that Carlyle called such an outlook pig-philosophy, but nevertheless it cannot be denied that throughout the ages, in one form or other, it has appeared as the philosophy of great thinking men. Schopenhauer, it will be recalled, considered pleasure merely the absence of pain, but experimental evidence suggests that pain depends on a lower part of the nervous system than pleasure. Some, like Aristotle and many others, have emphasized happiness as the chief end of human endeavour, but it will be realized that this involves the avoidance of pain, and most will agree that provided this happiness can be secured without hurt to others no serious objection can be made to such a philosophy except that it is incomplete from a spiritual point of view and, being so, seems scarcely worthy of man's high estate.

Other ancient views suggested the occurrence of an entity with the dynamic quality of a personality but other than that which is normal. Thus the insane were considered to be possessed of devils—and various allusions to such conceptions occur in ordinary parlance.

All the Freudian theory given above is roughly accepted although it need not be expressed in the same terms. Freud's theories regarding so-called infantile sexuality have not, however, received the same general acceptance, nor has his view that neuroses are always due to some disturbance with the sex life of the individual, for even allowing for the fact that he used the term sex as applying to the primary instincts upon which life depends, there can be little doubt that he considered chiefly sex in its usual sense to be the dominant urge. (See Infantile Sexuality, page 43.)

Freud also gave us a unique method of studying patients, namely, that of psychoanalysis, and although we may disagree with the direction he allowed it to take, there is little doubt that the method in some modified form will survive, and hence the term " Analytical Psychology ".

The psychoanalytic method is essentially an analysis of the associations and, when used by Freud's adherents, invariably uncovers a sexual basis of the abnormal state under consideration, but in the hands of others, other and just as potent causes are revealed.

The great and most justifiable criticism of Freud's view is that which is so often true of any new view, even when it amounts to a great discovery, namely, that it tries to explain too much and lacks perspective. It might be suggested that had Freud ever had the experience of a sojourn in certain prisons he might have come to the conclusion that food and security might, in certain circumstances, play a more important part than sex in determining the thoughts of conscious and even unconscious mental activity. At the same time there is probably little doubt that in a well-fed, safe world sex plays a very large part in the mental life of the average healthy adolescent and many mental disturbances may arise from its frustration or lack of appreciation. It may be true that Freud's views are specially applicable to mental illness and diseased minds, but to the average intelligent student of the subject as a whole, the views lack perspective and fail to give adequate consideration of other factors concerning the normal average mind. Adler has pointed out that Freud gave too little importance to the power urge although he did not use the term. Trotter has emphasized that he laid too little stress on the repressing factor which is commonly herd instinct, while to others, like McDougall, Freud failed to give any motive purpose to human life much higher than that of the animals. This may, alas, seem true of many humans, for there is little doubt that the minds of men and of nations have not evolved to the same extent as their bodies. If that were all, life would indeed be a colourless mirage—a tale—

> Told by an idiot full of sound and fury
> Signifying nothing.

Fortunately there are many amongst us who feel otherwise.

Jung's Analytical Psychology

For all practical purposes Jung of Zurich may be said to have diluted the Psychology of Freud and to have made it more acceptable but at the same time added a number of new ideas. He stressed the importance of personality.

According to Jung the Libido is a general instinctive urge

in which sex plays the largest part. In his investigations Jung made use of the now well-known method of word association which had been introduced earlier by Galton, and demonstrated that the association was largely determined by underlying emotional factors. It has been referred to on page 80. His observations led him to believe that the " unconscious " of different persons is very much alike but that there are the three types of individuals : the introverts, the extroverts, and the ambiverts, which have already been referred to in relation to " Personality ". According to Jung the extrovert is more liable to develop hysteria than the introvert because his unconscious is more subdued, while the introvert, who is more self-centred and interested in his own emotions, is more likely to have an anxiety neurosis as his complexes are less repressed.

Adler's Individual Psychology

To Adler, also of Vienna, we owe the development of the conception of the power urge and the idea of inferiority. To some extent his views were developed as an alternative to those of Freud, especially that part in regard to sex which many found objectionable. Adler uses the term power to include capability in relation to security, sex, ambition, etc. It is therefore all embracing. He tended to exaggerate the importance of Inferiority, but in bringing it to notice he undoubtedly made a most valuable contribution and the idea of the " inferiority complex " will survive. He emphasized also the importance of " spoiling " the child in making him ill-adapted for adult life and the particular liability for this to occur with an only child. These points have been discussed in relation to " The Power Urge " where it will be seen that while there can be little doubt that this urge plays an enormous part in human affairs in producing states of depression, or elation as an over-compensation, it is by no means the sole consideration involved. It will be observed that the psychologies of Jung and Adler are really different expressions of the more fundamental conception of Freud of there being a single driving power, but they differ in their

selection of that power. The more general biologist does not stress the unity of the drive but sees no difficulty in agreeing that many factors may play a part.

Behaviourism

As its name suggests, behaviourism is the study of psychology from the point of view of the behaviour of the individual. It can be observed by all and can be studied by the ordinary objective experimental method, and therefore it is perhaps the natural point of view of the physiologist who seeks to correlate activity with the nervous system. In this approach every effort is made to relate behaviour to stimulus, recent and remote, and it can be shown, as indicated in Chapters II and VII, that a very large amount of human behaviour can be traced to past training and experience, whether it be ordinary voluntary action, speech or thought, and it can be found that much of it has become established by methods similar to those necessary for fixing conditioned reflexes.

The Behaviourist school is the direct outcome of the work of the Russian neuro-psychologists such as Bechterew and later of Pavlov. A number of workers, notably Mateer and Watson in America, succeeded in establishing typical conditioned reflexes in small children, and it was shown that generally the more intelligent the child the more easily the reflexes could be established. Books by Pavlov, Hans Meyer and by Watson indicate how it is possible to get rid of the conception of mind as such and to study the activity of man as if he were a lower animal. According to this school, introspection becomes a waste of time and mind a myth. It has little need for consciousness except possibly in the learning period. Behaviourism fails, however, to take sufficient account of thought, feeling, motive and reasoning which, few of us will deny, play a considerable part in determining *our* own activities, although when we observe others we are much more prone to explain *their* actions along behaviourist lines. With the acceptance of the importance of conscious and unconscious emotion, especially during the war of 1914–18, and

the rise of Freudianism, Behaviourism went out of fashion.

The best logical argument showing that it is impossible to adhere entirely to any philosophy of behaviourist materialism and at the same time to the concept of Mind is probably that of Broad. As we think about this subject we can ask ourselves how far our thinking is due to the existence of an independent mind and how far it is a response to stimuli. Most of us prefer to imagine that we have minds of our own and that when we do think of anything *we* have the choice of doing so or not doing so as *we* think fit. There is, however, no doubt that Behaviourism has its place especially, as we have seen, not only in regard to those activities which are the results of learning from experience, but even to our feelings and emotions as exhibited by symptom production (see Chapter XX).

The Hormic or Purposeful Psychology of McDougall

We have already referred to McDougall's views in regard to the instincts. To him behaviour was not just a result of a vast collection of reactions like reflexes but depended on emotions based on instincts. In these, however, he recognized a purposeful element striving towards a goal which was commonly satisfaction of the instincts in general. He was, also, very curiously antagonistic to all behaviouristic considerations largely because of their lack of spiritual purpose and, as we have indicated, his classification of the instincts cannot be considered adequate. In many ways, however, his general outlook was very much the same as that put forward in this volume with the important differences that he was unappreciative of what might be termed the mechanical element in learning and did not give the urges of sex and power the importance they deserve.

Gestalt Psychology

Probably the most striking example of a school of Psychology which views the subject from an entirely different stand-

point is Gestalt or Configuration Psychology which may be said to be the most remote of all from Physiology,—indeed, which considers Physiology a positive handicap in its study. This school has its basis not on excitation and association but on perception. According to this school psychic life is not built up of sensations, feelings, and conscious activity, but these are dependent on the property of Gestalt which is stated to be a property like that of the communication system between two electrolytic solutions which have a difference of potential.

The kind of observation which gave rise to the concept of Gestalt was that of Köhler, that an ape was able to perceive *at once* that by pulling a string it could draw in a banana from outside but it could not decide which string to pull if there were several ends in the cage, some not being attached to the banana, and while it would use a stick to pull in a banana if the stick was near, it would not do so if the stick was at the other side of the cage. In other words, the monkey had the desire to reach the situation as a whole but could not synthesize it. The position of the animal is rather like that of a man who could see the man in the moon but not the moon itself, and admittedly in many walks of life we see men who can grasp some details but few principles or, as we say, they cannot "see the tree for the leaves".

According to Gestalt the mind works as a whole and all conceptions of afferent and efferent pathways, analysing centres and the like are wrong or are products of Gestalt which remains a somewhat mysterious entity which, like spiritualism, has to be accepted as such and used to explain rather than to be explained. Many of the so-called basic experiments which are said to demonstrate its existence can be explained on simple physiological grounds.

To one who has thought solely of a Psychology based on neurological conception the Gestalt is, as Spearman says, a "confusion", but we must not be too cynical, for it does, in fact, explain several facts that are otherwise not understood. Thus we have learnt our alphabet by a process of conditioned reflexes, but we know that we could recognize an embossed letter by means of the sense of touch although there has

been no conditioning regarding this sense. Similarly the same face may be recognized at different distances although different nerve-endings have been concerned. Stout has pointed out, too, that a cat may use its teeth to pull a string which will open the latch of its cage, although it has only been taught to pull with its foot. In other words, in the mechanism of learning, the process of insight into the problem as a whole is of paramount importance. It is extremely difficult, indeed, to attempt to explain these facts on any kind of neurological or behaviourist basis, but Gestalt becomes manifestly absurd when it seeks to explain some stimulus response reactions. Thus when an infant of one year surns its head towards a sound it does so not because of reflexes nor because of consciousness but because of the total tituation, which makes it desirable that the situation be simplified by causing the head to be turned so that both ears receive the same amount of sound. According to Gestalt the mind abhors gaps and applies " closure " to them as " nature abhors a vacuum ". Thus, indeed, is explained the fact that we do not appreciate the blind-spot of the eye unless we specially seek to demonstrate it.

By far the most important weakness of Gestalt is that learning by trial and error is denied,—indeed, there is no place for learning as we ordinarily imagine it. Instead there is maturation of insight which may be improved by trying. The best description of this school is probably that by Woodworth, but there are other more elaborate books by Köhler and Wertheimer, the originators of this Berlin school.

The Introspective Psychologies

These schools are varied amongst themselves and are the direct outcome of Philosophy applied to mental processes. They are now cultivated for the most part by the more academic non-medical schools, but curiously enough they had their origin in Physiology. The chief credit for their beginning is due to Wilhelm Wundt, a physician who first worked under the great physical physiologist Helmholtz whose contributions in relation to vision and hearing are well known.

It is said that Helmholtz did not think Wundt knew sufficient mathematics for Physiology, so the latter turned his attention to Psychology and founded the great parent school for this subject in Leipzig. This school and its descendants, of which there are legion, have studied sensation and perception together with the various factors which may affect them. At first vision and hearing were studied, but later other sensations, also reaction times involving discrimination and choice. In many instances the experiments concerned were as much physiological as psychological, and many of the experiments made in Experimental Psychology are those of Experimental Physiology (see Boring, 1942).

From such observations it became apparent that we do not all experience the same sensation when there is apparently a similar stimulation, nor, indeed, does the same stimulus always give rise to the same experience in the same individual. We may, indeed, vary the experience experimentally and we can show that what we memorize, our judgments and our responses are thereby affected. The study of how experiences are experienced is known as introspection, as the subject has first to have them and then ask himself why they were as it were. Introspection may be applied experimentally in a similar way, not only to Feeling or Affection but to other major faculties of Knowing and Willing, or Cognition and Conation as they are called. It was but a step from such studies to what is now known as Factoral Psychology.

Factorial Psychology

Just as it is possible to study experimentally the circumstances which affect the sensations, the circumstances which affect performance can also be studied and, indirectly, ability, intelligence and the make-up of the human mind generally. In this the outstanding exponent has been Spearman. Essentially, he used the mental tests as a method of study, especially the correlation of the results of different tests with estimates of ability. As a result he recognized a general factor "g" of ability and a larger number of specific abilities "s"

which are remarkably specific. No attempt is made to say what "g" really is. He, however, went further and considered mind a reality capable of creating mental content in virtue of its three-fold power, of apprehending experience, relating ideas and what he calls "education in correlates" by which we can create idea from relationships. Spearman also enunciated quantitative laws by which the mind is considered to create: (1) The law of span by which every mind tends to keep its simultaneous output constant in quantity however varying in quality; (2) The law of retentivity or the laws which govern our knowing; (3) The law of fatigue which is virtually the opposite of 2; (4) The law of conative control through which our knowing is influenced by willing; and (5) The law of "primordial tendencies" by which anatomical, physiological and pharmacological considerations influence the mind and influence ability. This school of Pure Psychology then concerns itself with how the mind knows and creates rather than with what interests the practical psychologist, namely, the health and happiness of men and women. It does not concern itself with the results of mental activity so much as with the exact nature of mental processes, and although it is a somewhat difficult subject for the untrained in this special field to follow, it has already done much to elucidate the properties of that entity which at present it is convenient to call mind.

The work of this London school is best given in the writings of Spearman, Burt and Flugel.

The great value of the researches of this school that by seeking to determine the various processes by which mental content is built up, it may give some idea how education generally should be directed, of the capabilities of individuals and how they may benefit from instruction along specialized lines.

APPENDIX I

TESTS OF ABILITY AND EDUCATIVE CAPACITY

THE idea that mental capability may be related to physical characteristics is quite old and indeed is quite popular, for it is said in common parlance that a man may look dull or bright as the case may be. Clinicians have long claimed to recognize as stigmata of low development, for example, the high palate or the retreating forehead. Various attempts to predict capability from the physical structure of the skull have been made by many since Gall introduced his system of phrenology. Recently, however, various anthropomorphic measurements have shown a strange lack of correlation—indeed, it has been proved that the higher activity of the brain does not necessarily bear any relation to the skull in which it is enclosed. It is true, however, that gross deficiencies of brain structure have been clearly related to mental deficiency and it may be that detailed comparative histology of the brain might be illuminating, for just as inherited gait may depend on inherited structure so may inherited mental qualities.

The foregoing chapters have indicated how clearly the mentality of man is a product of his heredity and his education, but in so doing they emphasize two important corollaries which in the past have commonly been overlooked, and even amongst psychologists there is a considerable difference of opinion. It is evident that if the importance of heredity is admitted, then it follows that children of any given age must have not only intellects as estimated by various standards applied to them, but also each will have his peculiar intellectual make-up and be capable of being educated more readily in some directions than others because of certain inherent qualities which he possesses. Teachers of all subjects are only too painfully aware of such differences amongst children or students, although often their zeal for the power of education may blind them to the fact. They often prefer to imagine that education will make up for the inherited defects. To some extent this is true if we set out to reach a comparatively low standard. It is possible for almost any student to acquire mathematics or classics up to the standard of a university degree. This indeed was common when there

were many more compulsory subjects in ordinary degrees tan at present, but those who have learnt a subject by sheer drudgery and application will never be able to make the best use of it. Students themselves are the first to admit the greater or lesser capabilities of their fellows.

Often other terms are used to mask the heredity differences. It is admitted that certain children develop early and others develop late and that early success at school subjects is not an infallible indication of success in after-life. Fortunately there are many occupations, notably those in the Civil Service, which are little else than a continuation of school or university subjects, and the government of a country does not suffer unduly by having to select such good schoolboys to be their permanent officials. It is, however, just this selection which necessarily confers obvious limitations on the Service, which in higher posts occasionally requires something more than the schoolboy mind and which has necessitated selection at a senior stage, and even the assistance of men whose experience has been acquired from other walks of life. Unfortunately the good schoolboys or the successful university men are a little prone to think that they have a monopoly of talent and are a little too forgetful of the fact that the world abounds with—indeed largely progresses as the result of—the activities of men who boast no early scholastic prowess. At the same time it is not to be denied that many of the outstanding men of our time have shown their qualities, not necessarily scholastic, at a very early age.

Success in the professions is commonly associated with early scholastic success except when the success has been dependent on qualities not strictly professional such as social or administrative capacity.

A rough and ready grouping of children according to intellect takes place inevitably in the forming of classes which is based on various tests related to class work. The ability of the child may be judged by his or her age compared with the average age of the class. The better schools succeed in arranging that a given child is not in the same form for each subject, although the system gives the staff much extra work.

Admittedly all such class grouping is somewhat fortuitous, for some teachers have the facilities of imparting their subject better than others and no quality is more difficult to assess than teaching ability. Often the teacher who is considered successful is he who, by spoonfeeding, saves the student work and limits his outlook to this or that examination although by the process he

may fail in training the pupil to think and work for himself.

Psychologists have made many serious efforts to establish the intellectual capacity of children apart from mere school subjects. Originally many of these were not strictly psychological although they were included under the term experimental psychology. Essentially they were tests of the efficiency of the neuro-muscular mechanism underlying sensations of different kinds and voluntary movement such as used ordinarily in the investigation of nervous disease and utilizing apparatus like that used in a physiological laboratory. Intelligence was found to be correlated to such measurable activities as sensory discrimination. Such investigations had their origin in the work of statisticians like Cattell and Thorndike in America, Galton and Karl Pearson, and carried out especially by Spearman in this country and by Binet in France. Such tests appeared to show that there existed an inborn general capacity which might lead to success in whatever field it chanced to be directed. There is in this a fundamental belief in the biblical parable of the talents.

The belief that certain persons have gifts and talents beyond others is almost universally accepted, although some believe that they should not be paid any more than their fellows if the latter have the diligence to make use of their talents.

It appears to have been clearly proved that while simple sensory and motor capacities were related to intelligence, the relationship was small. It is claimed to have been discovered that the higher and the more complex the activity tested the closer was the correlation with intelligence. At the same time it must be admitted that there is no real definition of intelligence. It may probably best be defined as inborn all-round ability, theoretical and practical, uninfluenced by education, character or temperament and uncoloured by emotion. It is agreed, too, that any tests applied do not pretend to discover highly specialized intellectual qualities.

The first systematic tests introduced were those of Binet and his collaborator Simon, which were arranged for different ages, but they are now modified and remodified by almost every teacher who has done testing. This was almost inevitable as the original Binet-Simon tests were used to discover cases of mental deficiency for transfer to special schools in Paris. Applied to normal children they are an indication of the mental age of children and are of some sociological interest. They fail completely with the child who develops late, and many hold that these tests therefore bear little, if any, relation to educable capacity.

A large variety of tests are in use throughout the country, but it is doubtful if they are of any more value than the considered judgment of an experienced teacher who has observed the pupils engaged in various activities for a considerable period. Emphasis should, however, be laid on the observation of several different activities.

These tests have, however, been found of value in the study of the feeble-minded and especially in war-time when the lack of *educable* capacity may mean that the soldier is incapable of learning the proper use of lethal weapons and is only useful for the simplest kinds of manual labour. It is difficult to determine the exact incidence of those who have a low capacity to learn, but Burt has found it as high as 25·1 per cent. in some areas. The problem is then a large one.

It is not possible in this small volume to describe all the tests in use but it may be said that the matrix test of Raven has been found most useful in the Army. It consists of a book of progressively complicated designs in each of which a small piece is missing. The subject has to complete the pattern from a series of possible and progressively difficult small pieces printed below.

Of more importance are vocational tests by which those leaving the educational sphere may be guided towards the best means of earning a livelihood with a view to preventing, as far as possible, the psychological misfits which may lead to so much unhappiness, if not actual mental illness, at a later stage which is so liable to occur if the individual is in a job which is too easily within his capabilities or quite beyond them. Too often the child, and oftener the parents, have ideas regarding suitable vocation which quite outstrip the capabilities of the individual concerned.

Most children indeed pass through phases of wishing to be actors or actresses, engine drivers, professional cricketers, surgeons, and often the desire bears some relation, inverse or otherwise, to the occupation of the parents. Many business firms have found it an advantage to test their employees in the fundamental movements and reactions which they are likely to need in their work. The tests for suitability for the Air Force are in a similar category. By such advance testing much time and many machines are saved by the early elimination of the unsuitable.

In Britain, the National Institute of Industrial Psychology has done much in devising tests for certain vocations, but the

Board of Education and the Services have also made extensive tests. Such vocational testing is essentially practical and is probably most accurate when as near as possible to the kind of work to be done. In many cases much can be done by actual timing of beginners on the job, but this is often too wasteful in time and material. It must be remembered, too, that in vocational selecting, such factors as character, and emotional and temperamental qualities, may, like physique, be as important as aptitude in securing the complete happiness and content of the individual in after life. (See Myers and Oakley and Macrae.)

It must be admitted that the term intelligence is used in different senses by various writers. The child or dog with a good memory and in whom conditioned reflexes are easily established is commonly deemed intelligent although it may be quite incapable of solving quite a simple problem. Even in higher mathematical examination it is found to be almost impossible to separate the students who are original from those with good memories, for a very large number of so-called problems have been previously set in examinations and can be solved by routine methods.

A good summary of the methods of testing in use is given by Cattell.

APPENDIX II

CASES ILLUSTRATING MENTAL DYSFUNCTION

THESE cases, quoted by well-known authors, are appended to give students an idea of the kinds of abnormal mental functions which may occur. They are quoted verbatim. In some cases alternative explanations might readily be offered.

Unconscious Activity

A young man was playing cricket, and was afraid that he would make no runs. A friend, wishing to encourage him, bet him a shilling that he would make at least eight. He accepted the bet. Now this young man had to count every shilling he spent. He at once regretted his bet, and said to his friend that if he made seven he would hit his wicket; he said this in the spirit of the joke which is made in earnest. He then dismissed the matter from his mind. When he went in to bat, he counted his runs, a thing he always did, and after a time reckoned that he had made seven; he then hit his wicket. Then suddenly he remembered his threat to do this, which he had forgotten. He was quite sure that he had never thought of it while he was batting, and was certain that the execution of it was a pure accident. But as he was walking to the pavilion he felt very miserable, for he thought that he would never be able to convince his friend of this. When he got to the pavilion he found that he had counted wrong, and that he had made nine, so that he had no need to apologize or do anything disagreeable except pay his shilling. The view put forward here is that when consciousness had registered seven—that this number was wrong is immaterial, the point is what consciousness thought it was—this acted as a stimulus to the old resolve, which was now wholly subconscious, and it was realized. (Ross.)

Psychoneurotic Fatigue

The patient was a man of 34, a school teacher. He complained of generalized 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 dicovered 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 irritabe. 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 dramatized 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 realized 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 dramatized, 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. (HENDERSON AND GILLESPIE.)

Phobia

A lady was dominated by the thought of dirt or contamination from something. If she dropped anything on the street, she would not pick it up, for it would have come in contact with dirt, from which it would never be absolutely clean; if, as often happened, some one picked it up and gave it to her, she would lose it again as soon as possible. When she got home after such an occurrence, she would burn her gloves, would wish to destroy her dress because her gloves would probably have touched it; she would bathe and change as if she had been in close contact with some horrible and potent infection. She would like to have used disinfectants freely—but how to get rid of them? They are all poisonous; a drop might get on to some fabric or the table; it is washed off; it is then mostly on the cloth with which the table has been washed; that can be burnt, but now there is some on the hands; they are washed, but a trace remains, and that is partly wiped on to the towel, and so it is never got rid of. The fear was that she might poison some one else; some one not knowing, and not as careful, might come in, touch that table or that towel, and be poisoned, and the death would lie at her door.

A life of this sort is very expensive. This lady burnt more articles of clothing than she could afford, and yet she never got abreast of her difficulty; there was always something contaminated which ought to be destroyed. (Ross.)

Phobia

A man, unmarried, aged 37, had a phobia of policemen and begged to be allowed to have a personal interview with the local police inspector in order to find out exactly what it was of which he was being accused. He never passed a policeman without feeling that he was going to be arrested, but he was completely unaware of having ever committed a crime. It was easy to recognize that the policeman was a symbol representing law and punishment, from which it was a short step to deduce the fact that the patient had, at some time, done something of which he felt ashamed. This was discovered by analysis. When he was three years old he had been induced to commit an improper practice with an elderly female relative, and had been discovered doing so by his father, who had severely and quite unjustly

punished him. From that time he had always felt terrified of his father's presence. The episode had been long forgotten, but the sense of guilt and the fear of punishment had been transferred to the symbol of policemen in general. The situation had been pictorialized and the meaning had been lost in the neurotic's adherence to the form of unconsciously chosen symbolism. (HOWE.)

Obsession

The third case is that of an obsessional neurosis in a young man of 27 years of age, a chemist in one of the large steel works. He came complaining of feelings of guilt and fears for his sanity. He was still at work but was finding it more and more difficult to concentrate and had the idea that the people round him knew of his difficulty and were making fun of him. He was engaged to be married to a young lady of 19 years of age and one of his most urgent fears was that other men were trying to steal her away from him. If any other man spoke to her or even looked fixedly at her he became almost panic-stricken; his face would blench, he began to feel physically sick, and in fact exhibited the signs of extreme terror. Sometimes his legs would become so weak that they refused to sustain him and he would be compelled to seek support. One other symptom of which he was not so much alarmed, but which he looked upon rather as a nuisance, was that he found himself unable to pass a certain type of shop-window display without getting excited. If he saw a sports outfitters with football knickers in the window he had an almost irresistible desire to purchase a pair. This, in fact, he often did and then he would seek the nearest "convenience" and put them on. To avoid this he would sometimes go out of his way to miss a shop of this type.

He was a perfectly healthy young man with no physical signs of any illness and in fact with the exception of pneumonia as a child he had never been ill at all. He was rather above the average intelligence at school, having gained a scholarship to the secondary school, and after leaving this had obtained a very good position in the works as a research chemist and was doing very good work.

His symptoms had been present for five or six years but were gradually getting worse, making his life difficult and unhappy so that he had actually contemplated suicide. (SKINNER.)

Compulsion Neurosis

A patient was obsessed by the number thirteen. If he heard the word he felt a shock which was followed by a period of misery; he stayed in bed on the thirteenth day of the month and on the twenty-seventh, because the word "twenty-seventh" has thirteen letters in it. Everybody seemed to be saying thirteen at him in some way or another; thus they would say, "Oh, good morning," and with, as it seemed to him, a most perverse ingenuity, they would later in the day say only "Good afternoon". He worked near Oxford Circus, and lost time by not going through it because the words "Peter Robinson" were displayed prominently. On going upstairs he would hop over the thirteenth step. Wherever he went, whatever he did, he was compelled to count the letters in the short phrases people used, to count the words in their sentences, to count his steps, the number of streets he passed and so on. He gave so much time to the avoidance of the number that he had become totally unfit to do anything else, and his condition was truly one of great misery. He dreaded the number much as another might dread the street or a closed room. (Ross.)

Suppression of Unpleasant Memory

Many years ago I was watching two girls swimming near the seashore, I myself being on the beach perhaps twenty yards away. It seemed to me that one of them was behaving a little curiously, and I walked to the edge of the water to call out to her. Then I felt diffident about shouting to two perfect strangers who, in those days, might have resented it, so I walked on, but with an uncomfortable feeling that I really ought to have made sure that everything was all right. It was in fact a tragedy, for as I learned later, both girls were drowned.

That memory is a source of considerable unpleasantness to me, and I never admit it to consciousness if I can help it, and not only that memory but all the associated memories, the name of the place where it occurred, the date and the whole circumstances of that particular episode have become distasteful, and I find I have great difficulty in remembering the name of the place and never voluntarily recall that bit of the coast. I have never been able to return there. The central memory of seeing a girl actually drowning without knowing it and being prevented

from possibly saving her by a feeling of reluctance to intrude, is associated with an " affect " of extreme unpleasantness which " affect " has been spread on to the various other memories associated with that particular time and place. (SKINNER.)

Hysterical Headache

A physician—a prominent medical teacher—recently told me of his personal experience with a nervous headache of long standing. While a medical student, one of his teachers advised him that antipyrin was a certain cure. He took it and was cured almost instantly. As years went by and his experience ripened, he observed that apparently even the taste of antipyrin would cure his headaches; that as soon as he placed a tablet in his mouth, his pain would disappear. It occurred to him that perhaps his headaches might be a nervous habit, and he decided to discontinue both the headaches and the antipyrin, and he was entirely successful. A year had gone by at the time of this conversation, and there had been no headache. Thus it appears that not only the unlearned and unscientific are victims of the pranks of mind and the whims of nerves, but the skilful and scientific suffer as well. No class of society can pride itself on being free from the influence of these mental mischief-makers. (SADLER.)

Hysteria

A woman, 50 years of age, gives a history of lifelong nervousness. The physical examination is negative with the exception of a tender solar plexus. Her chief complaint is fainting spells. Her mental and nervous examination reveals that she is irritable, restless, and unhappy. She suffers more or less from fatigue. Has peculiar sensations all over the body, particularly persistent in her right arm. Complains of insomnia. Cries easily. Has mild compulsion tendencies. She has been told by physicians that she is suffering from nervous exhaustion. One neurologist recently made the diagnosis of maladjustment. Ours was major hysteria.

When she was younger, undoubtedly these fainting spells were more or less sexual in nature. She always feels rested and relaxed after an attack. Their frequency and severity seem to be determined entirely by the fluctuations of nervous strain and emotional stress. They seem to be an escape mechanism which

puts in its appearance whenever she is harassed, wrought up, or suffers keen disappointment. Anger will immediately precipitate one of these attacks, which become so exaggerated as to approach the severity of dying spells. It is only when the seizures are thus aggravated that she loses consciousness, but observation proves conclusively that she retains in her memory many things said in her presence during one of them. This patient's home life and economic situation are such that she has been unable to subject herself to prolonged psychiatric training. She is half-minded to accept the hysteria explanation of her difficulty, but it is evident that she prefers not to part with this technic for reducing her emotional tension in the absence of anything better which might be utilized as a substitute. All we have accomplished over a period of years by occasional consultations is to relieve her of the fear of her fears; that is, to let her understand that her dying spells are purely hysterical and that she will not die in one of them. Life has been made a little more enjoyable by the recognition of this fact—which she has come partly to admit on her own motion because she has indulged in these hysteric fits and experienced these dying spells for over forty years and is still in moderately good health. (SADLER.)

Hysteria

A patient with apparent paralysis of both legs presented himself. He demanded compensation from the Government based on this disability. All the tests up to a certain point were inconclusive as regards the differentiation between organic and hysteric involvement. Malingering was suspected, but hysteria was the diagnosis favoured by most of the examining physicians, though none was sure the man was not really paralysed. In working out details of the differentiating diagnosis, one of the examining physicians possessed himself of a bright idea—he decided to wash out the patient's stomach. After the tube was passed, he had brought him a bottle of Scotch whisky well wrapped in a towel and emptied the liquor into the stomach without the patient's ever knowing what had been given him. Within thirty minutes this supposedly paralysed ex-soldier was wandering about the hospital, happy, noisy, and loudly singing, while walking normally and declaring that "This is the best hospital I have ever been in". (SADLER.)

Anxiety

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 had 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. (HENDERSON AND GILLESPIE.)

Calf Love

Thus a girl of 13 who was unpopular at school developed a fervid affection for a prefect. The latter did not respond. The girl wrote a letter saying that if the neglect continued she would strangle herself. Another very intelligent and imaginative girl became very fond of the captain of her school. The latter was friendly but was not prepared to give her exclusive companionship. The consequence was that the girl made some knife wounds in her throat to the effusion of blood. Actual suicide from such a motive is not unknown. The film " Madchen in uniform " had, I believe, in its unaltered version, suicide as its climax. This piece of German realism was cut out and a softer and less artistic ending substituted to the British public. Nevertheless, a few months later details of a similar suicide were published in all the papers. (GILLESPIE.)

Abnormal Effect of Father

The patient attended a school until he was 12, but was removed after a small misdemeanour. He had been kept short of pocket-money. He attended day-school for a time and then began to train for the Civil Service, which ultimately he " funked ", so that at 17 he went home to help his father, who persistently

bullied him. Against the wishes of his father, who desired that he should live as a " gentleman at large ", he resolved to train for a profession. His father declared that he would never pass the examinations, but he succeeded in doing so. He met a girl and wished to marry her, but his father opposed it. It was nearly ten years before he resumed the battle, but at last he married, still against his father's wishes. During the honeymoon he was very moody, took very cheap lodgings (he was in fear that his father, on whom he was largely dependent financially, would cut off his income), and on a summons from his father went to him for several days without explanation.

Gradually he began to suffer from the symptoms mentioned. He went to a foreign Spa, but a telegram from his father to come at once as he was " dying " interrupted his sojourn abroad. His father was simply in the midst of another dramatic episode. The patient continued to consult specialists for his feeling of weakness and malaise. He became increasingly depressed about himself, gave emotional displays, saying that he was paralysed and about to go mad, falling down (without hurting himself), taking tender farewells of his wife, and on one occasion climbing his bedroom wall and singing.

When admitted to hospital he lay quietly in bed, answering questions promptly and to the point, but at times he was very restless, looked distressed, and on several occasions behaved in a dramatic fashion. On the most notable of these occasions, from being apparently depressed and miserable and agitated about his sins, he suddenly got up and danced dramatically, saying " Let us be merry " and smiling in a forced, dramatic way. He also fell once and inquired the reason carefully. His only topic was his ill-health and the reason for it.

The outstanding general features of his illness were his hypochondriacal attitude and his dramatic exhibition of symptoms. Both of these were directly copied from the paternal example. It is true that his dramatization was more refined than his father's (a fact to which he himself drew attention as proof of the genuineness of his symptoms), but he was a well-educated man. (GILLESPIE.)

Excessive Mother Love

Male, unmarried ; aged 33, grocer's manager. Complained of insomnia, depression, thoughts of suicide. Everything too much trouble. Terrible headaches. Impulse to throw himself under

passing traffic. A few days previously he had disappeared for forty-eight hours and had been found at Southend. Duration of symptoms, about two years. Family history.—He had one elder brother, two younger brothers, two younger sisters. Father living. Mother had died two years previously. History.—The beginning of his symptoms followed his mother's death. At that time he had been the eldest son at home. He stated that his mother had refused to have anybody but him to nurse her, which he had done for six months before her death. He said that she could not stand her husband near her whilst she was ill. The patient stated, however, that he got on well with his father. Masturbation had commenced at 15 and continued up to date. He had read that it would cause all kinds of physical disorders and possibly insanity. He said that he had never, at any time, taken interest in girls, but that his mother was his greatest pal, to whom he took all his troubles and in whom he could always confide. He felt that no one could ever replace her. Since his mother's death he had felt that he had no one with whom to share his worries. He had been asked to take over the management of the business, but he had felt that it was too much for him without his mother's support and encouragement. He could have managed it, he said, without any difficulty had he had his mother to help him.

He had at one time spent a holiday with his mother at Southend. On his way to business one morning he felt an irresistible impulse to return there, which he accordingly did. He stated that he had the clearest visions of his mother. "I could see her as if she were coming towards me, as plain as you are." He felt that he was rejoining his mother at Southend and his intention was to commit suicide. He did not do so, however, but wandered about until he was discovered and taken home.

In the course of several interviews the patient talked a good deal about his mother, and it was explained to him that he needed to face the fact of his mother's death and to realize how excessively he had been dependent upon her. After a fortnight he said that he was feeling much better, that his sleep was returning, and that he had not been so depressed. He said, "I did not even go to see my mother's grave last week". After another fortnight he was able to return to work and stated that he was feeling normal. After that he did not return for further treatment.

Septic Psychosis

A single woman aged 55. Father died of melancholia. Mental trouble followed death of mother at 80 in August. Became excited, talkative, depressed, agitated and self-accusatory in September. Admitted to chronic ward of hospital in October. Two years later had eleven bad teeth removed and at once began to improve and after two months was discharged as recovered. Still well 10 years later. (HUNTER.)

Septic Psychosis

Girl 17. Onset of trouble associated with love affair (psychogenic factor).

Violent, excited, destructive, loud, impulsive, paid no attention to personal appearance or excretions, hallucination of sight, conversation confused.

Nine days after admission had tonsils removed without effect on mental condition. Two months later four bad teeth removed and later remarked that she felt entirely different from that time. Discharge one month after admission well. (HUNTER.)

Female Inferiority

Woman, unmarried; headmistress, age 49. Complained of extreme depression. Outbursts of crying. Occasional suicidal thoughts. Lack of concentration. No interest in her work. Frequency of micturition. Appearance.—Shy, severe and dressed in a rather masculine version of feminine attire. History.—Shortly before her birth her parents had lost an elder son, which had caused them great grief. One of her earliest memories was of being told by her parents how bitterly they were disappointed that she was not a boy. This made a very deep impression on her, and she made up her mind that she would as nearly as possible be like a son to her parents. (This was not, of course, to please them, but to gratify her own desire to be wanted.) To a very large extent she succeeded. Although her parents were poor, she struggled her way up by means of examinations and scholarships, and through her ability she managed to pass top in nearly every examination that she undertook. She said she always felt she simply must be top in all her exams; only to pass would be as bad as failure. Of the money that she

earned she sent some to help to support her parents in their old age, but she always felt that her parents did not appreciate her and that her efforts were wasted on them. She was always unhappy during her vacations, which she spent at home out of sense of duty, and she said she could not help despising her parents. She had no use for men, and her life was entirely devoted to her work as a schoolmistress. She was afraid of walking alone in the country and would never go out by herself after dark because, she said, she was afraid of some man taking advantage of her.

In spite of her success, her work lost all its interest for her. She had several difficult homosexual attachments to women, but felt that she was insulted and ignored by those who attracted her. She had always suffered from frequency of micturition, being in the habit of passing her water sometimes every half-hour, which had made her duties very difficult to perform. It transpired that this was a substitute form of erotic gratification, which rapidly improved during analysis. (HOWE.)

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