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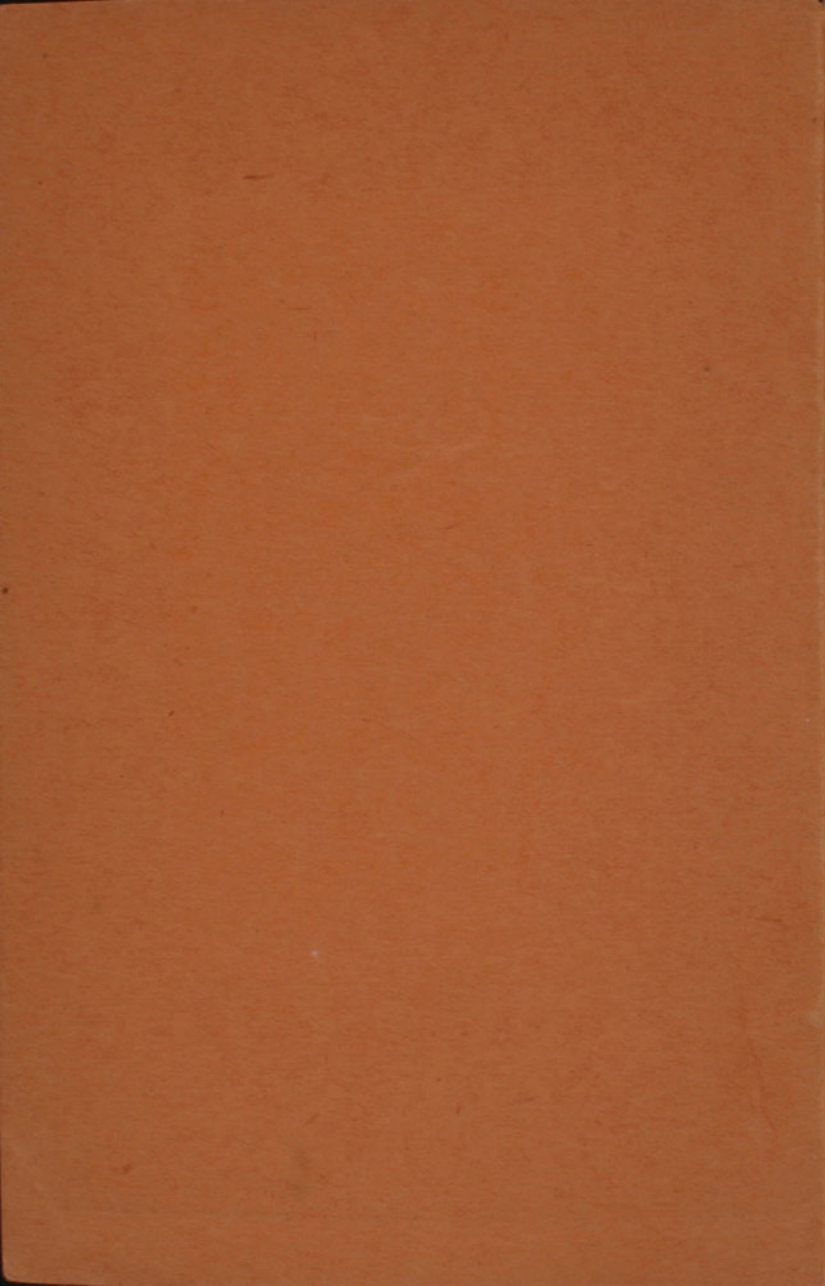
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THE MIND AND
ITS WORKINGS

By C. E. M. JOAD

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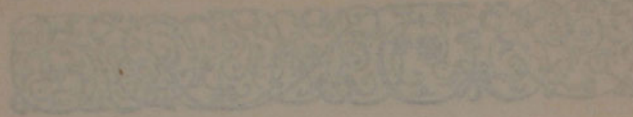
By C. E. M. JOAD

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"Common Sense Ethics," "Common Sense Theology,"
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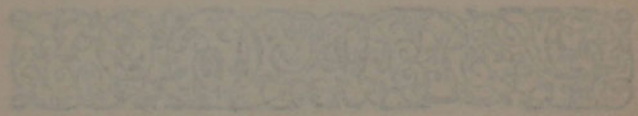
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BY C. E. M. JOAD

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THE
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THE MIND AND ITS WORKINGS

CHAPTER I

INTRODUCTORY: THE MIND BODY PROBLEM

SPECULATIVE CHARACTER OF PSYCHOLOGY

PSYCHOLOGY is the science of the mind; it seeks, in other words, to give an account of the way in which the mind works. Unlike other sciences, however, it is concerned less with facts than with theories. Chemistry, for example, presents us with a number of facts about the elements of matter, and arranges these facts in accordance with certain laws; nobody doubts that these facts are facts, or denies that the laws which the facts are said to exemplify really do apply to them. So certain are scientists about these laws that they are enabled by means of them confidently to predict the occurrence of facts which do not yet exist. They can tell you, for example, that if you combine two parts of hydrogen with one of oxygen the result will quite certainly be water. And what is true of chemistry is true of all the sciences in a greater or less degree. But it is not true of psychology for the reason that in psychology there are no facts which everybody agrees to be facts, and, as a consequence, there are no universally accepted laws in terms of which the facts can be explained. In other words, although you can say that a stone will fall downwards if you drop it from a window, you cannot

be sure that a man will lose his temper if he sits on a pin; you cannot even predict that he will swear.

To put the point in another way, psychology still belongs very largely to the province of speculation. We cannot say that the mind works in this way or in that way; we can only wonder and propound theories about it; and on the great majority of important questions there are several contradictory theories. This does not necessarily mean that psychology will never attain to certain and agreed knowledge. All the sciences were born into the realm of speculation; they all, in other words, started life as philosophy. The ancient Greeks *wondered* about the stars, about the properties of matter and about the functions of the human body; for them all these branches of inquiry formed part of philosophy. So soon, however, as anything definite came to be known about these matters, they ceased to be philosophy and, under the names astronomy, physics, and physiology, became sciences in their own right.

Now psychology is in a transition stage. In some very few respects it has attained definite knowledge and is entitled, therefore, to be called a science; but with regard to the great majority of the questions it studies it has still to emerge from the phase of wondering or speculation. What is more, and here we come to a very disturbing fact, whenever psychology does manage to obtain a piece of definite, accurate, and agreed knowledge, it turns out to be knowledge not about the mind but about the body. Why is this?

The discussion which an answer to this question involves, besides being interesting in itself, will admirably serve the purpose of introducing our subject, and I propose, therefore, to occupy the remaining pages of this introduction by indicating as briefly as I can what the answer is.

THE RELATIONSHIP OF MIND AND BODY

It is obvious that one of the most important things about the mind is its relationship to the body. Mind and body are continually interacting in an infinite number of different ways. Mind influences body and body mind at every moment of our waking life. If I am drunk I see two lamp-posts instead of one; if I fail to digest my supper, I have a nightmare and see blue devils; if I smoke opium or inhale nitrous oxide gas I shall see rosy coloured visions and pass into a state of beatitude. These are instances of the influence of the body upon the mind. If I see a ghost my hair will stand on end; if I am moved to anger my face will become red; if I receive a sudden shock I shall go pale. These are instances of the influence of the mind upon the body. The examples just quoted are only extreme and rather obvious cases of what is going on all the time. Many thinkers indeed assert that mind and body are so intimately associated that there can be no event in the one which does not produce some corresponding event in the other, although the corresponding event, which we may call the effect of the first event, may be too small to be noticed. The interaction between mind and body is, at any rate, a fact beyond dispute. Yet when we come to reflect upon the manner of this interaction, it is exceedingly difficult to see how it can occur. Mind,* it is clear, must be something which is immaterial; if it were material it would be part of the body. The contents of, or the events which happen in the mind—that is to say, wishes, desires, thoughts, aspirations, hopes, and acts of will—are also immaterial. The body, on the other hand, is matter, and possesses the usual qualities of matter, such as shape, size, weight, density, inertia, occupancy of space, and so forth.

* It is important to emphasise the fact that the word "mind" does not mean the same as the word "brain"; the brain *is* material.

Now there is no difficulty in understanding how one material thing can be influenced by another. Each possesses the same attributes of size, shape, and weight, in virtue of which each can, as it were, communicate with or "get at" the other. Thus a paving stone can crush an egg because the egg belongs to the same order of being as the stone. But how can the paving stone crush a wish, or be affected by a thought? Material force and mass have no power over ideas; ideas do not exert force nor do they yield to mass. How in short can that which has neither size, weight, nor shape, which cannot be seen, heard, or touched and which does not occupy space, come into contact with that which has these properties?

Mind and matter seem, then, to belong to two different worlds, to partake of two different orders of being, and the problem of their interaction is the problem of the whale and the elephant raised to the n th degree. In these circumstances the question immediately arises, Is it really necessary when accounting for the operations of the human body to postulate the intervention of mind after all?

THE WORKING OF THE NERVOUS SYSTEM

Let us look at the question in a little more detail. Suppose that I place my hand upon the poker, find that it burns me and quickly withdraw my hand. What exactly is it that has happened? The heat of the poker stimulates the terminals of the nerve cells in my fingers. These nerve cells or neurones are in contact with other nerve cells, and a stimulus applied to any one of them is accordingly passed on to the next. The machinery of transference is as follows: Each nerve cell has a number of filaments attached to and extending from it. These filaments are known as dendrites. One filament is considerably longer and finer than the others, and is known as the axon, and it is through the axon that the stimulus or impulse passes through to the next neurone or nerve

cell in the chain. The points of contact between the axons, known as synapses, act like valves; that is to say, they let the stimulus or impulse pass in one direction only; it is not allowed to return on its track. The central part of the nervous system, forming a sort of highway along which all impulses pass, is the spinal cord. Travelling by this road the heat stimulus to the nerve cells in my fingers reaches the brain. Here it enters a complicated system of tiers and layers of neurones. These tiers or layers act as the clearing houses of the nervous system, sorting out the different messages received from all parts of the body, and determining which of them shall be passed on for the purposes of action. Passing on a stimulus for the purposes of action means transferring it to another system of neurones, known as the effector nerves or motor nervous system, which govern the movements we make, as opposed to the receptor nerves or sensory nervous system, which receive and transmit the sensations we feel. Assuming that the brain has decided to take action in respect of the stimulus from the poker, it lets the stimulus pass through to the neurones composing the motor nervous system; these in their turn pass on the stimulus received from the brain to the fingers, as the result of which the latter are withdrawn from the poker. The whole procedure may be likened to sending a message from the fingers to the brain in response to which another message is sent back to the fingers. Now the processes involved in the sending of these messages, complicated as they appear, seem, nevertheless, when we look at them from the point of view of the body, to be purely automatic. It is like putting a penny into a slot machine and taking out a box of matches. Nor does it appear to be necessary to introduce a mind or consciousness at any stage of the process to explain what it is that happens or why it happens. It may be true that we *feel* the heat of the poker, and that the feeling is a psychological or mental, as opposed to a physiological or bodily event; but it may also be true that the feeling

has nothing to do with the withdrawal of the fingers, which is a purely automatic result of the applied stimulus.

I have deliberately taken the simplest possible case, and one in which the action of the body is, on any view of the mind body relationship, as nearly automatic as it is possible for it to be. But if we can explain some of our actions, however simple they may be, without introducing this mysterious thing mind, may it not be possible that *the same sort of explanation*, enormously complicated, of course, but still confining itself purely to bodily terms, might be invoked to account for all our actions? In any event should we not in the interests of science leave no stone unturned in order to make it do so, hoping that an increase in knowledge about the body will cause the gradual disappearance of many difficulties which at present beset the attempt to explain, not only action but thought in bodily terms?

Since this is the fundamental problem of all psychology upon which modern psychological controversy very largely turns, let me try to put the point in a somewhat different way.



Let us suppose that in the above diagram $ABB'C$ is a circle which roughly represents the passage of a stimulus or impulse round the nervous system. The stimulus is applied to A (the fingers), and passes into the brain at B. I have marked off a definite segment of the circle from B to B' to indicate the fact that there is a definite passage through the brain, the point at which the impulse leaves the brain at B' being different from that at which it enters at B. This is a passage through exceedingly complicated tiers of neurones which apply a process of sifting or sorting to the impulses received, with

a view to determining which of them shall be passed on to the motor apparatus for action. The part of the circle from B' to C represents the motor or effector apparatus, C being again the fingers, or in other words the point at which the motor impulse travelling down to C causes us, as we say, to take action.

Now the point at issue among modern psychologists is this: is the passage of an impulse round the nervous system a passage which can be completely described at every stage in physiological terms, sufficient in itself to explain what happens whenever the organism feels and acts? If it is, then we may think of bodily actions on the analogy of the movements of water in a full reservoir. One pipe leads into the reservoir, another out of it; whenever, therefore, fresh water comes in through the first pipe, it will cause an overflow of water which will be drained off through the second. The process is a purely automatic one and takes place in accordance with physical laws. Whenever, in other words, a stimulus is applied at one end of the chain, then the appropriate reaction will occur at the other.

If it is not, then we must assume that this nervous chain is broken; that when the impulse reaches the first B, it leaves the brain altogether and passes out of the circle into something of an entirely different nature from B, which we will call D, the mind. How this occurs we do not know; but, if it does occur, the result will be, first, that we shall, as we say, be aware of or feel the stimulus; secondly, that this awareness or feeling will be a purely mental event not explicable in bodily terms; and thirdly, that having experienced it, the mind may or may not decide to give effect to the stimulus by instructing the brain to set the nervous system to work to remove the fingers. The nervous system will in the former event begin to work again—indeed, it must operate if action is to follow—but it will come into operation after a break, during which the body has ceased to function and something which is not the body has taken charge.

THE ALTERNATIVE EXPLANATION

This, putting the point very crudely, is the other alternative, and it involves a hypothesis, the hypothesis of the existence of a mind, of something, that is to say, which is not of the same order of being as the body, which all those who are dissatisfied with the materialist view must in some form or other adopt. In favour of it there is the obvious fact that we do not seem to be the mere slaves of our bodily stimuli, slot machines which, when the penny is inserted, work because we must, but appear to be endowed with a power of choice, in virtue of which we can decide whether or no we shall obey them, and if we do, in what way. If, for example, I am hanging on to the edge of a precipice with one arm and a wasp stings my hand, I shall probably not withdraw the hand, in spite of the stimulus which it has received. Facts of this sort are difficult to explain without introducing mind. An explanation can indeed be given in physiological terms, but it is exceedingly complicated and has the appearance of merely pushing the problem further back.

We can say, for example, that another set of impulses stimulating the fingers to retain a tight hold of the precipice edge is already in command of the effector nerves leading to the arms; that these nerves cannot, therefore, be utilised by the withdrawing impulses unless the holding-on impulses are first ousted; that two sets of impulses are, therefore, in competition for the use of the effector nerves, and that the nervous centres in the clearing house of the brain determine which of the two sets shall employ the effector nerves, by getting control of what is known as the "final common path." But is this determining process a purely automatic one, depending on the relative strength of the two sets of impulses; or does it not in itself presuppose a mental act of decision which instructs the clearing house in the brain which set of impulses to let through and which to keep out?

The mental hypothesis is beset with the general difficulty to which I have already referred—the difficulty, namely, of conceiving how what is non-material can act on matter.

The next two chapters will be concerned with the elaboration of these two alternatives. In Chapter II. I shall consider various forms of the materialist psychology—that is to say, of that kind of psychology which, since it endeavours to explain everything that happens without introducing a mind, is not really psychology at all but physiology. In the third chapter I shall consider the objections to this mode of interpretation, objections which, if they are valid, lead to the view that we cannot explain the facts of psychology without bringing in the mind.

WHY PSYCHOLOGY IS CONTROVERSIAL

Besides serving the purpose of providing a general survey of the ground to be covered, the above discussion enables us to answer the question which we raised at the beginning of the chapter—the question, namely, why it is that psychology still belongs in the main to the realm of speculation and hypothesis rather than to that of exact scientific knowledge.

That this must necessarily be the case, so long as the fundamental question of psychology—the question whether there is a mind to study—remains controversial, is obvious. But there is a further special reason for the inexact character of psychological knowledge.

Returning for a moment to the diagram given above, let us presuppose the truth of the mental hypothesis, and assume, accordingly, that the stimulus on reaching B leaves the circle of the nervous system and causes or becomes a set of occurrences of an entirely different order, occurrences which we call feelings of pain, shock, or warmth, which happen in the mind (D). It will still be the case that with regard to these mental occurrences, feelings, emotions, and sensations, we shall be able to

affirm practically nothing which is at once exact, definite, and generally agreed. The nature of the emotions and feelings, for example, is, as will be seen in a later chapter, one of the most controversial subjects in psychology. What is true of the emotions or feelings is equally true of all mental events. It turns out, in fact, that when we do obtain exact and reasonably certain knowledge of the workings of that compound whole which is partly mind and partly body, it is knowledge about the bodily side of it.

About the parts of the circle which lie between A and B, and B' and C, we are actively increasing our stock of detailed scientific knowledge. We can manipulate the nervous system in various ways in the confident expectation that such and such results will follow. But the part of the process represented by the lines BD and DBB' is still shrouded in obscurity, and it is doubtful whether we shall ever be able to give an exact account of it. Certainly we cannot do so yet, a fact which many regard as constituting a strong argument for cutting out D altogether.

This is what is meant by saying that psychology, so far as it deals with facts, so far, that is to say, as it is scientific, is not psychology at all but physiology.

CHAPTER II

THE MIND AS AN ASPECT OF THE BODY

I PROPOSE in this chapter briefly to outline those theories of psychology which seek to interpret the facts of human consciousness and behaviour without postulating the existence of a distinct and unique entity called mind. By the word mind I mean something which is not material, which is not, therefore part of the body, and which does not obey the laws of chemistry and physics

which the body obeys; in this sense all the theories with which we shall be concerned may be called materialist. Some of these theories do indeed admit the *possibility* of the existence of mind in the sense described, but they nevertheless affirm that, if it does exist, its only function is to be aware of events that occur in the body. It does not initiate these events nor does it control them; it merely registers them, what we call a thought or a feeling being a mental reflection of a disturbance in the brain or the body.

Theories of this latter type may also be classed as materialist, since, in denying to the mind any directive or creative function, they do in fact assert that the important thing about the individual is his body, implying thereby that his thoughts and behaviour will ultimately be found to be explicable in terms of the laws which govern material bodies—that is to say, the laws of physics and chemistry.

We are concerned, then, with the view of human psychology which says: "Either there is no such thing as mind, or, if there is, then everything which happens in the mind is a mere reflection of something that has first happened in the body." This view was very widely held in the nineteenth century, and is advocated by many psychologists in a somewhat different form to-day. We will consider first its nineteenth-century form.

NINETEENTH CENTURY VIEW OF MIND

It must be remembered that the tendency of nineteenth-century science was to belittle in every direction the importance of the part played by mind in the scheme of the universe. The work of Darwin had been used as the basis for a conception of evolution, in which the advance of life from the primitive amœba to the fully developed man was described and accounted for without postulating the intervention of mind at any stage of the process. It was to variations in species, to the fact that offspring did not entirely reproduce the character-

istics of their parents, that the development of life was due, and, when pressed for an explanation of the question how and why these variations occurred, Darwin confessed to a complete agnosticism. They just happened, fortuitously it must be presumed, and those which were suited to their environment survived. The only other theory in the field, that of the French materialist Lamarck, ascribed the origin of variations to the influence of environment. The environment changed, and the species either adapted itself by changing with it, or paid the penalty for its inability to do so by extinction. In any event the process was automatic; the movement and development of life was due not to the fulfilment of a purpose, or the execution of a plan, but to the influence of external material conditions upon living organisms. For the root cause of vital occurrences we must, in short, look to changes in material conditions.

Geology and astronomy reinforced these conclusions. Geology had enormously extended the age of the world, astronomy the size and spread of space, and in the vast immensities of geologic time and astronomic space life seemed like a tiny glow flickering uncertainly, and ultimately doomed (when, for example, the sun grew too cold to maintain suitable conditions upon the earth) to go out altogether. Life, then, was a chance occurrence in a fundamentally mindless universe, a passenger across an alien and indifferent environment, destined to finish its pointless journey with as little noise and significance as, in the person of the amœba, it began it. Meanwhile it would continue to be at the mercy of material forces; changes in life would reflect and be conditioned by prior changes in matter, and living organisms, instead of being the cause of physical events, would merely register their occurrence.

It will be seen, therefore, that the tendency to reduce the status and importance of mind, to subordinate it to material forces, and to think of causation as proceeding always from the more material to the less, was already

in the air, and contemporary psychology merely carried it to its logical conclusion. Among the infinite permutations and combinations through which the forms of matter had passed in the course of its evolution, there had occurred one in which, so psychologists argued, matter had become conscious of itself. It was this self-consciousness of matter that was called mind. Mind, then, was a highly refined and attenuated form of matter, a sort of halo surrounding the brain. Its function was to light up the events occurring in the brain, and when this illumination occurred we were said to be *conscious* of the events.

MIND AS A REFLECTION OF THE BRAIN

The function of the mind being limited to lighting up or registering events occurring in the brain, it is clear that it cannot register what is not there; it follows that there can be no event in the mind unless there has been a preceding event in the brain. Mental events are, therefore, never the cause but always the effect of bodily events. We are all familiar with the kind of interpretation which explains mental occurrences with remarks such as, "I have been walking in an east wind which has given me a headache and made me depressed"; or, "I have been drinking heavily all my life and am beginning to see things"—explanations which account for what occurs in the mind in terms of what has first occurred in the body; and it is precisely this type of explanation which was now extended to cover willings, wishings, thinkings, hopings, and remembering, in a word all the workings of the mind. Hence just as in the universe outside, so also within the individual organism causation proceeds always from the more material to the less.

Man is the creature of external forces, and his mind is the creature of his body; just as changes in man's body are due to changes in the environment to which he reacts, so also are changes in his mind due to his bodily

reactions to his environment. Thus the chain of physical causation, from the stirrings of life in the first speck of protoplasmic jelly to my thoughts as I am writing this book, may be regarded as complete. Many links have still to be established; it is, for example, at present only possible in a very few cases to say how and in what way the body determines the workings of the mind, but the filling in of detail is simply a question of further research; the main outlines of the picture are already sufficiently clear.

It is obviously impossible within the limit of a short chapter to indicate all the ways in which physiological psychology seeks to fill in the details, in its attempt to explain mind action in terms of bodily action. I propose, however, to give a few instances of explanations of mental happenings that have in fact been advanced, in order that the reader may form for himself an opinion on the practicability of the attempt. I will choose as examples physiological accounts of the emotions and the will, and then devote a few pages to a brief description of the so-called behaviourist psychology, which dispenses with the conception of consciousness altogether.

THE EMOTIONS

A celebrated theory of the emotions which admirably illustrates the materialist attitude to psychology is that propounded by the psychologist William James in collaboration with Professor Lange. The general standpoint of William James was not by any means identical with that of the materialists, but it so happens that his theory of the emotions fits very well into the materialist framework.

To the plain common-sense man his emotions appear to be aspects of his psychological being, which are called into action by the perception of an external situation which, as we say, arouses them. If we see a ghost, we feel frightened; if we see a child torturing a kitten, we feel indignant. The emotion is in each case

thought to be, as it were, permanently there, even when it is latent, a sort of continuing factor in our psychology, waiting for the appropriate situation to call it into action. It was this kind of conception, which we may call the ordinary view of the emotions, that the James-Lange theory denied. Its authors were sceptical of the existence of these emotions as separate psychological entities; did they, for instance, exist when they were not active, and if so, where?

Their view very briefly was that an emotion was the perception of a physiological change in ourselves. For example, it is found that when we feel the emotion of fear, some glands situated on the kidneys known as the adrenal glands, discharge a certain amount of fluid secretion, which in its turn produces important changes in the tensions of the muscles and in the blood, resulting in increased rapidity of heart-beat and dilatation of the pupils. The awareness of these bodily occurrences constituted, according to William James, the emotion of fear. Now the question at issue between the exponents of the James-Lange theory and those who adopt what I have called the common-sense view is simply this: Does the fear emotion precede and cause the gland excretion, or does the gland excretion precede and cause the fear emotion?

Many experiments have been made with a view to testing the conclusions of the James-Lange theory, but unfortunately no way has been found of settling the question at issue in a manner which is satisfactory to both parties. All that the facts entitle us to say is that the bodily event and the mental event are found in invariable accompaniment. Our view as to which precedes and causes which will depend upon our general attitude to the mind-body problem. When James said that an emotion was simply a mental awareness of a preceding physiological event, he was invoking that conception of the mind which regards mental activity as being always a reflection or register of preceding bodily activity, to which we have referred. As he puts it, "We

feel sorry, because we cry"; if there occurred neither tears nor any of the other physiological accompaniments of sorrow, we should not feel sorry.

INSTINCT IN ANIMALS

Modern materialists are inclined, it is true, to doubt whether the mere occurrence of a bodily disturbance is in itself sufficient to cause the emotion. They are inclined to say that the *first* thing that happens to us when we see a tiger is an instinctive adaptation to the situation, which takes the form of physical flight. This instinctive adaptation results in modifications of the heart beat, of the breathing, and so forth, which are designed to facilitate flight, and it is our awareness of these modifications which is the emotion of fear. In other words, the beginning of the whole chain of events which ends in the emotion is an instinctive tendency to act in a special kind of way. The question of whether this instinctive tendency is itself explicable on materialist lines raises the further question of the nature of instinct in general with which we shall deal in a later chapter. For the present it will be sufficient to point out that, even if we assume an instinct to be the first chain in the sequence of events which ends in emotion, there is no insuperable obstacle in the way of a physiological account of the origin of instinct. So much, at least, emerges from a consideration of animal psychology.

ANIMAL PSYCHOLOGY

We may perhaps take this opportunity of mentioning the fact that it is to animals rather than to human beings that psychologists have increasingly directed their attention in recent years. The processes of an animal's mind are simple and their connection with bodily stimuli is easier to detect; moreover nobody wishes to think that animals are either virtuous, reasonable, or æsthetic, and there is accordingly less danger when dealing with animal psychology that the acceptance of

theories, which have nothing to recommend them but their truth, will be prejudiced by the consideration that they presuppose a gloomy, a low, or a pessimistic view of animal nature. Researches into the nature of instinct in animals have shown that many instincts of first-rate importance are dependent upon, if they are not entirely conditioned by, physical stimuli. For example, the French psychologist Giart has shown that the instinct of maternal affection in the hen, instead of arising spontaneously at certain periods in the hen's life cycle, as, for example, when she is about to sit, is dependent upon, if it is not identical with, the occurrence of local inflammation. It is the local inflammation which causes the hen to sit upon the eggs in order to allay it, and if suitably irritated with pepper in the appropriate places the most unbroody hen will develop into an excellent foster mother. Even if, therefore, there is a psychological entity in the hen of the kind known as the maternal instinct, it is merely a reflection of a preceding bodily disturbance, just as an emotion, if it is a mental event at all, reflects and depends upon a number of such bodily disturbances.

THE WILL

The will appears to constitute one of the greatest obstacles to a materialist interpretation of psychology. It seems to be the most spiritual kind of faculty we possess—that in virtue of which we are not only distinct from matter, but even in some respects able to dominate it. When, for example, we decide to perform so simple an action as lifting our right arm over our head, we seem to be not so much the servants of matter acting in response to physical stimuli, but rather to command and dominate it, and to command it in virtue of our being in some sense free. To be free means to be exempt from the law of cause and effect, to be able, in other words, to exert our wills spontaneously and on our own initiative, without there being anything to cause us to do so. How can

this feeling that we undoubtedly have of freedom from material causation be explained on materialist lines?

Although we cannot prove that in *all* cases in which we appear to will and to will freely we are simply reacting to bodily stimuli, we are nevertheless able to show that by applying appropriate stimuli we can cause people to have experiences which are exactly similar to the experience of willing freely.

I mentioned in the first chapter the fact that the parts of the nervous system which govern the movements of our limbs, are dominated by certain tiers of nerves in the brain which act as clearing houses, and determine which of our impulses shall be passed on to the motor nervous system for the purposes of action. These clearing houses are called association centres, and they discharge the impulses which are being "let through" into what are called the excito-motor centres, which form part of the cortex or outside surface of the brain. These lie in a band roughly from ear to ear over the top of the head. Now if these centres are stimulated with a mild electric shock, they transmit impulses along the motor neurones and the patient moves his limbs. This, it might be said, does not prove anything. It is common knowledge that if the appropriate stimulus is applied to certain parts of the body, an automatic movement of the limbs will result; if, for example, the legs are crossed and the upper leg is gently struck below the knee-cap with the side of the hand, the foot will jerk upwards; if you are unfortunate enough to get a fly into your eye, you will immediately close your eyelid. Actions of this type are called reflex actions; they are purely automatic, and they have nothing to do with the exercise of the will. This is true, but the surprising fact about the electrical stimulation of the excito-motor centres is that it causes in the patient not only a movement of the limbs but the feeling that he is moving his limbs voluntarily; it seems to him, in short, that he has willed to move them. If, then, it is possible to cause a mental experience inseparable from what is called willing by the

application of a physical stimulus to the brain, may it not be true that acts which are called free will *always* be found to have some physiological cause, in which event they cannot really be free?

CONSCIOUSNESS AND THE SELF

It might well seem that consciousness is the most indubitably mental thing about us, the very source and centre of our mental life, and that it would prove, therefore, most intractable to the physiological method of treatment of which we have been giving instances in this chapter. Many thinkers have, indeed, so regarded it, basing upon the fact that the one thing in the universe of which we are most certainly aware is our experience, an experience which is both mental and conscious, what are called Idealist theories of reality. It is nevertheless possible to approach consciousness, in common with all other mental phenomena, from the physiological standpoint. This method of approach yields somewhat startling results, many physiologists, from William James onwards, having been led to doubt the very existence of consciousness as an independent, separate item of our mental make-up. I will try very briefly to indicate the reasons for this sceptical attitude to consciousness.

In the first place consciousness is something which is supposed to be possessed by or to belong to the self. Yet this self in which consciousness resides is a something of which we have no knowledge, and whose very existence is a hypothesis. Try as we may to discover the self, we never succeed in tracking it down; what we do come upon when we endeavour to realise the self, is, as the philosopher Hume pointed out, a something which is willing, a something which is desiring, a something which is thinking, or, in the particular case in question, a something which is wondering whether there is such a thing as a unified self and trying to discover it. Now there is nothing to show that all these "somethings" are the same thing; there is nothing to show even that they

belong to the same thing, or that there is a unity behind them all, binding them together, yet in some sense other than they. We meet, in other words, with willings, desirings, and thinkings, but never with the self which wills, desires, and thinks. Now it is precisely the same difficulty which confronts us when we try to track down consciousness, for the reason that consciousness is the chief characteristic of this hypothetical self. We meet with thoughts, feelings, and desires to which the quality of being conscious attaches; but we never discover a unity which is an entity called consciousness, which is other than and in a sense the source of the conscious thoughts, feelings, and desires, such that, even if, at a given moment, there were no conscious thoughts, feelings, or desires actually occurring, we could nevertheless affirm that consciousness as a separate thing or entity would still persist. But although we do not find consciousness except in so far as we experience thoughts, feelings, and desires, to which the quality of being conscious attaches, we do find thoughts, feelings, and desires without any such quality attached to them, a fact which seems to suggest that consciousness is not after all an important, permanently continuing thing, without which our mental life could not go on, but an incidental casual sort of phenomenon which may or may not attach to our mental acts without making any perceptible difference to them.

Thus in ordinary daily life it is a common experience to discover that we have been perceiving all manner of things of which we have not at the time been conscious. If, for example, I suddenly begin to attend to what lies within my field of vision, concentrating particularly upon what lies at the edge of the field, I find that I am seeing far more than I am ordinarily aware of seeing, dust on a book, a splash of ink on the desk, and so forth. Yet since my field of vision has not changed, I must infer that in some sense I have been seeing these things all the time, before, that is to say, I became conscious of them. It is clear, then, that it is by no means neces-

sary for a mental experience, as constituted for example by an act of seeing, to be conscious in order that it may take place.

Now it has always been realised that many of our actions are performed unconsciously, as, for example, the circulation of the blood, the growing of hair and nails, the balancing of the body, or the making of a habitual gesture; but it has also usually been held that these actions are sharply distinguished from those which are normally regarded as conscious. Thus the activities of a human being are often divided into those of which he is conscious and those of which he is not. Now one of the most interesting things about a good deal of modern psychology is that it proceeds as if this difference did not exist. It endeavours, in other words, to interpret and describe all the things we do and think without introducing the concept of consciousness at all. Those who approach psychology in this way are called Behaviourists.

THE BEHAVIOURIST PSYCHOLOGY

(i.) *Our Knowledge of Ourselves.*—In order to see how they arrive at this position, it is necessary to consider what are the ways in which we know what is going on in a person's mind. They are two: introspection and observation. Of these two methods introspection is denounced by the Behaviourist as being faulty and misleading. Introspection can be applied to ourselves; yet it is extraordinary how inaccurate and unsatisfactory are people's accounts of their own experiences. Ask a dozen men confronted with a "certain situation" to describe to you what it is that they are seeing, and each of them will give you a different account.* What is more, so far

* At a Psychology Congress held at Göttingen a clown suddenly burst into the Congress hall closely pursued by a negro. The negro caught him, leapt upon him, and bore him to the floor, where a fight ensued, which

from a man's capacity for introspection being improved by training, the more trouble he takes to find out exactly what his conscious processes are, the less likely is he to succeed. The reason for this apparent paradox is simple enough; it is that the trained observer knows what to expect. For example, the naturalist, taking a walk, will see more than the ordinary country walker, because he knows what to look for and where to look for it, while scientists, as is well known, progress by the method of intelligent expectation, which is merely another name for inspired guessing. But the capacity for intelligent expectation, while constituting a valuable asset to the physicist or the physiologist who is studying a subject-matter which is not affected by the expectations he forms of it, is a drawback to the introspective psychologist. When it is your own mind which you are investigating, the objects at which you are looking form part of and belong to the very instrument with which you are looking at them; it is to the mind that

was ended by a pistol shot, after which the clown got up and rushed out of the room, still closely pursued by the negro. The whole scene, which had been carefully rehearsed and photographed in advance, took less than twenty seconds. The President then informed the Congress that judicial proceedings might have to be taken, and asked each member to write a report, stating exactly what had occurred.

Forty reports were sent in. Of these, one only contained less than twenty per cent. of mistakes in regard to the principal facts; fourteen contained from twenty per cent. to forty per cent. mistakes; thirteen contained more than fifty per cent. mistakes. In twenty-four, ten per cent. of the details recorded were pure inventions. In short, ten of the accounts were quite false, ranking as myths or legends, twenty-four were half legendary, and six only were even approximately exact.—From *Public Opinion*, by Walter Lippmann.

you are looking, and it is with the mind that you look. The result is that it is exceedingly difficult to avoid seeing what you expect to see. And the more psychology you know, the more certainly will you find what you expect to find, with the result that introspection has been chiefly used to provide psychologists with data for the theories of mind in the interests of which they resorted to introspection. Results of this kind are of course completely unscientific, and have led many thinkers completely to deny the value of introspection as a method of obtaining information about the mind.

(ii.) *The Observation of Behaviour*.—The denial of the validity of introspection as a psychological method is the starting point of the Behaviourists. Observation, and observation alone, is, in their view, the method which a scientific psychology will consent to pursue, and much of the uncertainty of psychology in the past is said to have been due to the neglect of a proper scientific approach to the subject.

Now we cannot observe mind or consciousness; we can only observe actions. Actions, therefore, in the widest sense of the word, from the raising of a limb to the secretion of fluid by a gland, are regarded as the proper subject-matter of psychology, and are studied as such by the Behaviourists. As for mind and consciousness, we do not at this stage positively say that there are no such things; but, if there are, it is quite clear that we can know nothing about them; we will confine ourselves, therefore, to actions or behaviour and see how far our interpretation of psychology in terms of behaviour will carry us.

Starting from this standpoint the Behaviourist proceeds to a study of the observable responses which different situations excite in living organisms, and correlates his observations until he can present us with a fairly exact and extensive picture of the interconnections between these situations and the responses they call forth. It is surprising how much of our psychology, including

even the workings of the alleged mind itself, is found to be explicable on the stimulus-response basis. I cannot attempt within the limits of this chapter to give even the briefest account of the enormous amount of experimental work that has been carried out in this direction. It will be desirable, however, to describe in some little detail one set of experiments and the conclusions that have been based upon them, in order that the reader may understand the way in which the Behaviourist goes to work. The experiments in question are those associated with what is called the conditioned response.

(iii.) *The Conditioned Response*.—A dog is tied up in a dark cabinet in which he is screened, so far as possible, from all outside or distracting influences. Food is put before him and his mouth begins to water; the stimulus of the food causes, in other words, a response which takes the form of excretion by the salivary glands. This is called an unconditioned response to an unconditioned stimulus. The next time that food is put before the dog, a particular note is sounded; and this is done on each of a number of succeeding occasions, the food always being accompanied by the sounding of the note. After a time the note is sounded alone, whereupon it is found to cause the salivation which in the first instance was excited by the food. In other words, the salivation response is now produced by a new stimulus, which has come to be associated with the original stimulus through constantly accompanying it. Salivation in response to the note is called a conditioned response to a conditioned stimulus. Practically any stimulus which is applied sufficiently often in conjunction with the food stimulus can be conditioned in this fashion. This is true even of a painful stimulus. Let us suppose that the dog is severely pricked when the food is put before him, and is later pricked in the same place without the food; instead of causing symptoms of pain and fright, the prick will now merely produce abundant salivation.

Two points about this interesting series of experiments

may be noticed. In the first place the conditioning of the note alone as a stimulus to salivation only takes place if the note has been sounded immediately prior to or at the same time as the presentation of the food; if the note is struck after the food has been presented, it does not become conditioned. Secondly, the effectiveness of the stimulus of the note when sounded alone in producing salivation only lasts for a certain period; if the note is sounded without the accompaniment of the food too frequently, it ceases after a time to produce salivation.

The physiological explanation of these occurrences is difficult, nor is it strictly relevant to our present purpose. Briefly it is held that the constant arrival of the food impulse and the note impulse together tune up two sets of neurones in the particular centre which receives them, so that both the neurones which are stimulated by the food impulse and those stimulated by the note are, to use a metaphor, keyed at the same pitch. Each set of neurones remains tuned up to this pitch for some time after the stimulus has ceased, with the result that either set is able, when stimulated, to discharge its impulses along the paths of the other. They can, in other words, exchange the impulses they receive and the motor actions which the impulses prompt. Next time, therefore, that either of the stimuli recurs, it finds both sets of neurones tuned to receive it, and in stimulating the one set is enabled at the same time to send a train of impulses down the other—that is to say, in the case in question, the note impulse sends a message down the neurones which determine the activity of salivation.

Now what can be done with dogs can be done also with human beings; but owing to the greater complexity of the human nervous system and the difficulty of segregating the human being from all other distracting stimuli, it is much harder to establish the connection between stimuli upon which conditioning depends. Experiments are most successful with small children. For example, Professor Watson, the founder of Be-

haviourism, has reached some interesting conclusions with regard to the conditioning of the responses which we associate with fear. He has discovered that there are only two kinds of unconditioned stimuli which cause fear in the baby, loud noises and the feeling of being suddenly left without support. Nevertheless a normal three-year-old shows fear for a number of things—*e.g.*, darkness, mechanical toys, animals, and so on. All these objects are, in Professor Watson's view, instances of conditioned stimuli; they cause fear because at some time or another the appearance of, for example, a dog has coincided with the occurrence of a loud noise, or with the infant being knocked over—that is to say, with a feeling of lack of support.

(iv.) *The Conditioning of Emotions.*—This hypothesis, if correct, throws an interesting light on the origin and nature of emotion. According to Watson, the number of unconditioned emotional reactions is three only—fear, the causation of which we have just described; rage, which is occasioned by the hampering of bodily movements; and love, which is elicited by stroking the skin, tickling, gently rocking, or patting. It follows that any particular object may become a conditioned stimulus for fear, rage, or love, according as it has at some time or another habitually accompanied as a stimulus the unconditioned stimuli of one or other of the emotions in question. This is a fact which, if it can be substantiated, carries with it implications of immense practical import, besides throwing a considerable amount of light upon the nature of our mental processes. . By appropriately manipulating our stimuli we shall be able to introduce Christianity by transforming our enemies into stimuli for love rather than for fear, and to feel affection rather than anger for the railway official whose dilatoriness causes us to miss a train. In a word, the whole texture of our emotional life could be changed by associating the stimuli, which now causes unpleasant emotions, with those unconditioned stimuli which call forth responses which are pleasurable.

It seems probable, however, that successful results could only be hoped for in very young children, since adults would not submit to the long and laborious process which the reconditioning of their responses would involve.

(v.) *Dispensing with Consciousness.*—A word may now be added on the question with which we began this section, the question, namely, of the existence of mind or consciousness. It must be admitted that the Behaviourists have met with a surprising amount of success in their endeavour to interpret psychology without postulating the intervention of mind or consciousness. In this connection it should be borne in mind that the phenomena that we have been describing are mechanical in character, the responses following the stimuli with as much certainty as the tanning of the skin follows its exposure to the stimulus of sunlight. It is not necessary for mind to be aware of the responses in order that they may occur, nor, it may be surmised, could mind prevent these occurrences by becoming aware of them.

Is it necessary, therefore, to postulate the existence of consciousness at all? Taking our standpoint from the observation of behaviour, which is the only point of view that the Behaviourists will accept as legitimate, what is the difference between an action of which, as we say, we are conscious and one of which we are unconscious? The only observable difference is that the activities of the neurones and glands—that is to say, the happenings in the nervous system which accompany the actions are different in the two cases. These different bodily activities include, in the case where consciousness is said to be present, our vocal movements when we speak of what we are experiencing.

Since this difference of gland and muscular activity, including vocal movements, is the only difference that we observe in cases where consciousness is present, Professor Watson proceeds to the assertion that consciousness is the sum total of the bodily differences in question.

(vi.) *Thinking as Sub-vocal Talking.*—This rather

startling conception is applied with considerable force to all kinds of so-called conscious processes. When, for example, we think, it is found that a number of muscles are being active in our larynxes. The activity of these muscles may be regarded as having for its object the unconscious formation of words which are not actually uttered. Thinking, then, is simply sub-vocal talking, involving as it does the same muscular activities as those which occur in talking, although these activities are not carried so far. Thus all modern books on psychology which exemplify this school of thought include chapters on what is called the language habit, which describe at some length the bodily movements which occur both when we are talking and when we are thinking but not talking. These movements can be brought under the response to stimulus formula of which simple examples have already been considered, and, as a consequence, thinking, and indeed all other mental activities, can be reduced to very complicated but nevertheless automatic responses to external situations.

We are, I think, entitled to ask whether there is not faulty reasoning here. We may demonstrate that consciousness, including what we call thought, is always accompanied by certain bodily movements, that these bodily movements are forms of response to external or internal stimuli, and that by suitable conditioning we may change the stimuli that provoke them; but this demonstration surely does not prove that consciousness *is* the bodily movements which accompany it. Similarly we may disprove the existence of consciousness as a separate constituent item in our mental make-up; we may show that it only attaches to certain trains of activity, whether interpreted physiologically or psychologically, which we call desires, wishes, and so forth, and that these trains of activity may occur in all respects unchanged without being characterised by this quality or adjunct of consciousness; and we may infer that, therefore, consciousness is an unimportant, casual phenomenon, whose presence or absence makes no differ-

ence to the actual events which are occurring in our psychology. But this once again does not prove that consciousness is a myth; and, if consciousness is not a myth, mind is not a myth either. It is time, therefore, to change our method of approach, and to see what arguments can be adduced in favour of the belief in mind as something distinct from the body.

CHAPTER III

THE MIND AS DISTINCT FROM THE BODY

THE ALTERNATIVE HYPOTHESIS

I POINTED out in the first chapter that the issue between those who endeavour to interpret mind action in terms of body action, and those who contend for the unique, distinct, and in some sense independent status of mind is not capable of definite settlement. No actual refutation of the arguments advanced in the last chapter is, therefore, to be expected. The most that can be done is to suggest certain objections that can be and have been brought against the materialist position which has been outlined above, and at the same time to indicate a number of independent considerations which seem to demand a different kind of approach to psychology, and a different interpretation of its problems. This interpretation, to put it briefly, insists that a living organism is something over and above the matter of which its body is composed; that it is, in short, an expression of a principle of life, and that life is a force, stream, entity, spirit, call it what you will, that cannot be described or accounted for in material terms; that in human beings this principle of life expresses itself at the level of what is called mind; that this mind is distinct from both body and brain, and, so far from being

a mere register of bodily occurrences, is able, acting on its own volition, to produce such occurrences, and that no account of mind action which is given in terms of brain action, gland activity or bodily responses to external stimuli can, therefore, be completely satisfactory. This is the view which in some form or other is held by those who find a materialist explanation of psychology unsatisfactory, and in this chapter we shall be concerned with the reasons for it.

BIOLOGICAL CONSIDERATIONS

Purposiveness.—Some of these reasons, and perhaps the most important, are derived in part from regions which lie outside the scope of psychology proper; they belong to biology, and are based on a consideration of the characteristics which all living beings are found to possess in common. With regard to one of these "alleged"* characteristics of living organisms it is necessary to say a few words, since it constitutes a starting point for the method of interpretation with which we shall be concerned in this chapter. The characteristic in question is that to which we give the name of purposiveness, and because of this characteristic it is said that any attempt to interpret the behaviour of living creatures in terms of material response to stimuli must inevitably break down. Purposiveness implies the capacity to be influenced by and to work for a purpose; this in its turn involves the apprehension, whether conscious or unconscious, of some object which lies in the future and which the purpose seeks to achieve; it therefore necessitates the existence of a mind. If, therefore, purposiveness is a true characteristic of living creatures, then we have estab-

* I insert the word "alleged" in order to indicate the controversial character of the subject. There is no doubt that it would be thought unsafe by many biologists to assume the existence of the characteristic in question, although I myself do not wish to deny it.

lished a good starting point for our "mental" approach to psychology.

What, therefore, is meant by saying that living creatures are purposive? Primarily, that in addition to those of their movements which may be interpreted as responses to existing situations, they also act in a way which seems to point to the existence of a spontaneous impulse or need to bring about some other situation which does not yet exist. This impulse or need is sometimes known as a conation; a good instance of the sort of thing that is meant is the impulse we feel to maintain the species by obtaining food or seeking a mate. The impulse is chiefly manifested in the efforts a living organism will make to overcome any obstacle which impedes the fulfilment of its instinctive need. It will try first one way of dealing with it and then another, as if it were impelled by some overmastering force which drove it forward to the accomplishment of a particular purpose. Thus the salmon, proceeding up stream, leaping over rocks and breasting the current in order to deposit her spawn in a particular place, is acting in a way which it is difficult to explain in terms of a response to external stimuli. An organism again will seek to preserve the trend of natural growth and development by which alone the purpose of its existence will be fulfilled; in its endeavour to reach and to maintain what we may call its natural state or condition, it is capable, if need arises, of changing or modifying its bodily structure. If you take the hydroid plant *Antennularia* and remove it from the flat surface to which it is accustomed to adhere, it will begin to proliferate long wavy roots or fibres in the effort to find something solid to grip, while everybody has heard of the crab's habit of growing a new leg in place of one that has been knocked off.

Activity of this kind seems difficult to explain on materialist lines as the response to a stimulus; it appears rather to be due to the presence of a living, creative impulse to develop in the face of any obstacle in a cer-

tain way. That a living organism works as a machine works, by reacting in the appropriate way to the appropriate stimulus, is admitted; all that is contended is that it acts in other ways as well, that these other activities depend not only upon the quality of stimulus received, but upon the intensity of the creature's conative impulse, and that the existence of the impulse is only explicable on the assumption that the creature is animated by the need to fulfil a purpose.

Foresight and Expectation.—When we apply this conclusion to human psychology, we are immediately struck by the fact that the individual not only exhibits in common with other organisms this characteristic of purposive behaviour, but is in many cases conscious of the nature of the purpose which inspires his behaviour. The man who studies in order to pass an examination is not only impelled by a push from behind; he is drawn forward by a pull from in front. This pull from in front can only become operative if he can be credited with the capacity to conceive the desirability of a certain state of affairs—namely, the passing of the examination, which does not yet exist; he shows, in other words, foresight and expectation. It is activities of this kind which seem most insistently to involve the assumption of a mind to do the foreseeing and expecting. In other words, the capacity to be influenced by events which lie in the future seems inexplicable on the stimulus-response basis; the *thought* of what does not exist may be allowed to influence the mind, but it is difficult to see how the non-existent can stimulate the body.

The explanation of our capacity for being influenced by the thought of events that do not yet exist, raises much the same difficulty as our undoubted responsiveness to events that have existed but do so no longer, and it will be desirable to consider the problem first of all from this point of view.

The Influence of the Past.—It is clear in the first place that the influence of the past is continually affecting what happens in the present. Even the most dis-

tant events in my personal history exert their influence upon what I am thinking and wishing now. If I have been to New York and you have not, the casual mention of the words "New York" in our joint hearing will have an effect upon me very different from and much richer than that which it will have upon you: this is because of the different influences exerted upon our present selves by the different events that have occurred in our respective pasts, influences which, in my case, are much more various than in yours. The mere fact that I know how to hold my pen as I write, and cause it to trace the letters that form the words I want, is the unconscious effect of my having learned how to write in the past. The influence of the past is, therefore, all pervasive; it affects every single act and thought of our waking life.

The operation of this influence raises one of the most difficult questions in psychology; this is the question of the nature of memory, whether conscious, as in my memory of New York, or unconscious as in my memory of having learned to write. The problem of memory put very briefly is as follows: My act of remembering is an act which exists in the present; the event which I remember occurred in the past, and would appear, therefore, no longer to exist. But how can that which does not exist affect that which does exist? Now this problem, as I have already pointed out, is essentially the same as that raised by expectation. If I hear the beginnings of a tune that I have heard before, I may after the first few bars of it be able to continue it for myself; in other words, I shall know what is coming. But I am only able to do this in virtue of my unconscious memory of the past which conditions my expectation of the future; my knowing what is coming is, in fact, determined by my remembering what actually came.

It would not be difficult to show that all cases of expectation depend upon and involve, at least in part, acts of unconscious memory. If then we examine the theories of memory current in psychology, we may get

some light on the problem which we are at present considering—namely, the problem of the distinct and independent existence of mind, which we found to be implied by expectation. There are roughly two types of theory, each of which is held in one or another of several different forms by psychologists.

THEORIES OF MEMORY

I. Physiological.—(a) The first, which gives a physiological account of memory, was put forward in the following form by a psychologist called Semon. What I am aware of when I appear to remember something is not the past occurrence which, as I say, I remember, but a present state or modification of my body. This present state or modification is called an engram, and is produced as follows: Let an organism which is in a state of equilibrium, which we will call condition (A), be subjected to any stimulus XY which excites it. When the excitement has subsided, the organism will settle down again to a state of equilibrium, but this second state (B) is not quite the same as the first state (A); the excitement, in other words, has left behind a continuing effect or trace on the organism, in virtue of which its general condition is different after the excitement is over from what it was before. This difference—the difference, that is, between the two states of equilibrium—is the engram. It is envisaged in physiological terms—Semon calls it some material alteration in the body of the organism—although what the precise effects on the nervous system may be is not known.

So far we have considered the process in its simplest possible form. What happens in actual fact is not that an engram is produced by an isolated stimulus, but a whole complex of engrams results from the application of a number of associated stimuli. When some part of the original stimulus XY, whether X or Y, or any of the stimuli associated with XY recurs, it calls forth the whole complex of engrams produced by the original

complex of associated stimuli. When this happens, we are said to remember the event from which the engram, or engram complex, results.

Putting this into psychological language—although we must be careful to remember that Semon's theory does not necessarily involve the existence of psychological entities such as consciousness—we may say that what we are aware of when we say we remember a past event, is a present modification of our bodies which the past event has left behind.

(*b*) There is another way of interpreting memory from the physiological point of view which practically succeeds in dispensing with the intervention of consciousness or awareness altogether. It also eliminates the notion of specific physiological modifications or traces.

Let us suppose that we are expecting to meet somebody. Our feeling of expectation translated in terms of the nervous system means that there is a special setting of the co-ordination or association* centres in the brain, in virtue of which we shall be more ready to pick out certain stimuli, those, namely, associated with the person expected, from the innumerable stimuli which at any given moment are clamouring for our attention, than to pick out others. Our nervous apparatus for the reception of stimuli is, in other words, set in a particular pattern and is predisposed to receive only what will fit into the pattern, just as a lock may be said to be set ready to receive a key. The feeling which we know as expectation is just this setting of the nervous centres to receive certain special kinds of stimuli. It is as if, to change our metaphor, they were tuned up to a particular pitch and were prepared to vibrate only to notes of the pitch in question.

Now let us apply this conception to the question of memory. If you hear the first few bars of a familiar tune, you are able to remember the rest. Why? Because the stimulus of the first few notes sets the co-ordination

* See p. 24.

centres ready for the reception of the rest. What set the co-ordination centres in the first instance was the hearing of the tune on the first occasion on which it was heard; but, as on Semon's theory, when the stimulus of the tune recurs it is only necessary for a part of the stimulus to be applied in order to produce the whole set of reactions which on the first occasion followed the complex of stimuli constituted by the whole tune. The more often the stimulus is applied, the smaller the part of it required to produce the whole response. A habit is formed when the response follows so readily that a mere hint or shadow of the original stimulus is necessary to provoke it. Habit, therefore, is simply a special case of memory; when, having done certain things very often in the past, we remember them so well that the merest hint of any one of these things is able to set going, and to set going unconsciously, a complicated series of reactions which it previously required a whole succession of stimuli to provoke, we have formed a habit. Here then we get an explanation of memory and of habit in physiological terms. Memory is due to the persistent effect of past stimuli; this persistent effect being, in Professor Hering's words, "the peculiar attunement of the nervous system in virtue of which it will give out to-day the same note that it gave out yesterday, if the strings be touched aright."

II. Psychological.—The ordinary psychological explanation of memory is on the following lines. An event which has happened to us does not, when it recedes into the past, leave no trace of itself behind; on the contrary, it makes an indelible impression on the individual who experiences it. This impression is not an alteration of the body, but is conceived to be an image or reflection in the mind. Every experience we have ever had is said to leave some image of itself in this way. These images, however, rapidly fade into the unconscious,* which may be regarded as a storehouse of

* See Chapter V. for an account of the unconscious.

past experiences, where they normally remain. When something occurs which resembles the event which originally left the image, it causes the image to rise into consciousness. We are then said to remember the past event, when what we are in fact thinking about is the *present mental image or reflection* of the past event.

CRITICISM OF THEORIES OF MEMORY

We were originally led to undertake this account of theories of memory, not only because memory as an important function of the mind is entitled in its own right to a description in a book on "The Mind and its Workings," but also because it was thought that an examination of the vexed questions that memory raises might reveal serious difficulties in the physiological interpretation of psychology with which we were concerned in the last chapter. It is now time to see what these difficulties are.

Let us begin with the psychological account of memory given in II. above. Whatever may be the merits or demerits of the physiological theories of engrams and attuned nervous centres, it seems clear that the psychological image theory at any rate will not work.

(i.) *The Image Theory*.—To begin with there is considerable doubt as to whether such things as images exist; many psychologists do, in fact, deny their existence. Apart, however, from this doubt there is a more serious objection to the theory, and that is, that images, even if they do exist, will not perform the function which they are said to perform. They are said to be copies or reflections of past events. But you cannot know that a copy is a copy unless you have the original to compare it with. If you see the face of a friend in the glass, you cannot tell that it is your friend's face and not the face of some other person, unless the face of your friend is already known to you, and not only known in a general sort of way, but present to your mind's eye at that particular moment, so that, comparing it with the image in

the glass, you recognise the image as an image of your friend's face and of no other.

In order, therefore, that we may be in a position to recognise A as a copy of B, we must be aware both of A and of B. Now on the theory of images described above, we are said to know the present image but not the past event of which it is an image. But if we do not know the past event, how can we know that the present image represents it; if we do know the past event, if, in other words, the mind possesses the power of going back to the past and being directly aware of it, what is the purpose of evolving an image which is said to be like the past event, in order that the mind may be aware of that? But if memory can only be explained as a direct awareness of what is past, it quite certainly involves a mind. Mind may be credited with this mysterious power; body certainly cannot.

(ii.) *The Engram Theory*.—How does this reasoning affect the physiological theories of memory? The salient feature of the physiological account of memory was that when any part of an original stimulus, or set of stimuli, was repeated, it tended to call forth the whole complex of reactions formerly provoked by the original stimulus or set of stimuli. Pursuing, therefore, their policy of interpreting psychology without introducing mental terms, these theories sought to identify the experience known as remembering with this repetition of a former set of bodily reactions, or (if we see no necessity for being quite so rigorous in our exclusion of mind) with the awareness of the repetition of these reactions. But if, as alleged, the reactions produced by a recurrence of part of the original stimuli are literally the same as those originally provoked by the stimuli which constituted the remembered event, then remembering an event ought to be indistinguishable from experiencing it. But thinking of the pain I suffered yesterday at the dentist is quite indubitably not the same as experiencing it. It follows, therefore, that whatever memory is, it cannot be the occurrence of the same reactions (or the awareness of the

same reactions) as those caused by the stimuli constituted by the event remembered. Applying this type of reasoning to Semon's view, we get the following results: Either the physiological modification resulting after the stimulus has ceased to operate, the engram, that is to say, of which we are said to be aware in memory, is the same as the response activity provoked by the original stimulus, or it is not. If it is the same, then being aware of an engram—that is to say, remembering an event—ought to be identical with the actual experience of the event, which it is not; if it is not, then it is difficult to see why the process of becoming aware of an engram, which is not the same as the response to the past event, should make us think, not of the engram, but of something which is different from the engram, namely, the past event.

The same type of objection applies to the physiological explanation of recognition. When you see a thing a second time and recognise it as something you have seen before, the feeling of recognition is, as we have seen, interpreted as due to a certain attunement of the nervous centres, in virtue of which they give off the same vibrations as they did on the occasion of the first experience of the thing in question. But if the response in terms of vibration is *really* the same, then seeing a thing a second time ought to feel exactly like seeing it the first time, in which event it would not be recognition. If it is not the same but a different response, why should its occurrence cause the feeling of recognition, which is involved by the reference to a past event at all? Why should it not simply cause us to think that we were seeing something new?

(iii.) *Expectation*.—It will be remembered that the physiological account of memory sought at the same time to provide an explanation of the feeling of expectation. The nervous system was set like a lock to receive the stimuli which conformed to a particular pattern. But it is clear that the co-ordination centres could only assume this particular formation, could only evince this particu-

lar disposition to pick out certain stimuli rather than others, if, to speak in psychological terms, we know what to expect.

Now if we assume the existence of a mind credited with the power of anticipating future events, while admitting that this power may be in the last degree mysterious, we shall see no insoluble difficulty in supposing that we really do know what to expect. But if we dispense with a mental interpretation, or relegate the mind to the position of a mere register of bodily events, what explanation are we to give of this apparent knowledge? The physiological psychologist embraces it under his account of memory; the nervous centres, he tells us, are set in this particular form of arrangement because of past occurrences, with the result that, having heard a tune once, we have only to hear the first few bars of it again to be able to anticipate and supply the rest.

The view might account for our ability to anticipate events which are exactly like those which have already happened; but how can it explain the expectation of a completely new experience? If the experience is really novel there can have been no past events of a similar character to set the lock of the nervous system to receive the new key. Yet there is no doubt that we can have a feeling of expectation of something which, though dimly envisaged, is yet felt to be unprecedented. We may say, then, that in the present state of our knowledge it seems impossible to account for those of our feelings which relate to events which have still to occur, unless we are prepared to postulate the existence of something which is not material and which is credited with powers other than material powers.

We have spoken so far of purpose and expectation, and our conclusions seem to be that if feelings of expectation and the capacity to act purposively really are, as they seem to be, characteristics of the human being, then no purely physiological account of his psychology will fit the facts. How does this conclusion apply to the emotions? Some emotions, as for example the emotion

of dread, also refer to the future. Can we, then, accept the account of emotion given in the last chapter?

The Emotions.—An emotion we there saw was interpreted as our consciousness or awareness of a physiological event. Our bodies are stimulated by a perception of a ghost or a tiger; the result is a series of bodily changes of a kind tending to facilitate flight; our awareness of these changes is the emotion of fear. This account, plausible enough when a physical stimulus of some sort is actually present, seems to break down in the absence of such a stimulus. Let us suppose that I sit in my chair and think of an audience of a hundred psychologists whom I am to address next week; let us also suppose that, as I have every right to do, I feel nervous and agitated. What is the physical stimulus here? The meeting of psychologists does not yet exist; I may, therefore, be able to think of it, but I certainly cannot experience it as a physical stimulus. Is it, then, the chair in which I am sitting? This scarcely seems credible.

In cases of this kind, if we are still to regard the physiological changes as being the cause of the feeling of emotion, it rather looks as though the mental apprehension of the coming event must be the cause of the physiological changes. Mind, in other words, so far from being the mere reflection of material events, seems here to produce them. But there is a further reason for doubting the account of emotion given in the last chapter.

While the thought of lecturing to a hundred psychologists may cause dread, the thought of lecturing to a hundred students may cause pleasure. Now the difference between thinking of a hundred psychologists and thinking of a hundred students is a difference between two acts of experience, which seems to be a real and important difference. But how are we to envisage such a difference in terms of the nervous system? Is there one pattern of the nervous centres representing the response to the stimulus constituted by the future meeting (or possibly by a past and remembered meeting) of a hundred psychologists, and another which is caused by a future meeting

of a hundred students, and yet another by a future meeting of ninety-nine students, and so on for every different object of which the thought can cause a slightly different emotion? This seems to involve an almost inconceivable complexity on the part of the nervous system.

Let me try to state the point in another way. The emotion of fear is said to be the mental awareness of excretions by the adrenal glands. Now let us suppose that I am frightened, and let us assume that my fear is the consciousness of the fact that these glands are discharging a certain amount of fluid, which we may represent by X . If I am twice as frightened, the amount of discharge will be $2X$, and if half as frightened $\frac{1}{2}X$. But fear shades by imperceptible degrees into a number of allied but qualitatively different emotions, such as repulsion, horror, disgust. What are the physiological equivalents for these? Not $2X$ or $\frac{1}{2}X$, since these are already earmarked for greater or less quantities of fear proper. We must, then, postulate the existence of some other gland whose excretions can be held to provoke the qualitatively different feelings associated with these emotions. This is bad enough, but it is not the worst. Fear is not absolutely distinct from disgust; it passes imperceptibly into disgust through a number of intermediate shades of emotion which partake partly of fear and partly of disgust, but are qualitatively different from either. Since excretions from any particular gland can only be made to account for a greater or less quantity of the same *kind* of emotion, we shall have to postulate a separate gland for each of these qualitatively different states. Now the number of intermediate shades between one kind of emotion and another is infinite; yet, since the body is spatially limited, the number of corresponding glands must be finite. Therefore the attempt to explain emotion as awareness of gland action, or indeed bodily action of any kind, seems to break down.

It is not contended that this type of reasoning is necessarily conclusive. It does, however, show the difficulty of trying to explain the infinite variety of mental life in

terms of bodily changes. The number of thoughts of which a human being is capable is infinite; so too is the number of different feelings which he may experience; but the number of changes of which our bodies are capable, though exceedingly large—the complexity of the nervous system still baffles investigation—is necessarily restricted by the spatial limitation of the body and the number of its organs.

We conclude then from this study of memory, of expectation and of the emotions, that there are at least some mental facts which, though accompanied by and involving bodily facts, cannot be wholly explained in terms of them. The mind does not merely reflect the body; it outruns it, and in so doing initiates thoughts and actions on its own account of which the body is merely the registering accompaniment. Let us now consider some further evidence pointing in the same direction.

THE APPREHENSION OF MEANING

An important fact about our mental life is that we are capable of appreciating meaning. A statement of fact written on a piece of paper is, so far as its material content is concerned, merely a number of black marks inscribed on a white background. Considered, then, as a collection of visual, physical stimuli, it is comparatively unimportant; what is important is the meaning which is attached to these marks. If they inform us, for example, that we have received a legacy of ten thousand pounds it is not the black marks on the white background but the meaning they convey that effects a disturbance in our emotional life, sufficiently profound to keep us awake all night. Now the meaning of the marks is obviously not a physical stimulus; it is something immaterial. How, then, is its effect to be explained in terms of bodily responses to physical stimuli, which the mind merely registers? Let us take one or two further examples in order to present the difficulty in a concrete form.

Let us suppose that I am a geometrician and am thinking about the properties of a triangle. As I do not wish at this point to enter into the vexed question of whether *some* physical stimulus is or is not necessary to initiate every chain of reasoning, we will assume that in this case there was a physical stimulus—it may have been a chance remark about Euclid, or the appearance of a red triangular road signpost while I am driving a car—a stimulus which we will call X, which prompted me to embark upon the train of speculations about the triangle. My reasoning proceeds until I arrive at a conclusion, which takes the form of a geometrical proposition expressed in a formula. I carry this formula in my head for a number of days and presently write it down. In due course I write a book, setting forth my formula and giving an account of the reasoning which led me to it. The book is read and understood by A. Presently it is translated into French, and is read and understood by B. Later still I deliver a lecture on the subject which is heard and understood by C. As A, B, and C have each of them understood my formula and the reasoning upon which it is based, we may say that the reasoning process has had for them the same meaning throughout. If it had not, they would not all have reached the same conclusion and understood the same thing by it. Yet in each of the four cases the sensory stimulus was different; for myself it was X, for A it was a number of black marks on a white background, for B a number of different black marks on a white background, and for C a number of vibrations in the atmosphere impinging upon his eardrums. It seems incredible that all these different stimuli should have been able to produce a consciousness of the same meaning, if our respective reactions to them were confined to physical responses (which must in each case have been different) which were subsequently reflected in our minds by a process of mental registration of the different responses. The stimuli being different, the intervention of something possessed of the capacity to grasp the *common* element among these physically

different entities alone seems able to account for the facts; but the common element is the meaning, which is immaterial and can be grasped, therefore, only by a mind.

Let us take another example instanced by Professor McDougall:

A man receives a telegram which says "Your son is dead." The visual physical stimulus here is, as before, a collection of black marks on an orange field. The reaction experienced in terms of his bodily behaviour may take the form of a complete cessation of all those symptoms usually associated with life—that is to say, he may faint. When he recovers consciousness his thoughts and actions throughout the whole of the remainder of his life may be completely changed. Now that all these complicated reactions are not constituted by and do not even spring from a response to the *physical* stimulus, may be seen by comparing the reactions of an acquaintance who reads the telegram, and so subjects himself to the same stimulus. Moreover, the omission of a single letter, converting the telegram into "Our son is dead," would cause none of the reactions just described, but might result at most in the writing of a polite letter of condolence. The independence of the bodily reactions of the physical stimuli actually presented is in these cases very marked, and, unless we are to introduce conceptions such as the intellectual apprehension of the *meaning* of the marks, it seems impossible to explain their effect. Yet such a conception again involves the active intervention of mind.

Synthesizing Power of Mind.—This conclusion is reinforced by what we may call the synthesizing power of mind. Synthesizing means putting together, and one of the most remarkable powers that we possess is that of taking a number of isolated sensations and forming them into a whole. We shall have occasion to return to this point at greater length in connection with our account of sensation in the next chapter. For the present we will content ourselves with giving one or two examples of mental synthesis.

Let us consider for a moment the case of æsthetic appreciation. The notes of a symphony considered separately consist merely of vibrations in the atmosphere. Each note may, when sounded in isolation, produce a pleasant sensation, and as one note is struck after another we get a sequence of pleasant sensations. But although this is a sufficient description of the symphony considered as a collection of material events, and of our reactions to these events considered merely in terms of sensations, it is quite clear that we normally think of a symphony as being something more than this. We think of it in fact as a whole, and it is as a whole that it gives what is called æsthetic pleasure. Now in thinking of the symphony in this way our mind is going beyond the mere sequence of pleasant sensations which its individual notes produce, and putting them together into some sort of pattern. If the notes were arranged in a different order, although the actual vibrations which impinged upon our senses would be the same, the pleasurable æsthetic effect would be destroyed.

It seems to follow that our pleasure in a symphony cannot be wholly accounted for, although it may depend upon our physical responses to the stimuli of the individual notes; in order to obtain æsthetic pleasure we must somehow be able to perceive it as more than the sum total of the individual notes—that is, as a whole pattern or arrangement. The pleasure ceases when the *wholeness* of the object perceived is destroyed, as it is, for example, by the transposition of certain notes. We may compare the difference between the physical sensations which are our responses to the visual stimuli of the colours and canvas of which a picture is composed, with our synthesized perception of a picture as a work of art.

We must conclude, then, that we possess the power of realising external objects not merely as collections of physical stimuli, which of course they are, but as wholes in which the actual sensory elements are combined to form a single object of a higher order. This faculty of combining or putting together seems to involve the exist-

ence not only of a mind, but of a mind of an active, creative type which is able to go out beyond the raw material afforded by our bodily sensations, and to apprehend ideal objects as wholes which are more than the collection of physical events which compose their constituent parts.

SUMMARY OF ARGUMENT

The conclusion to which the arguments of this chapter appear to point is that in addition to the body and brain, the composition of the living organism includes an immaterial element which we call mind; that this element, although it is in very close association with the brain, is more than a mere glow or halo surrounding the cerebral structure, the function of which is confined to reflecting the events occurring in that structure; that on the contrary, it is in some sense independent of the brain, and in virtue of its independence is able in part to direct and control the material constituents of the body, using them to carry out its purposes in relation to the external world of objects, much as a driver will make use of the mechanism of his motor-car. Mind so conceived is an active, dynamic, synthesizing force; it goes out beyond the sensations provided by external stimuli and arranges them into patterns, and it seems to be capable on occasion of acting without the provocation of bodily stimuli to set it in motion. It is, in other words, creative, that is, it carries on activities which even the greatest conceivable extension of our physiological knowledge would not enable us to infer from observing the brain. How, then, are we to conceive of the relationship of the mind to the brain?

An actor in a play of Shakespeare not only speaks words, but makes gestures, so that if you were completely deaf you would still be able to infer something of what the play was about from seeing the gestures. It is obvious, however, that there is much more in the play than the pantomime of the players. There are, for

example, the words, the characters, the plot, and the poetry. Now to use a simile of the philosopher Bergson, the brain is the organ of pantomime. If you were to observe a man's brain you would know just as much of his thoughts as found vent in gestures. You would know, in other words, all that his thoughts imply in the way of actions or the beginnings of actions,* but the thoughts themselves would escape you just as the words and meaning of the play would escape the deaf spectator. This is what is meant by saying that the mind overflows the brain. If our knowledge of both psychology and physiology were perfect, we should be able to describe the movements of the brain without observing it, provided we had complete understanding of a man's state of mind; but we should not from the most minute and thorough inspection of the brain be able to tell what the man was thinking, since just as one gesture of the actor may stand for many different thoughts, so one state of the brain may represent any one of a host of states of mind.

CHAPTER IV

THE MIND AS AN ACTIVITY

THE FACULTY PSYCHOLOGY

So far we have said very little about a number of questions that bulk largely in many books on psychology, more particularly in the older ones. The subjects with which psychologists used to concern themselves were, until the last few years, very different from those which have occupied our attention up to the present. The

* Among the beginnings of actions may be mentioned those movements of the larynx which are involved in talking.

older psychologists would discuss at length such questions as the number and the nature of the instincts, the relationship of instinct to reason, the difference between sensation and perception, and whether there were in addition to the instincts and the emotions such things as sentiments and dispositions. Such discussions are now often referred to as belonging to what is called "academic psychology." Our reasons for not introducing them at an earlier stage and devoting to them a larger share of space are twofold:

1. It did not seem desirable to discuss the nature of mental qualities and faculties until we had satisfied ourselves that there was a mind to exhibit qualities and to possess faculties. It is necessary to establish the existence of a thing before proceeding to inquire what sort of thing it is. The study of the relationship between mind and body has tended, moreover, to throw a good deal of light upon the nature of the entities related, and we have already in the course of our inquiry been obliged to examine incidentally a number of important mental functions such as the memory and the emotions.

2. In the second place, even if we provisionally assume the existence of mind, as something distinct from the body, to have been established, we know far too little about its character to pronounce with any certainty upon the number and nature of its faculties. The controversial and experimental character of modern psychology cannot too often be emphasised, and one of the points upon which controversy largely turns is, whether the mind possesses attributes which are properly to be called faculties or states at all.

Now the older psychologists were content to discuss the instincts and the reason much as a physiologist would deal with the heart or the leg. I do not mean to say that when they affirmed that there were, for example, seven instincts they meant that the mind had instincts in the sense in which the body has toes; but they were nevertheless inclined to write about instincts and sentiments and so forth as if they were distinct things which

could be segregated and catalogued for the purposes of discussion like toes. More recent work has, as we shall see, thrown considerable doubt upon these older conceptions of the mind. The mind is no longer regarded as a bundle of faculties or as a thing possessing a number of attributes, any one or more of which may be in play at a given moment, but rather as a stream or force which from moment to moment gives off fresh reflections, as it flows at different speeds. According as the speed and direction of the flow vary, so will a man be feeling instinctively or reasoning. A faculty, then, is merely the activity of the whole mind as evidenced at any given moment.

Nevertheless, it is necessary to say something about the questions which have occupied so large a place in traditional psychology, if only to throw the newer conception more clearly into relief.

SENSATION AND PERCEPTION

It is extremely important in the first place that we should get a right conception of the sort of thing that a mind is, before we enter into a detailed examination of its characteristics, especially as a right conception is not to be attained without some imaginative effort. We are so accustomed to thinking in terms of things which are made up of parts, that it is very difficult to avoid picturing the mind as a number of mental states which are themselves built up out of component parts as a house is built of bricks. Many people have so regarded the mind, and a large part of traditional psychology has been devoted to showing that all mental states were made up of two sorts of bricks—namely, sensations and images.

It is important, therefore, to realise that there is no evidence for the existence of such mental bricks, whether conceived as states or faculties. Such terms as the Will, the Instincts, the Reason, and so forth, though useful enough for the purpose of describing our experiences, do

not correspond with any real existents; they are not facts, but hypotheses. And in saying that they are not facts, but hypotheses, what I mean is that they are never met with in actual experience. Sensations, for example, which used to be regarded as the core of our experience, the raw material supplied to us by the outside world, out of which the whole structure of our mental and emotional life was built, are mere figments. Nobody has ever met with a sensation for the simple reason that any apparent sensation which we choose to inspect turns out to be not a mere passive experiencing of an external stimulus, but a highly complex affair to which the mind has already made considerable contributions.

The influence of past experience, for example, as pointed out in the last chapter, enters into and affects all our present experience of the external world. A chair wears to a civilised man an entirely different appearance from that which it presents to a savage who sees it for the first time. The latter probably sees the chair not as a chair at all but as a couple of legs and a back, which is all that we ordinarily observe when we imagine ourselves to be seeing a chair. Again, a piece of modern music actually sounds differently to the habitual concert goer and to the Oriental, as is evidenced by the story of the Chinaman who went to the Queen's Hall and thought that the tuning up was the concert. Each experiences the same stimuli, but the past experience of each distorts, selects, and contributes to what is actually heard, so that the resultant products are different. The mind, in fact, rushes in to embrace the actual stimulus received, and to clothe it with elements culled from its past experience, with the result that nobody has ever met a stimulus naked.

A good example of the activity of the mind in working up the impressions received from without, is afforded by the experience of learning to draw. It is then found that most of what we think we see is not seen at all, with the result that the young artist is chiefly employed in learning to unlearn the view of the world which conventional

experience has caused him to adopt, by stripping away, so far as he can, the accretions with which his mind has invested the thing actually seen. Even so, however, he does not succeed in arriving at a pure sensation. Another striking example of the same process is afforded by the experience of going to a theatre in a foreign country, where the language, although known to us, is understood with difficulty. Our hearing seems to be strangely dulled, and, as a consequence, it is found that it is necessary to sit much nearer to the stage than we are accustomed to do in our own country. The reason is that when we listen to someone speaking our own tongue, the proportion of the words he utters that we actually hear is comparatively small, the mind supplying the rest by guesswork. We expect him to say certain things on the analogy of past experience, and as a consequence we have only to hear a very little for our minds to take the cue and add the rest. This activity of the mind does not, of course, occur when the language is unfamiliar, and we accordingly find it necessary to hear more because we supply less.

Optical illusions, again, illustrate our propensity to see what we expect to see, and it is an interesting fact that books in Latin, Greek, and still more in Hebrew, are better printed than English books, because proof readers, having no expectation of what is coming, have to depend upon correspondence with the manuscript to ensure accuracy instead of jumping to conclusions on the basis of what they expect.

It is these inevitable mental additions to what is seen and heard which modern psychology has in mind when it denies the existence of a pure sensation, because of the constant intervention of the mind's activity. A sensation invested in this way with matter drawn from past experience is called a perception, and what we are asserting is that in the long run all sensations are perceptions. It is now generally agreed among psychologists that, since the sensational core of perception is elaborated by the mind's activity, we never know anything as it really is, a reflec-

tion which has been the starting-point of many systems of philosophy.

What we are concerned with here, however, is the conception of the activity of mind, in virtue of which the bare sensation is non-existent.

Nevertheless, a sensation is a useful tool to work with, when we are trying to analyse our experience to find out what is its nature, and, like the intelligence, the will and the instincts, continues to be employed for want of a better term. Bearing in mind, however, the fact that the mind is not a thing but an activity, it is clear that we ought to describe its movements in terms of stresses, currents, energies, and flows, using the language of electricity rather than that applicable to ordinary static things. Perhaps psychology will one day employ such a vocabulary. Meanwhile, for want of a better one, we must continue to speak of the instincts, the reason and the will, and with this preliminary word of caution we may proceed to indicate some of the theories that psychologists have held in regard to them.

THE INSTINCTS

There is controversy both as to the nature and also as to the number of the instincts. As a rough general account, which, so far as possible, avoids controversial issues, we may say that every organism is found to begin life with a peculiar and individual psychological endowment; whether this is or is not completely inherited is a question into which we cannot here enter. This chiefly expresses itself in the way in which it behaves in the different situations in which it finds itself. The ant, for example, will behave differently in a particular situation from a man. Faced with this difference, we are accustomed to say in *partial explanation* of it that the instincts of the man and of the ant are different. It is further necessary, in order that behaviour should be classed as instinctive, that it should not have been learned, and should manifest itself in some form or other at a

very early stage of the creature's existence. Thus the ant, which exhibits more unlearned forms of activity than the human being, is said to act very largely, if not entirely, upon instinct. In human beings and in most animals so called instinctive activities are chiefly manifested in relation to the fulfilment of certain fundamental needs. Of these needs the most important are the needs for food, sex and society. If a man does not have food he dies; if he does not reproduce the species he dies by proxy, seeing that, as Samuel Butler pointed out, he lives on in the person of his offspring; the infant who is deprived of society follows suit and dies, too; and the adult on a desert island may quickly go mad. All human beings exhibit activity of a kind designed to allay these fundamental needs, and they do so without being taught. Therefore these needs may be called instinctive.

From the fundamental needs spring derivative needs. Thus in order to obtain food, it has usually been necessary to move about, the need for food tending to remain unsatisfied unless the individual literally took steps to satisfy it. Hence a derivative need for movement arises, from which springs an objection to sedentary occupations. It scarcely seems, however, that our aversion to sitting still for too long can be called instinctive in the same sense as our need for food.

The above constitutes what may be called a moderate general account of the nature of instinct with which few psychologists would wish to quarrel. It will, in particular, be noticed that it avoids postulating the existence of an instinct as a distinct faculty or entity, and speaks of allaying instinctive activity or instinctive needs. This is an advantage in that it enables us to observe the injunction against treating hypotheses as facts made earlier in the chapter.

Many accounts of instinct, however, go far beyond this. Freud, for example, reduces all activity of the type known as instinctive to the expression of one or other of two fundamental desires, which he calls the ego instinct, which is concerned with the preservation of the

individual, and the sex instinct, which is responsible for the reproduction of the species.

McDougall's View of Instinct.—The most celebrated view of instinct is, however, that of Professor McDougall. It occupies a rather curious position midway between the physiological interpretation of psychology illustrated in the second chapter, and the position of those who insist on the independent and autonomous status of mind. On the one hand it disclaims the materialism of those who hold that psychological states are mere reflections of bodily processes, while refusing on the other to vindicate the freedom of the mind in the sense in which most of those who reject the materialist view have wished to assert it.

(a) Professor McDougall begins by defining an instinct as "an inherited or innate psycho-physical disposition, which determines its possessor to perceive, and to pay attention to, objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object, and to act in regard to it in a particular manner, or, at least, to experience an impulse to such action." This definition amounts in effect to a denial of the materialist basis of psychology, since it postulates the existence of an instinctive desire to action which is not necessarily preceded by and dependent upon a physiological occurrence.

As to the number of instincts so defined Professor McDougall's view has varied. In *Social Psychology*, published in 1908, he contended for the existence of seven primary instincts as being sufficient to account for our emotional life. Other instincts were regarded as blends of or derivations from these primary seven. In his *Outline of Psychology*, published in 1923, however, the number of primary instincts has increased to fourteen. A distinctive feature of McDougall's view is his association with each primary instinct of a special and unique emotion. He further contends that the instinct and the emotion associated with it are indissolubly bound together as forms of experience, so that whenever we act instinc-

tively we feel emotionally as well. Each instinct, he says, "no matter how brought into play, is accompanied by its own peculiar quality of experience which may be called a primary emotion." There are, therefore, fourteen primary emotions.

Examples of primary instincts and their emotional equivalents are:

<i>Instinct.</i>	<i>Emotional Quality.</i>
Instinct of escape (of self-preservation, of avoidance, danger instinct).	Fear (terror, fright, alarm, trepidation).
Pairing (mating, reproduction, sexual).	Lust (sexual emotion, or excitement).
Social or Gregarious instinct.	Feeling of loneliness of isolation, nostalgia.

McDougall recognises in addition to the primary emotions the existence of certain secondary or blended emotions which are made up of blends of one or more primary emotions. Examples of blended emotions are horror, awe, and gratitude, and certain derived emotions, such as joy, anxiety, despair. These latter are experienced as the result either of the obstruction or of the facilitation of the course of activities prompted by the primary instincts.

Some writers hold that in addition to our instincts our psychology contains factors known as sentiments. A sentiment is formed by a group of instincts and emotions which are organised round a particular object or idea, love and hate being typical sentiments. The conception of the sentiments which has been popularised by the psychologist, Dr. A. F. Shand, is important in connection with the notion of character. A man's character, in the ordinary sense of the word, may be thought of as the system of all his different sentiments.

INSTINCT AND REASON

Before we proceed to comment on this scheme, it will be convenient to say something of McDougall's views on the relationship between instinct and reason. These are important since they result in effect in a denial of the freedom and spontaneity of mental processes. McDougall only rescues our minds from servitude to our bodies in order to enslave them to our instincts.

This result follows from his assertion that all our activities of whatever kind are instinctive in origin. "The instincts," he says, "are the prime movers of all human activity; by the conative or impulsive force of some instinct every train of thought, however cold and passionless it may seem, is borne along towards its end . . . all the complex intellectual apparatus of the most highly developed mind is but the instrument by which these impulses seek their satisfaction. . . . Take away these instinctive dispositions with their powerful mechanisms, and the organism would become incapable of activity of any kind; it would be inert and motionless like a wonderful piece of clockwork whose mainspring had been removed."

We are all familiar with that somewhat cynical view of human motive which insists on regarding the intellect as the mere handmaid of our desires, whose function is confined to evolving the best method of obtaining satisfaction for our instinctive needs. As Aristotle remarked long ago, it is desire which sets the ends of our actions, and it is the business of reason, by which he meant the practical reason, to plan the steps by means of which these ends may be realised.

Reason, in other words, cannot accomplish anything by itself; it must be prompted by a preceding desire before it begins to operate; it is the engine of the ego and desire is the steam which makes it go.

Now it would be easy to show, and many writers

are fond of showing, that the superiority of the savage to the animal and of the civilised man to the savage is to be found precisely in his greater power of giving effect to his desires. This greater power he possesses in virtue of the greater efficiency of the tool which he has evolved—that is to say, his reason; it furnishes him not only with justifications for what he instinctively wishes to do, but with arguments for what he instinctively wishes to believe. Thus all civilised nations are enabled to persuade themselves that they are in the right when they wish to make war, and individuals comfort themselves with the belief that they are performing a salutary duty when they wish to make themselves unpleasant. The savage, not being so efficient in the use of reason, does not feel the same need of moral justification, and is, therefore, able to indulge his instincts without being under the necessity of proving himself either a dupe or a hypocrite.

Now it is precisely this view of reason, as a faculty which has been evolved to find a means of satisfaction for our instincts, that is countenanced, although not explicitly advocated, by McDougall's view of instinct and by many schools of modern psychology.

THE QUESTION OF FREE WILL

By insisting that reason cannot initiate anything, this view deprives us of the power of free will. It is true that our reason is set going by our instincts, and that these instincts really are ours; but it is equally true that on this view we can neither give an account of them nor can we control them.

It is usually held that within limits we can say that we will act like this or act like that, although it is agreed that we cannot say that we will feel like this or feel like that. Our instinctive needs and instinctive reactions are not, in other words, within our control; indeed they often embarrass us by occurring in opposition to what we know to be our interests; for our

actions, however, we *are*, it is thought, responsible. But can we on McDougall's theory even say that we will act like this or act like that? Most people believe that in addition to the instincts and the desires that spring from our instinctive needs, we possess what is called a will, in virtue of which we are enabled to repress any instinct or desire prompting us to activities which are repugnant to our moral sense. This process is known as resisting temptation. In order, however, that it may be effective, it is necessary that the will should be able to act freely. Now can we, on McDougall's view, claim for it the capacity for spontaneous action? It scarcely seems so.

There is considerable controversy over the nature of the will, into which we have not space to enter here; speaking generally, however, we may say that it must be either rational or else instinctive in character. If it is instinctive in character, an instinct, to use the term in a wide sense, whose function it is to ally itself with reason with the object of keeping in check the other instincts, then its success or failure on any particular occasion will depend upon the respective strengths of the will and of the instinct which the will is seeking to suppress. The case, in short, is one of two warring instincts. If the instinct to suppress is the stronger, we resist the temptation; if the weaker, we yield. Since, however, we cannot be held responsible for the comparative strengths of the two instincts, we cannot be held morally accountable whichever way the issue goes. If, on the other hand, the will is rational, we must, on McDougall's view, conclude that it can only begin to operate if there is an instinct behind it. If it requires an instinct to cause us to think about the differential calculus, it will be no less the driving force of instinct which causes us to restrain ourselves from lying, from boasting, or from stealing. And since, whatever views we may hold with regard to the freedom of the will on general grounds, the prompting of our instincts is usually regarded as a matter outside our purview, the rational

self-control on which we pride ourselves as the basis of a good or strong character must, like a good eye at games or a placid temperament, be consigned to the category of those attributes which we possess if we are lucky, and lack if we are not. It is not the existence of what is called self-control which is denied, but our responsibility for its exercise. On this view, then, ethics and all that ethics implies is a fiction; it is rationalisation of instinctive processes by beings whose vanity is gratified by the belief that they are moral, but it is a rationalisation which is itself undertaken at the imperious behest of instinct.

CRITICISM OF THE FACULTY PSYCHOLOGY

But is it after all necessary to accept this view? In order to answer this question, let us begin with McDougall's theory of instinct upon which it is founded. How far, it may be asked, are we justified in treating the instincts given in McDougall's list as distinct faculties at all? We spoke above of certain needs which seem common to human beings, the needs for food, for sex, and for society; these, we said, were fundamental in the sense that failure to satisfy them involved the death, or at least the serious impairment of the individual. Now these needs have a further and equally important characteristic; they tend to recur at regular periods as a result of internal disturbances which are probably largely physiological in character. For this reason we may perhaps regard as instinctive the activities to which they prompt the individual, in the sense that these activities, being of the nature of automatic response to internal stimuli, are outside our conscious control. We can give no account of why we become hungry; we just do.

If, then, we may justifiably regard the activity springing from this type of need as instinctive, in what sense can we apply the word "instinct" to the items on McDougall's list? The instincts to combat or to con-

struction (two instincts which figure on the list) are not periodically recurrent, nor does the failure to satisfy them lead to serious harm to the individual. They do not, therefore, seem to be fundamental facts of our nature in the sense in which the need for food or sex is fundamental, and they are far from being universal. It is probable, then, that we should be nearer the truth in regarding them merely as types of response to particular situations, or as characteristics of the activity which we call life of which we can give no account whatever, except to note their prevalence in some individuals and their absence in others. We are moving here in the direction of regarding instincts, not as separate mental units, but as characteristics of certain types of behaviour, or, if the metaphor be preferred, as facets of a general stream of life.

It is in the same direction that we must look for a correct account of the relationship of instinct and reason. The difficulties of McDougall's theory arise from his treatment of reason and instinct as if they were two distinct things. If they were, in fact, distinct, then there would be good grounds for supposing that reason was dependent on the promptings of instinct, since in depriving reason of any admixture of the driving force of instinct we should by definition have rendered it powerless to act on its own account. But the mind is not a bundle of distinct faculties, and there is consequently no such thing as instinct uninformed by reason, or as reason uninspired by instinct. It is, of course, quite true that in one sense we never do anything unless we want to; but that does not mean that when we want, for example, to do mathematical problems our wanting is one thing and the rational activity to which it prompts us is another. A better way of putting it would be to say that in all our activities we are impelled by a drive of impulses which express themselves sometimes in behaviour which is called instinctive, as when we seek a mate, sometimes, as in the case of the mathematical problem, in what are called intellectual operations, but

never in behaviour which is either completely instinctive or completely rational. We may say if we like that the sex instinct normally finds satisfaction through non-rational activities, and the instinct of intellectual curiosity through rational activities, but both reason and instinct are present in each case, because each is merely a different current of the same stream.

THE ORGANISM AS A CO-OPERATING PARTNERSHIP

Let me try to make this important point clearer by taking an illustration from physiology. It is known that the phagocytes or white corpuscles in the blood co-operate with the rest of the organism by surrounding and digesting intruding bacteria. This beneficent activity they carry out not mechanically and under compulsion, but as an army of volunteers, each of which is merely obeying its own spontaneous impulse to co-operate with the rest. "Each phagocyte indeed," to quote Professor Graham Wallas, "hunts and digests nearly as independently as if it were an isolated inhabitant of a warm tropical sea. A man's hair co-operates with the rest of his organism by protecting his brain from blows and sudden changes of temperature; but it may go on growing though the man has ceased to live. His epithelial cells may begin at any moment to proliferate independently and so cause death by cancer." Thus the body may be regarded as a collection of semi-autonomous units, each of which is endowed with the power of independent action. The process of bodily evolution is a process by which these units so learn to co-operate with one another, that instead of acting like an undisciplined rabble, they produce the appearance of a homogeneous unit. "The aim of the evolutionary development of the central nervous system," in Dr. Head's words, "is to integrate its diverse and contradictory reactions, so as to produce a coherent result adapted to the welfare of the organism as a whole." In other words, the body is like an army of volunteers working together for a common

end; the more they work together, the more successful the functioning of the body.

What is significant in this view of the body is the conception of the co-operating parts of the organism as each possessing its own drive. Carry over the notion into psychology, and instead of regarding the mind as a collection of faculties, some of which possess the power of spontaneous initiation while others do not, you will come to think of it, on the analogy of the body, as a set of co-operating but autonomous elements, each of which is endowed with the capacity to initiate mental activity on its own account. Thought, then, does not require the driving force of instinct to set it in motion; it is driven by an impulse which is life itself, an impulse of which instinct is but another manifestation. So far so good; but the analogy must not be pressed too far, for, taken literally, it would require us to suppose that there are distinct elements or units in the mind, just as there are distinct phagocytes in the blood, which is the very conception against which we have been arguing. Having utilised it, therefore, in order to borrow the notion of an all-pervading impulse of life which animates each part or aspect, let us concentrate our attention on one such aspect, the reason, and ask ourselves whether a reason which is credited with the capacity to function on its own initiative can properly be regarded as reason at all. Certainly it is no longer reason conceived, as it is in McDougall's view, as a mere instrument; rather, it is reason blended with instinct in an indissoluble unity, which defies any attempt to separate it into parts. Like concave and convex, reason and instinct may be usefully distinguished for the purposes of classification as different aspects in the whole to which they both belong; but to treat them as separate elements, one of which stimulates or employs the other, implies a radically false conception.

PERCEPTION AND THOUGHT

This point of view may usefully be applied to the consideration of a question which is often discussed by psychologists, the question, namely, of the relation between perception and thought. We have already referred to the relationship between perception and sensation, and pointed out that, inasmuch as some mental contribution from ourselves is present as an ingredient in every alleged case of sensation, there is, in fact, no such thing as a sensation proper. But a further stage of mental activity is usually supposed to supervene upon perception in order to constitute what is called thought.

Thought is the faculty of interpreting our perceptions, of linking them with other perceptions, of finding, in other words, a meaning for them. We have already mentioned this active function of the mind in the last chapter in connection with the apprehension of meaning. Our object then was to point out that this activity was inexplicable on the basis of the materialist view of psychology. Our present concern is different; it is to show that just as instinct was found to be indistinguishable from reason, and just as sensation was observed to shade by imperceptible degrees into perception, to be continuous with it and inseparable from it, so is perception equally continuous with and inseparable from thinking. Many philosophers have held that the mind is fitted up with a sort of manipulating apparatus which gets to work upon whatever material is presented to it, breaking it up and transforming it into the objects about which we think. If, to take an analogy, I had been born with a pair of blue spectacles permanently affixed to my nose, I should see everything blue. This would not, of course, mean that the things I saw were blue, but simply that the blue appearance was imposed upon them by me as a necessary condition of my seeing them at all. Now it has often been argued that this mental apparatus to which I have referred is like the spectacles, or rather it

is like several pairs of them acting together, in that it takes hold of the data afforded me by my perceptions, so that, by the mere process of becoming aware of them, I do, in fact, imperceptibly alter them. This view of the activity of the mind in perception was advocated by the philosopher Kant, who held that the mind arranged and classified everything by means of what he called categories, such as space, time, quantity, quality, with the result that we never know anything at all as it really is, but only in the form in which the mind has worked it up and arranged it for us. We are here at the starting point of the philosophy of Idealism, which maintains that mind is the only real thing in the universe. A modern form of Kant's view has been put forward by the philosopher Vaihinger. For him it is the imagination which wreathes fictions around the data supplied from the outside world, with the result that there is no reason to suppose that anything we know possesses an objective counterpart in reality which even remotely resembles it. "Our sensations," he said, "produce within the psyche itself purely subjective processes to which, in the modern view, nothing in reality—picture it as we will—can correspond." Hence the explanation of what we experience is to be sought in the nature of thought itself, rather than in the outside world.

Theories of this kind give rise to many interesting speculations as to the reality of the external world, which belong rather to philosophy than to psychology, and cannot be pursued here. We have introduced them only because of the emphasis which they lay upon the complete interdependence of all mental processes. You cannot feel the heat of the fire on your hand without perceiving that there is something that warms you; you cannot perceive what the something is without judging it to be a fire; you cannot recognise the fire as a fire without synthesizing your sensations of it, interpreting them in the light of your memory of past experiences, and, for all we know to the contrary, working them up and distorting them out of all recognition by means of

the mental apparatus which insists on taking charge of and transforming the raw material that comes to it. We never get any impression from the world raw, it is always cooked; and from these culinary operations of the mind there is no escape.

SUMMARY

In this chapter I have tried to present a picture of the mind not as a bundle of mental units known as faculties, but as a dynamic ever-changing force, the activity of which conforms to a number of fairly well-defined types of behaviour. According as one type or another is most prominent, we say that one or other of our so-called faculties, instinct, or reason, as the case may be, is functioning. But in point of fact the whole mind is present in each of its activities, and all its so-called faculties are comprised in each.

This way of regarding the mind is now accepted in the main by most psychologists. One of the oldest traditions in psychology, to which almost all psychologists have subscribed, is to distinguish in any given state of consciousness three aspects of the state known respectively as the cognitive, affective, and conative aspects (knowing, feeling, and striving). Nearly every experience, it is agreed, presents these three irreducible aspects. It is first of all a knowing or a thinking about something; secondly, it is a feeling about the something, whether pleasantly or unpleasantly; and thirdly, it is a striving towards or away from the something.

In any given experience any one of these aspects may be more or less prominent, but each is always present to some extent, even if in extreme cases—*e.g.*, in that of the mathematician doing a problem, one of the aspects, in this case the affective, may be almost negligible. It follows—and this is the conclusion that we wish to emphasise—that there are no *purely* cognitive, affective, or conative experiences. The aspects we have distinguished in mind are like waves on the sea; they are continually

changing their form, they merge one into another, and they have no separate existence either from one another or from the sea which owns them. Yet just as, however smooth the sea, there always are waves, however slight, which can be distinguished in though not separated from its movement, so in experience we can always distinguish aspects in which the mind as a whole is at any one moment expressed. If we steadfastly adhere to this attitude to mental processes and apply it constantly throughout our psychologising, we shall avoid many of the mistakes which psychologists have made in the past.

CHAPTER V

THE THEORY OF THE UNCONSCIOUS

IMPORTANCE OF THE THEORY

It would be misleading to conclude this outline of modern psychology without giving some account of the theory of the unconscious, although we have space only for the briefest sketch. The theory of the unconscious is chiefly of importance for psychotherapy—that is to say, for the practical treatment of nervous diseases and psychological abnormalities, and belongs, therefore, rather to what is called psycho-analysis than to psychology proper. In so far indeed as those who approach psychology from the psycho-analytic standpoint have sought to present a complete picture of the working of the human mind, they have been largely unsuccessful. But although the theoretical basis of psycho-analysis is highly questionable, there can be no question of the success which has attended the methods adopted by psycho-analysts in treating nervous diseases. These methods have been largely based upon the assumption that the unconscious as conceived by Freud is not a convenient hypothesis but a fact; and the

psychologist is, therefore, obliged to take notice of a theory as to the origin and nature of mental processes which in practice has been so fruitful of results. The subject is also important for another reason. If *all* that the most extreme supporters of Freud assert about the unconscious is true, then none of our conscious mental processes are free; they are conditioned in every case by unconscious elements whose genesis escapes detection, and whose workings evade control. This conclusion, if true, is of the first importance for psychology proper.

I propose, therefore, in the brief space at my disposal, to try to present in outline the picture of our psychological interior, with which the writings of Dr. Sigmund Freud, the Viennese psychologist, have made us familiar, and to give one or two illustrations of the life of its inmates. Before doing so, however, I should like to point out:

1. That the theories of Freud are not accepted either by all psychologists or by all psycho-analysts. Another important psycho-analyst, Dr. Jung of Zürich, while accepting in principle the Freudian theory of the unconscious, arrives at very different conclusions as to its nature and the influence it exerts on consciousness.

2. That the whole theory of the unconscious is as yet pure hypothesis, and that not only do many psychologists refuse to accept it, but there is no sort of agreement among psycho-analysts themselves as to many of its salient features.

3. That, nevertheless, there can be no doubt of the important influence which the theory of the unconscious has exercised upon modern psychology. For this influence Dr. Freud is more than any other thinker responsible. His first book was published as long ago as 1892, and he may justly be regarded as the founder of psycho-analysis. It is for this reason that I have chosen his conception to form the basis of the following sketch:

THE FREUDIAN INTERIOR

The individual's mental interior may be likened on Freud's view to a house with two floors, one of which is a basement. Each floor is inhabited by a different family. The ground floor family (the conscious) is small, select, and respectable. It is conventional in the English way—that is to say, it is anxious to keep itself to itself, while at the same time determined to put up a good show before the neighbours. In this laudable endeavour it is continually embarrassed by the activities of the basement (the unconscious), which persists in the attempt to elevate itself in society by mixing with the family on the floor above. It is a large, primitive, untidy, disreputable sort of family, this basement lot, noisy and selfish, caring not a fig for respectability, and a prey to unbridled desires which it insists on satisfying without regard to the feelings of others. Apart from its laudable endeavour to raise itself in the social scale by penetrating upstairs and its volcanic energy, there is nothing good to be said for it. So at least the ground floor thinks, and, accordingly, with a view to keeping these unpleasant neighbours down, its inmates have hired a sort of policeman (called by Freud the Censor), placed him on the staircase between the two floors, and charged him with the job of preventing the basement people from getting access to their own floor. It is upon this job that the policeman is permanently engaged, with the result that there is a perpetual series of conflicts on the stairs.

These conflicts may issue in one of three ways:

1. The policeman may succeed in keeping a basement inmate permanently and effectually under. Thus, denied access to light and air and deprived of his natural outlet, this thwarted individual (unsatisfied desire) may go bad and fester; like a stream that is dammed up and overflows into a stagnant marsh (complex), he may come in time to poison the whole of the

house, affecting, however slightly, the activity of each one of its inmates (Neurosis).

2. The basement inmate may win through in spite of the policeman, but only on conditions—namely, that he consents to be furnished up and made respectable. The violence of his primitive individuality must, in other words, be toned down somewhat to accord with the conventions of social usage. This process of being made fit for decent society (sublimation) may alter the primitive basementer out of all recognition. (Thus an unconscious desire to elope with your housemaid *may* be sublimated into a sudden aversion from pickled walnuts.)

3. The basement inmate may come through unaltered. This happens when the policeman is off his guard, especially when he goes to sleep. Hence in dreams we are frequently brought face to face with the inhabitants of our basements, and although, when we try to remember our dreams on waking, the policeman returns to his duties again and distorts the dreams in the process of recollection, dream interpretation is regarded by psycho-analysts as one of the best methods of disclosing the hidden secrets of our unconscious selves.

Many psycho-analysts hold that all the inhabitants of our ground floors are sublimated versions of the inmates of our basement selves, and members of the Freudian school assert that all or almost all our basement desires are sexual in character, although it should be added that the word "sex" is used by them in a sense so wide as to be to all intents and purposes technical.

Our mental life, then, may be likened to an iceberg; the part of it that appears to view is only a very small proportion of the whole; what is more, it is not the part that really matters. We used to think that we could to some extent control our thoughts and desires, and that we could, therefore, to a large extent be held accountable for what we did. The plain man in particular has been taught and is accustomed to believe that there is

in his soul an element or faculty called the conscience. The conscience acts rather like a barmaid in a public-house: the barmaid would permit the indulgence of a desire for a certain time and up to a certain point, and then "Time's up, gentlemen," she would say, "out you go," and out the desire would go, whether we liked it or not. If, however, the Freudian view is correct, conscience itself is a sublimation of an unconscious desire, and we are no more responsible either for its appearance in consciousness or for the strength which it exhibits, than for the appearance and strength of the other desires it seeks to control. In this respect Freud's theory issues in conclusions not dissimilar from those of Professor McDougall's theory of instinct which we considered in the last chapter, and like that theory, has the effect of seriously undermining the basis of moral responsibility.

REMARKS ON THE UNCONSCIOUS

I have no space for a more detailed examination of the theories of Freud and other psycho-analysts; nor is this the place for a criticism of them. It will, however, be sufficiently obvious, from what has been said with regard to the so-called "faculty" psychology in the last chapter, that the endeavour to conceive of the human "interior" in the somewhat picturesque terms that psycho-analysts adopt is bound to be misleading. We have argued against the assumption that the mind contains separate faculties, such as instinct and reason, and the same consideration must apply to consciousness and the unconscious conceived as distinct and persistent states.

The notion, for example, of an unconscious as a kind of underground dungeon in which repressed desires remain imprisoned, awaiting a means of escape, is far too dramatic to be accepted even as a symbolic representation of what occurs. When we temporarily suppress or forget a desire which subsequently recurs, we

have no more ground for supposing that it has somehow somewhere persisted all the time than, to use a simile of Mr. Ogden's, we have for regarding "the return of spring each year as a proof that she has been lurking underground all the winter."

What persists is probably a certain pattern of the nervous centres, of the type which we described in Chapter II. When the need which prompted the original wish recurs, it finds this pattern awaiting it, and accordingly appears in our consciousness as a completely formed wish, carrying with it the feeling that we have experienced it before. It is on lines similar to those laid down in Chapter II. that many phenomena, which psycho-analysts invent highly dubious entities and faculties to explain, may be more correctly interpreted.

But though the theory of the unconscious upon which most psycho-analysts work may be somewhat crude and over simple, there is no denying the effectiveness of the cures which have resulted from an application of psycho-analytic methods. These methods have aimed at tapping the unconscious depths of the mind, and bringing their contents to the surface, and their validity rests, therefore, upon the assumption that the mind, like the spectrum, has certain invisible extensions, which are as important and as susceptible of investigation as its visible regions. The fact that these extensions must be conceived in terms of particular settings of the nervous centres rather than as pools or reservoirs of persisting desires does not affect the great value of Freud's work.

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