

PSYCHE

VOLUME II

(Nos. 1 — 4)

1921 — 1922

KEGAN PAUL, TRENCH, TRÜBNER & CO., LTD.
BROADWAY HOUSE, 68-74, CARTER LANE, E.C.

1922



WILLIAM BROWN, M.D., D.Sc.,
who has recently been appointed to the Wilde Readership.
(See p. 80).

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PSYCHE

VOL. II, No. 1. NEW SERIES: JULY, 1921

EDITORIAL

THE widespread interest in psychological topics which is one of the outstanding features of the intellectual life of to-day has been responsible for a great output of popular literature of very varying degrees of value and importance. Of this output an undue proportion has, from the nature of the case, been of a controversial or deliberately propagandist character—effective as a stimulative influence, no doubt, but not conducive to that just perspective which is essential to the advancement of any science.

Meanwhile much solid and valuable work has been done by professional investigators, although this has, unfortunately, been overshadowed, for the general public, by the more sensational doctrines of facile writers.

The time has now come when it may reasonably be attempted to effect a synthesis of old and new views, and, while satisfying the nascent demand for information about the latest developments, to utilise to the full the labours of more conservative workers.

Psychologists may well view with satisfaction this recent manifestation of public interest in their work, for it is only by a general realisation of the importance of the subject that they can obtain that moral and economic support which is essential to the successful prosecution of their labours.

At the same time, it is no less important that this interest should be directed towards the proper aims and based upon thoroughly reliable data.

The policy of *Psyche* is to provide a conspectus of all the most reliable views, while not ignoring more advanced and tentative developments on which opinion is still divided.

The field covered by modern psychology is a very wide one, so much so that there can be scarcely any class of the community to whom one portion or another of its subject-matter will not prove valuable, either directly or indirectly.

It has already been pointed out in these columns that the time has gone by when it was possible to regard Psychology as remote from practical affairs or concerned exclusively with intangible mental phenomena—unimportant because intangible.

It is now realised that helpful contributions can be made in the most diverse fields, as is, we think, sufficiently indicated by the varied contents of this issue. This is confirmed by the wide range of experimental work now being conducted in our Universities, work which no serious Educationist can afford to neglect. Medical men can scarcely fail to be interested in Dr. Lowson's article on Dreams, in Dr. Hart-ridge's views on Sleep and Insomnia, and in Dr. Prideaux's paper on Criminal Responsibility and Insanity. This latter is also relevant to Legal Practice, where Psychology is capable of many applications. Colonel Richardson's article on the Homing Instinct in Dogs presents many points of interest, not only for animal-lovers but also for soldiers and comparative psychologists. Mr. Dingwall emphasises the importance of special experience and knowledge as a qualification for the investigation of the problems of Psychical Research, with regard to which current opinion is so imperfectly instructed. Dr. G. H. Miles draws attention to the valuable work which is being done by psycho-physiologists in connection with the conditions and requirements of modern industry. The reactions of the human organism to conditions so unusual as those which obtain in Antarctic Exploration provide novel material for the general psychologist, while all who are interested in *Æsthetics* will welcome the clear exposition of Mr. Tudor Hart's remarkable discoveries in the realm of Colour and his striking rehabilitation of the analogy between Colour and Sound.

Finally, for the benefit of those unfamiliar with the rudiments of the subject, we have included a concise and lucid summary of accepted views by two authorities whose study of the ambiguities of language has enabled them to eliminate many obscurities which commonly detract from the value of introductory text-books.

So far as space permits, the columns of *Psyche* will always be open to correspondents who have matter of interest to communicate. Notes and news from foreign sources will always be welcome.

It is hoped that in subsequent issues our Literary Section will be enlarged to include all the more important British

and foreign publications, many of which are reaching us as we go to press.

In this connection we would draw our readers' attention to the fact that we have made special arrangements, as announced at the head of our "Survey of Current Literature," whereby they may obtain all books mentioned in these pages and psychological literature generally with the minimum of trouble and delay.

THE INTERPRETATION OF DREAMS

By J. P. LOWSON, M.D.

THE subject of dreams is a big and complicated one which raises questions of the greatest psychological interest. Freud in his latest book, *A General Introduction to Psycho-analysis*, devotes eleven chapters to the discussion of dreams, and books have been written about this subject alone. It would be absurd, then, for me to attempt to discuss dreams fully in the short space at my disposal, and I propose rather to confine myself to a few points of general interest. I want to show, first, that many dreams, perhaps all dreams, are capable of "interpretation," and second, I propose to illustrate some of the facts which make interpretation difficult. But first of all, since the word "interpretation" is ambiguous, we must settle what this word is to mean in connection with dreams.

For long ages mankind believed that dreams had a hidden significance, which men who were wiser or better inspired than their neighbours might be able to discover. Kings had their dream-interpreters who went with them to battle and advised them in peace. The rise of such men as Joseph and Daniel at the courts of Pharaoh and of Nebuchadnezzar is said to have begun through their skill in dream interpretation. At that time dreams were believed to contain a key to the future. Now in this idea there was an element of truth, as I hope to show later on, but still prophecy is not what is understood nowadays by the interpretation of dreams.

What is now meant may perhaps best be understood by contrasting it with two different views which had a certain currency in the last century. The first of these views was that dreams and the forms which they take were mainly matters of haphazard and chance dependent upon accidents of nutrition, circulation, and the like, in different parts of the brain; imagination was supposed to run hither and thither, planlessly, "like sparks in charred paper," wherever a little fuel remained. It is clear that on this view the course of a dream has little or no relation to the mental structure of the dreamer, to his past experience, his past or present interests or desires: on this view dreams are not, strictly speaking, mental products at all.

The second view was that dreams, or at any rate many dreams, were not haphazard in this sense, but were haphazard in another. It was supposed that they were due to the occurrence of some outer or

inner sense stimulus which was represented in the dream. Thus an alarm clock might make a man dream of church chimes or of sleigh-bells, or cold feet might make him dream of snow, and so on. Now it does happen that dreams are started in this way. People who are thirsty dream of drinking, and I know a man who put his feet against a waterbottle that was too hot and dreamt that he was in hell. Against this view, therefore, there would be nothing to say, if it really accounted for all the facts. But it does not do so. In the first place, the sense stimulus is apt to appear transformed in the dream. The sounding of the same alarm clock gives rise to different images on different occasions, sleigh-bells at one time, chimes at another, the crash of breaking plates on a third occasion.¹ In the second place, a picture or even a succession of events rises round the sense stimulus and seems to have no relation to it, and this also remains to be explained. The stimulus theory, then, will not account for everything in the dream, even when a stimulus was undoubtedly present, and, besides, there are many dreams for which no stimulus is traceable. However, the point at present is that this view resembles the former view in one important respect. Here again the dream is left out of relation to the mental structure of the dreamer; the dream again becomes a haphazard product so far as the dreamer is concerned.

Now the view of dreams whose essence we owe to Freud—whether or not we agree with him on all points—stands in strong contrast to both these theories. It asserts that dreams stand in a most intimate relation to the mental constitution of the dreamer, and, according to this view, it is the discovery in detail of precisely this relationship which constitutes the interpretation of a dream. I wish to show how this view is justified, and how the form which a dream takes can be explained by reference to the dreamer's own mind. In this sense, if in no other, dreams have a meaning which is personal to the dreamer himself, throwing light upon his personal history, upon his most intimate thoughts, emotions and desires, and it is in this sense that I use the word interpretation in connection with dreams.

But how can dreams be supposed or shown to have a meaning of this kind? When one considers how senseless, fantastic and fragmentary many of our dreams are, full of preposterous occurrences which seem to take place without rhyme or reason, it appears absurd to say that behind all this lie definite relationships with our waking selves. Well, as a first step towards understanding this apparent contradiction, we may consider something quite similar which occurs apart from dreams and is familiar to everyone. Suppose you were shown a picture, a drawing, or imagine it, if you like, as a dream. Imagine a workman with a bag over one shoulder and an enormous

¹ See Freud, *The Interpretation of Dreams*, p. 22.

haircomb nearly as big as himself over the other. Imagine him walking in a wood, for you see tree-trunks everywhere, though, curiously enough, they do not seem to have branches. The wood is full of holes in the ground, and in the holes and behind the trees are numbers of rabbits. You see how like a dream the picture is. Who but a lunatic or a dreamer would go out to catch rabbits with a haircomb, however big? But now someone tells you that these holes are not ordinary holes but "funk-holes"; that the trees are not trees but "posts," and, what is more, "government posts." You see how sense begins to appear out of the midst of absurdity. You understand why the man carries a comb; it is "combing-out" that is represented. The picture is in fact a war cartoon—one of "Poy's" in the *Evening News*.

Now some dreams are just like that. They become comprehensible at once when you get inside the dreamer's mind, just as the cartoon does when you get inside the artist's. In a favourable case, if you know enough about the circumstances of the dreamer, it is sometimes possible to understand a dream immediately. When one hears, for example, of a recently appointed teacher who dreams on the night before his first lecture that he has gone down to deliver it, and found the class-room in the first place packed to the doors with people, and in the second place so packed that he is quite unable to get in and is obliged to go home again, it is not difficult to see how the dream reflects the success which he naturally hopes for, and the shrinking from possible failure which he naturally feels, and neatly satisfies them both. Examples of this kind of cartoon dream are frequent enough in the literature of the subject. Take, for example, this dream from Dr. Maurice Nicoll's book: "I was hanging by a rope a short way down a precipice. Above me on the top of the cliff was a small boy who held the rope. I was not alarmed because I knew I had only to tell the boy to pull and I would get to the top in safety."¹ What was this precipice over which the dreamer was hanging, though he still believed himself safe? The dreamer, Dr. Nicoll tells us, had begun to take morphia.

But, as we all know, the majority of dreams are not so simple as that—though, perhaps, even in dreams like these there may be more than meets the eye. In any case, many of our dreams are far more confused than these. What are we to make of them? The best way, I think, is to give an example, and we may take the following dream.

The Dream of the Revolving Cab.—The dreamer here was a medical officer who was working at the time in a neurological hospital. The dream ran as follows:

"I was in Paris and the war was over. For some reason I was very

¹ *Dream Psychology*, by Maurice Nicoll, p. 91.

anxious to remain in Paris. I heard that George Sand, who in my dream had written Balzac's novels, was in want of a private secretary. I thought I should like to apply for the job.

"Next minute I was driving along Holborn in a cab with my uncle beside me, and I seem to remember the shadowy figure of my brother on the opposite seat. The cab turned to the left down a side street to draw up on the right in front of George Sand's house. But before it drew up a remarkable thing happened. Instead of pulling up directly at the door, the horse slewed round to the left, the whole cab skidded forwards and sideways, revolving through a half-circle, and drew up at the pavement in this reversed position. My uncle and I got out, the house door opened, George Sand stepped out on the pavement and entered into conversation with my uncle.

"Next moment I was standing in a quite different street, with houses all down the side that I was on, but no houses on the other side, only a river flowing along, and in my dream I knew that the river flowed from X—— [the place where the dreamer was at the time]. There were two changes of light in the dream. In Paris the light was bright though nothing was distinct; in Holborn the light was dull and dark; in the last scene everything was clear, the light was brilliant and the sky a beautiful blue."

What is the meaning of all this nonsense? In this case we seem to have before us, not an isolated incident or a dramatic scene, but rather a kind of story told in a sort of picture-writing. How are we to find out what these pictures mean, if they mean anything? We can only do so by finding out what they mean for the dreamer himself, just as we should have to ask the artist if we failed to understand a cartoon. But the trouble is that the dreamer himself does not know what the pictures mean. He says quite sincerely that they convey no meaning whatever to him. All the same, they came out of his mind and not out of anyone else's, and there, if anywhere, their explanation is to be found. It is Freud's method of free association that solves this problem for us. We ask the dreamer to sit quietly, think about his dream, and tell us without any reserve whatever, as they come into his mind, all the ideas that arise there in connection with it. In this way we reach the things, events and situations which turn out, in fact, to be linked in his mind with the dream images, and the meaning of the dream may gradually become clear, to him as well as to us.

This sounds a simple enough proceeding, but in practice, unfortunately, it is not so easy. The dreamer must not criticise his ideas as they arise. He must not say to himself as ideas arise, "This has no possible connection—it can't have anything to do with it," or, "That is quite absurd," or, "This other thing I prefer to keep to myself, or prefer not to think about." He must be perfectly candid with himself, and that is not at all an easy thing to do. Perhaps only those

who have sincerely tried it know how difficult it is. However, when this method is applied to the case in hand, the dreamer does in fact get a crowd of associations drawn from his past life, which throw much light upon his dream.

It would occupy too much time to give you all these associations in their original order. The investigation of a dream may be a very lengthy business, occupying hour after hour. A dream may turn out to contain, in effect, all sorts of allusions to the past and the present. The process may remind one of what would happen if one were to attempt to follow up and trace to their origin the allusions which often occur in "family conversation," and remain unintelligible to the outsider. If such an outsider desired to trace an allusion, whose original source had been forgotten by the members of the family themselves, it is easy to understand that the associations, through which alone he could trace it, might follow a very devious route. I must confine myself, then, to the main upshot of the associated ideas which occurred to the dreamer in this instance—an upshot, it is to be noted, which he himself recognised.

Very quickly it became clear that in his mind Paris was associated with neurology, the study of nervous disease. After qualifying as a doctor he had lived and studied there, spending his working time in that branch of medicine, and proposing to specialise in it. His interest in that subject was again a development of a still earlier interest acquired before he had anything to do with medicine at all—strongly rooted, therefore.

Now the dreamer did not, as a matter of fact, "specialise"; before the war he was in general practice. Perhaps, then, we shall not make too wild a shot if we assume provisionally that the first part of the dream runs in this way: during the war the dreamer has been following his favourite professional pursuit; when the war is over he wants to continue it and not to return to general practice.

But next minute he finds himself in Holborn driving with his uncle. What does this mean? The dreamer tells us that in fact on leaving Paris he went to London, and worked in a hospital in the neighbourhood of Holborn, a street which he used to cross every day. But at this point he began to meet with difficulties in the execution of his projects, which made him afraid that he would have to abandon this interest in favour of ordinary practice. These difficulties were not connected with his work itself, but they were none the less real and pressing for that. At this point his uncle comes into the story with a rather startling offer to take a house for him in London and finance him for some years until he has had time to find his feet. This offer the dreamer felt it necessary to refuse, and his refusal brought the whole matter to a head. He solved the question once for all by abandoning neurology and entering general practice, thus reversing, as it

appeared to him at the time, the whole current of his professional aims. A somewhat painful difference with his uncle followed, in which his brother was concerned.

There were many other associations in this connection, and in the light of these facts it is not difficult, I think, to see what the main current of the dream is. The dreamer is in fact working over his past life. He is again in London, he is again driving towards his previous aims, his uncle is again backing him, and, further, he is again reversing the direction of his previous life, but this time changing back again from general practice to his special pursuit. Accordingly the cab reverses as they draw up at the door of the house in London—the central point in the dream.

Finally the dreamer finds himself in a street which recalls the street in which he used to practice. But the street is changed. Half the houses are gone and in their place flows a river which comes from the town where he now is, which has its source in the work he is now doing.

If I could give all the associations, the light would be still more evident which they throw both upon the dream itself and upon the life and interests of the dreamer. It would be seen also how much personal ground we managed to cover in seeking the meaning of a single dream, and yet the account I have given of it is by no means exhaustive. George Sand still remains to be explained, and the reference to Balzac's novels, but the interpretation of these would take us too far into the personal history of the dreamer and cannot be given here.

I think the meaning which I attach to the word "interpretation" is now clear. A dream is capable of interpretation when it has definite relations to the mind of the dreamer; when, that is to say, the dream images and the form which they assume can be shown to follow, not physiological or external accident, however determined, but the lines of the dreamer's own character, interests and experience. Conversely the display of these relationships, and the light which they throw upon the dreamer's mind, constitute the interpretation of the dream.

I said at the beginning that there was a grain of truth in the early idea that dreams throw light upon the future. It is easy to see why that is sometimes so. The future of any man is in part determined by his mental constitution, and by the desires, conscious or unconscious, which are among its most important features. Take the last dream, for example. It was what is sometimes called a "resolution dream." My friend is now as a matter of fact practising neurology.

I think, then, that it is fair to conclude that some dreams at any rate can be interpreted in the way I have sketched, and that in this way light can be thrown upon the history, the character, or the motives of the dreamer. This is just as true of the dreams of three thousand years ago as of the dreams of to-day. If one thinks of the dreams of

Joseph recorded in Genesis, for example, the dream of all his brothers' sheaves bowing down before his, and the still more grandiose dream of the sun, moon and eleven stars bowing down before him, one sees that they throw light, not only upon the reasons why his brothers put him in the pit—they had no hesitation about interpreting his dreams—but also on the qualities of character which are said to have taken him to the head of the Egyptian administration.

But the question naturally arises at this point : If dreams have this kind of meaning, why is it that the dreamer is usually unable to interpret his own dream ? This is the second point which I wish to take up.

The answer to this question is not a simple one. It is probable that a number of causes, not all of which are thoroughly understood as yet, join in producing this effect. But there is one cause of dream "distortion," upon which Freud and his fellow-workers lay great stress, which for practical reasons deserves immediate mention.

First of all, Freud points out that many dreams—in his opinion all dreams—are wish fulfilments open or disguised. The satisfaction or attempted satisfaction of some desire or craving is an obvious character of many dreams. It is very evident in some of the dreams of young children, and in the dreams of explorers about food, drink and tobacco. These are dreams which deal with admitted wants which have remained unsatisfied by day. I recollect once, when I had good reasons for being anxious to get home on leave, and had remained in doubt for over a week as to whether I should be allowed to go or not, I partially woke in bed one morning long before my usual hour with a feeling which most of us probably know : that nasty feeling of having "something on your chest"—the feeling that something is wrong somewhere, though for the moment you can't say what. Next minute I was dreaming that I stood in the hospital ward, where a man I knew came up to me and said, "Here, I've got something for you," and pulled my leave-warrant out of his pocket. I felt at once quite happy and satisfied, and went sound asleep again. It is, as Freud says, one of the functions of the dream to protect sleep against disturbing thoughts and feelings.

But granting that many dreams are wish fulfilments, how does that throw light upon distortion in dreams ? The answer is that there are few men whose minds are not divided, few men whose desires do not conflict with each other to a greater or less extent. Some of us, no doubt, have better desires and some of us have worse, but we can all recognise—if we are honest with ourselves—that wishes actually exist within us which are not in line with our better selves. Now it is especially in sleep, when our power of self-control is somewhat weakened, that these wishes are apt to get the length of expression. But our higher or better adjusted selves with their controlling desires are

not altogether asleep, and the open expression of some of our inborn or acquired tendencies would still be painful to us. Hence the conflict between the desires involved is represented in the dream, which is often a compromise between them, and the expression of our evil, or it may be merely our improper wishes—as we should call them in waking life—becomes distorted beyond recognition, “censored,” as the term is. The expression of our better desires may be of course distorted also. The following dream may be taken as an example of this kind of distortion.

The Dream of the Uninvited Guests.—The dreamer here was a university lecturer. The dream ran as follows: “I thought I was upstairs in my house when the maid came and told me there were some gentlemen to see me. I went downstairs and found half a dozen men sitting in a circle round the fire. They were in full evening dress—dress coats, white ties and white waistcoats. I went and stood in the middle in front of the fire. I didn’t know one of them, and couldn’t think who they were, but I concealed my ignorance, and presently it came out, to my dismay, that they had all been invited to dinner. I rushed upstairs to my wife and asked her advice. She suggested that I should take them to a hotel. Accordingly I went down and suggested this, and we all went to a hotel, where we had a very good dinner.

“When dinner was over I passed round the cigarettes hoping that they would now go away. But not a bit of it! They hung on, and at last I proposed going back to the house. They seemed delighted and came along. Back in the house, however, one of them suddenly addressed me as ‘Mr. A.’ I turned to him and said, ‘Do you suppose me to be Mr. A.?’ ‘Of course!’ ‘Do you all take me for Mr. A.?’ ‘Yes, of course we do.’ ‘Were you invited to dine with Mr. A.?’ ‘Yes.’ ‘Then how did you find your way here?’ ‘We asked a man at the street corner and he told us it was here.’”

The interpretation of this dream is not difficult, though it would not have been possible to establish it without the co-operation of the dreamer. There was both a resemblance and a difference between the position of the dreamer and that of Mr. A., a resemblance in their official duties, a difference in the degree of their popularity, and in the influence which they exerted. In a word, A. had achieved a reputation, and attracted many students round him. The dreamer’s position was different, and might be imagined by the dreamer himself as just the contrary. In the dream he takes A.’s place (not to speak of spoiling his dinner-party), and from this point of view the dream is a wish-fulfilment. But why should his wish to have A.’s position not get open expression in the dream? To ask this question is almost to answer it. In ordinary life the dreamer was far from being a small-minded man; he was proud, and he was not conscious that he envied his rival. He had a private and not too exalted opinion of him (not

quite unjustified, perhaps), but he certainly would have done nothing deliberately in order to undermine or replace him. In the dream the wish-fulfilment is accordingly distorted. He is in the dark all along as to what is really happening, and even when light breaks through at the end he does not recognise its real significance.

It is this side of the subject which leads on to dream-analysis in the strictly Freudian sense. Freud's method of attacking dreams is to take the dream bit by bit, getting the associations to each element separately. In this way, it is possible to work out tendencies actually present in the dreamer's mind and concerned in the dream, but not clearly expressed in it because of their disagreeable character—because of their conflict with the rest of the personality. These are the tendencies which, in Freud's language, belong to the unconscious and have succumbed to the "censor" in the dream. Some of Freud's followers would deny, I think, that what I have been describing is "analysis" at all, and from a medical standpoint this would be natural enough. For until recently medicine was entirely concerned with the things which upset the body and the mind, and not with the things which maintain them in health.

This leads me to remark, however, upon another very interesting character of dreams in general. The desires whose satisfaction the dream seems to attempt are not always very creditable ones. We have just seen in the dream last cited that the underlying feeling was not one which the dreamer would have consciously permitted to influence his waking actions. And yet this dream is a mild sample compared with dreams which are common enough. "Desires," says Freud, "which we believe to be far from human nature show themselves strong enough to rouse dreams. Hate expends itself without restraint. Revenge and murderous wishes toward those standing closest to the dreamer are not unusual, toward those best beloved in daily life, toward parents, brothers and sisters, toward one's wife and children. These censored wishes seem to arise from a veritable hell; no censorship seems too harsh to be applied against their waking interpretation."

Perhaps the mode of expression used in this passage may strike us as a little "over determined"; but however this may be, Freud is not usually assailable on the side of facts observed, and we had better admit the truth of this statement of fact, though if it were theoretical it might be otherwise. But in any case we want to know why dreaming and waking life are so different. Freud himself supplies the answer. Dreams are to some extent the distorted expression of primitive desires and "ideas," and part of the reason for the apparent distortion is that these desires sometimes bring with them a primitive form of expression, which makes the dream still more difficult to understand. That is the third point which I wish to make.

The word "primitive" may refer in this connection either to the development of the individual or to the development of the species. On the one hand, it may refer to the primitive period in individual history—to childhood; on the other, to the still uncertain characters of those early forerunners of man as we know him now, and their successors, from whom, presumably, we have evolved by a process of continuous descent. It is probable enough that both these periods have not a little in common with each other, not only in point of those characters which we recognise as essential to human nature, but in point of characters which have become obscured in human nature as we know it at present; still we must keep the distinction between them in our minds.

In our dreams tendencies from the first, and perhaps from the second of these periods, may lead again a distorted life. Primitive desires long suppressed may revive, or primitive impulses long since involved in, and controlled by, higher modes of activity, may break loose, as it were, and lead again for a moment an independent life. Primitive pugnacity and cruelty, for example, might appear out of a sentiment of more or less righteous indignation, within which they had been confined and controlled to proper ends. The righteous man might find himself treating his enemy in a dream as he would be ashamed to treat him in waking life. Of course a chief part of the practical value of dream-analysis consists in its rather relentless exposure of our unconscious hypocrisies, forcing us to recognise the real nature of some of our motives, or the nature of the underlying motives, which are often hidden within those which are apparent, and influence our conduct without our being clearly aware of them. But still we should often find ourselves in error, if we reckoned base, murderous, meanly envious, or meanly revengeful motives as part of the effective character of a reasonably self-controlled man, when they appeared solely in his dreams. The germs of such impulses are probably common to the vast majority of men, but conduct is foretellable only from a knowledge of a man's effective character taken as a whole. Still, the impulses which come to light in dreams are often strange and sometimes very unpleasant, and this is a fact which it would be foolish to deny.

I think it may help in getting the right point of view in this matter—and I think it is important that we should get the right point of view—if we consider the following passage from Mark Twain, a writer who certainly knew something about boys. He is describing the doings of a number of boys, about ten or twelve years old, who had found a cave that no one else knew of, a secret place where they could do as they liked without fear of disturbance. They collected there, needless to say at night, for the purpose of founding a gang of robbers. The scene is described by Huck Finn, a humble member of the gang:

"Tom Sawyer says: 'Now we'll start a gang of robbers and call it

Tom Sawyer's gang. Everybody that wants to join has got to take an oath and write his name in blood.' Everybody was willing (the passage goes on cheerfully). So Tom got out a sheet of paper that he had wrote the oath on and read it. It swore every boy to stick to the gang and not tell any of the secrets; and if anybody done anything to any boy in the band, whichever boy was ordered to kill that person and his family must do it, and he mustn't eat and he mustn't sleep till he had killed them and hacked a cross in their breasts, which was the sign of the band. . . . And if anybody that belonged to the band told the secrets, he must have his throat cut, and then have his carcass burnt up and the ashes scattered all around, and his name blotted off of the list with blood and never mentioned again by the gang, but have a curse put on it and be forgot for ever.

"Everybody said it was a real beautiful oath. . . . But some thought it would be good to kill the *families* of the boys that told the secrets. . . . Then Ben Rogers says: 'Here's Huck Finn, he hain't got no family—what you going to do 'bout him?'

"They talked it over and they was going to rule me out, because they said every boy must have a family or somebody to kill. I was most ready to cry; but all at once I thought of a way, and so I offered them Miss Watson—they could kill her." Which settled the matter.

No one will deny that these proceedings were rather bloodthirsty. We have here a set of ideas which in grown men would be nothing short of horrible. No one will deny either, I hope, that they were perfectly natural. Yet unquestionably boys indulge in ideas of this kind for the sake of the real satisfaction which they get out of them. The ideas have what is sometimes called—rather loosely—"psychic truth." They are imaginary, but the satisfaction which goes with them is not.

Dreams certainly offer us opportunities of which this primitive side of us is quick to take advantage. The natural man, who is in some respects very much the natural boy, runs strong in them, especially those parts of him which give us most trouble to control or keep under. There is a kind of parallel, which is not without interest, between dreams and a certain sort of literature. If one gives names to dreams it is surprising how many of them would head a magazine story with credit, or even grace the cover of what used to be called a "shilling shocker." The sensational novel contains, in fact, a mixture of mystery, blood and omnipotence on the part of the detective—with whom the reader identifies himself, consciously or unconsciously—which appeals to the boy and the primitive man who lie hidden in all of us.

Childish reminiscences and childish satisfactions still wake and play their part in literature and dreams. One instance of this, as Freud believes, is the common dream of finding oneself in a public place very insufficiently clad. You are at a party, say, and suddenly find that

you have nothing on but your pyjamas, or even less than that. This is often accompanied by a curious inability to use your feet, which increases your embarrassment. They seem to stick to the ground or weigh about half a ton each, preventing you from getting rapidly away. There is something in you, then, not unwilling to prolong the situation, for in dreams what is there to prevent one except oneself? What is this something? It seems probable that it is just that naïve desire for admiration which is so evident in early childhood, and so often takes the form of undressing or of appearing undressed more or less in public. We know how children dance about and enjoy running from one room to another when they have their night-things on. We know how they ask their friends to come and see them in their baths—or sometimes, conversely, won't on any account permit it. This is the unconscious satisfaction which the dream of nakedness repeats, but it is checked and spoilt by the feelings which later training (and perhaps inheritance) has very properly implanted in us. If we feel inclined to object that it is absurd to suppose that so childish a tendency should retain enough strength to influence the dreams of later life, we are reminded of two facts: first of the tendency which the insane not infrequently show to strip or attempt to strip themselves upon the street; and next of the stress laid on the nakedness of Adam and Eve in the first chapter of Genesis, a myth which symbolises the childhood of the race. You remember how Adam and Eve had no clothes and did not mind it at all. Because a mental disposition, a way of thinking, feeling or acting appears childish and absurd to our more developed minds, it does not follow that it has not an interesting and even an important origin in our own or in the race's history; just as there are parts of our bodies, and processes which go on in our bodies, which seem of little or no use to us at present, but still repeat themselves nevertheless, coming up generation after generation, often as necessary steps leading up to our fully developed structure.

I am afraid, however, that I have not left myself space to do more than refer to those most interesting characters of dreams, which, while they still farther estrange them from our waking thought, suggest even more definitely some kind of regression or reversion in sleep to primitive racial conditions. Not only do primitive desires revive, which after all are still present with us in some shape or other in waking life, though we may not recognise them, but there is a suggestion that primitive ways of thinking and primitive ways of expressing thought may revive also. Consider, for example, the way in which our dreams unconsciously confuse resemblance with identity. Let two persons resemble each other in some respect which has an interest for us, and in our dreams we substitute the one for the other and treat the substitute as we would treat the original. Compare with this a magic practice common in the past: the making of a little figure to represent

your enemy. You stuck pins into such a figure, heated it before the fire, and so on, and you expected or hoped that disease or death would follow in the person whom the figure represented, because of the resemblance. Or again, a young child will sometimes develop the habit of throwing things out of the window when there is a person in the household of whom he wishes to get rid. I do not say that it is always for this reason, but it would seem that it sometimes is. After all, the impulse to symbolic actions of this kind is not altogether unknown among grown people.

In this connection the frequent occurrence of parallels between dreams and the behaviour of children, dreams and superstitions, dreams and fairy-tales, dreams and myths, raises questions of great interest, though we cannot say that we have got the right answers yet. Freud first pointed out that there are symbols, ways of representing ideas, or unconscious connections between ideas, which are found in the dreams of different nations, and not only in dreams, but in myths, legends, and the structure of languages. These universal symbols, as we may call them, seem at first sight so inexplicable, and some of them are so odd, that one is inclined at first to doubt their existence; but experience obliges us to recognise that they do exist. The symbols in question seem connected in the main with three great human interests: birth, death, and the attraction between the sexes. To this day births, deaths and marriages are the three private events which we all put on public record. In dreams there are many symbols of this kind in the special case of the sexual relation, but in the case of birth and death the symbols are fewer and more simple. Take birth, for example.

"Birth," says Freud, "is almost regularly represented by some reference to water: either one plunges into the water or climbs out of it, or is rescued from it." This is curious enough—not that there is no connection between the ideas, but that this connection should be picked out in dreams—but we can note the same association, not only in dreams, but in art and poetry, and in the myths and legends of long ago. When Whitman writes a poem about the sea he calls it "Out of the Cradle Endlessly Rocking," and he speaks of the sea both in this and another poem as "The fierce old mother endlessly crying." One remembers the French picture, "*La Source*," a girl holding a pitcher of water on her shoulder. In the heroic legends the hero's story often begins, as Freud points out, with exposure in the water and rescue from the water, as in the case of *Œdipus the Greek* or *Moses the Hebrew hero*. In mythology *Venus* is born from the sea. Perhaps these examples are enough to show the sort of parallelism which obtains in the case of certain dream-symbols, but they are by no means the only ones which could be given. Most of us do not think in biblical symbolism when we are awake, and yet we do in our sleep, where the

image of a house or part of a house is a common symbol for the human body. Perhaps the most striking thing about these symbols is their seeming occurrence in the dreams of young children.

Their origin is still unsettled. The question is whether they are a consequence of the uniformities of human experience, acquired therefore by different people in the course of their lives, or whether they are, in some sense, inherited. Freud, as I understand him, for his language is not always clear, believes that they are inherited.¹ His experience is large and his opinion is entitled to respect. But most people would hesitate, probably, to accept this view, before other explanations have definitely failed. We must admit that as yet we have not fathomed all the recesses of our dreams.

¹ "Not alone have all land animals . . . developed out of water animals . . . but every single mammal, every human being, has lived the first part of his existence in the water. . . . I do not wish to maintain that the dreamer knows this; on the contrary I hold that he does not need to know." (Introduction to *Psycho-analysis*, p. 132.)

THE PSYCHOLOGY OF EXPLORATION

BY MAJOR R. E. PRIESTLEY

[Psychology, like other biological sciences, derives its material largely from observing the reactions of abnormal individuals in ordinary environments, but the behaviour of normal individuals under exceptional conditions is not less instructive. The recent war provided us with abundance of material of the first variety, whereas observations of the second type are far rarer and more difficult to obtain. This lends especial interest to Major Priestley's unique account of the effects of Antarctic hardships on the minds of his fellow explorers.—EDITOR.]

PART I.—ANTARCTIC

FOR the convenient study of the character reactions of a modern Antarctic expedition, it appears desirable to divide the expedition up into several distinct phases. Starting with what is the real beginning of the adventure, these may be tabulated as follows :

- (a) The voyage south from civilisation.
- (b) Winter and summer at winter quarters.
- (c) Spring and summer sledging.
- (d) The catastrophic phase. (May or may not occur.)

The arrival of the expedition in truly Antarctic seas is signalised by the passage through the "pack," an ice-girdle which surrounds the South Polar continent in about the latitude of the Antarctic circle and which is formed of the sea ice of preceding winters with a liberal admixture of icebergs. Of this little need be said until the consideration of the catastrophic phase of the expedition. One's initial experience of it is pure joy. The change from the stormy Southern Ocean and the blustering westerlies to the calm sea and bright weather of the Antarctic summer serves but to renew and to intensify a feeling of exaltation, first engendered by the fervency of the send-off from New Zealand and now raised from height to height by a combination of exhilarating climate and the approach to new land. This is one of the "heights" of a polar voyage, when all one's comrades are one's bosom friends, and when every single experience is viewed through rose-coloured spectacles.

Once the pack is passed the opportunity comes to translate this fervour, born of high resolve and anticipation, into the ordinary coin of hard work. Landing days are few, even in the Antarctic summer, and a week or two of twenty to twenty-four hour days shatters all trade union rules and brings to earth some of the least well-fitted of the ship's company. I have seen a man so exhausted that he slept head down, with his legs going up and down, up and down, on the cross-head of the piston of the ship's engine. I have trodden on the hands of another scientist who slept standing on the almost vertical gangway leading down into the engine-room. A muttered curse and a slight change of position was the only result in the latter case: in the former, I was myself too utterly tired to adjust the legs to a less fantastic and uncomfortable position. I have myself slept extended at full length in a gangway in which some three to four inches of slushy water washed about, and have remained supine—literally too tired to move—while one after another of my comrades have stumbled over me on their way in or out of the filthy hole which served us as a cabin.

In this phase an expedition has, at the outset of its Antarctic life, a good example of the periods of intense labour, followed by untrammelled relaxation, which are a characteristic of a good part of its stay on the polar continent. Nowhere does contrast play such a dominant part in characterising environment. It is to this contrast, I believe, that half the fascination of polar exploration is due, and I shall have more to say of this later.

Normal winter and summer life at headquarters in a modern expedition show very many fewer points of interest in the present connection than did the same life in former times. It has been lifted almost out of the plane of the unusual. The outfitting of expeditions has progressively improved. Scurvy has disappeared as a menace to comfortably housed and scientifically-fed communities. A good library; a sufficiency of work; a community of interests; a variety of experience; a considerable but elastic measure of discipline, combine to render the polar winter increasingly ordinary. The weakness of an empirical method still largely indulged in in selecting explorers, occasionally betrays itself in the formation of cliques or in individual outbreaks, but the strain is not great and these are decidedly the exception and not the rule.

One's conscious life is normal and one's dreams are much as they are at home. This latter fact is interesting in view of what may happen under different circumstances.

The Antarctic winter, while it is mollified so much by the comforts of the modern explorer, is itself nevertheless a dominating feature of environment which deserves more notice than I have time to give it. The frequent blizzards with their gusts of over one hundred miles an hour; the frigid temperatures which reached in our experience no

less than 109° of frost ; the weird scintillations of the *Aurora Australis* lighting up an otherwise pitch-black night, are all factors to be reckoned with when man is exposed directly to their influence. Normally, however, work outside is confined mainly to the scientist who can, at any rate, make believe to himself that he can explain every weird light he sees and every strange sound he hears. I have, however, myself been impressed against my will and my reason by the sighing and sobbing of the ice-pack and the gurglings, blowings and snortings, mayhap of seals, perhaps of more obscure origin. It is told of quite recent expeditions that sailors working in the dark have incontinently flung down their picks and shovels and have refused to leave the ship again without companions. This has not happened within my own experience, but I can well believe it. The effect under sterner conditions when things have gone awry must be immensely reinforced, and it is likely that this factor plays a potent part in the inception of the peculiar madness which has played a major or a minor part in most expeditions that have undergone hard times.

Summer at winter quarters may be passed over in very short order. This season is usually occupied in the sledging which forms the subject of my next section. For those who remain behind with specific tasks, for which they are fitted by experience and temperament, the Antarctic summer is a period of pure pleasure. The strain of the winter—such as it was—is over, and the absence of their companions is as yet quite normal and according to plan. A varied animal life adds to their interests, and the psychology of the penguin in particular is an absorbing study to more than the official zoologist.

The isolation of a whole expedition from the rest of mankind in itself makes it a fruitful field for the trained psychologist. If this is admitted, it will probably be agreed that the problem of dealing with the reactions affecting the small sledge party of three to six men will be still more interesting because more simple.

The composition of the party is usually somewhat standardised, the essentials of a small geographical sledge team being a navigator, a scientific observer, and a "handy" man who can keep the essential gear in order. In some cases the combination of the first two qualifications in one personality will leave room for the inclusion of two men chosen for their more general suitability. In other cases, men take their place in the party by right of some specialist qualification, as for instance, dog-driving, horse-mastership, ski-ing, or even art.

In no way is leadership better shown than in the selection of the individual sledge teams. Certain essentials must be complied with, as hinted above, but, given the satisfaction of these, good leadership will be shown in the arrangement of the teams in terms of temperament and association.

Compatibility is as essential in a sledge team as in the case of a marriage-partnership. The result of incompatibility is certain to be constant friction. That of marked incompatibility is likely to be sudden death, a worse contingency by far than divorce, and one that is irrevocable. It is here that a wise leader may make some use of the cliques which, if they have existed, have hitherto been a thorn in his side. Not only will the members of such natural coteries be likely to agree, but a healthy rivalry may convert a source of danger into an element likely to assist to achieve success. The desire to prove equal in physical prowess and endurance to jealously-regarded rivals will spur many men on to unexpected

feats, while in a party of bosom friends the slack trace is unlikely to be seen and will be least likely to be imagined.

The special factors of the environment of a sledging party which are most likely to bear hardly upon its members are perhaps as follows :

- (1) Sledging hunger and occasionally thirst.
- (2) Lack of sleep due to the intense cold of winter or spring sledging.
- (3) Monotony of colour, of occupation and of companionship.
- (4) The gruelling nature of the work. (Man-sledging only.)
- (5) The impossibility of getting away from one's companions.
- (6) The dangers peculiar to particular types of sledging.

There are many lesser factors which enter into the equation of life under sledging conditions, but each of the above have some effect upon the conscious life of the individual, while the first in particular reacts upon his sub-conscious self and finds vivid expression in his dreams.

First in order I have placed "hunger and thirst." Not because they are necessarily of primary importance, but because their effects are perhaps best known from the published records and because they are comparatively uncomplicated by other factors. Sledging hunger is an entirely different thing from starvation. Its immediate effects are usually far more painful; and I speak from experience, having suffered from both on more than one occasion. The ration issued to sledging parties may be considered ample for all necessities. It is regular and its physiological effect is, I believe, as perfect as the effect of any known ration may be. It is well-balanced, having its due proportion of fats, sugars, other carbohydrates, and proteins. Yet, after the first few days, it leaves the man-hauling party with a craving which nothing can allay but the next meal and that but for all too short a time. The effect of this hunger upon the waking mind is to concentrate the thoughts upon every variety of savoury food that the individual has known. Its effect in sleep is to lead to a succession of food dreams which carry the dreamer from one paradise of the gourmand to another, until he awakes to find the craving for food almost unbearable. The normally constituted party talk food, think food, dream food. Jealous eyes watch every crumb of the ration which falls to the floor. The most unsavoury morsel, covered with filth, embedded in hairs from a debilitated sleeping-bag, is watched with the eager solicitude of a dog for a bone. No unusual titbit can be safely distributed without an informal ballot. The cook who "whacks" out the food is an object of suspicion to all ill-regulated minds.

While the craving for food is characteristic of all prolonged sledge journeys, especially those most gruelling journeys when sledges are propelled by man-haulage, the effects of the lack of sleep which is a feature of journeys carried out in the intense cold of spring and winter are, if anything, still more exasperating and are certainly more debilitating. With temperatures far below zero (the normal temperature of spring and autumn sledging ranges from -20° F. to -60° F., while extremes down to -77° F. have been experienced) the degree of cold is in itself sufficient to ensure that, during the daytime, a man is never comfortable except when in harness assisting to drag his sledge. At night, he is toggled down in his bag with the reindeer flaps turned over and the possibility of undisturbed sleep rapidly disappears with the accumulation of the moisture from his breath and of the daily increment of perspiration drawn by the heat of his body from his clothes into his sleeping bag. A reindeer bag weighing 12 lbs. at the outset of a journey may reach a weight of 28 lbs. by the return, three weeks later. All the moisture has to be thawed out and brought somewhere near body temperature before sleep is possible. One has dozed off for a few minutes only—or so it appears—when the voice of one's leader announces that it is time to start the next day's trek. After a few weeks of such hardship a party of men in the prime of life will return haggard and worn, with faces lined like old men. The effect on the temperaments of the men concerned is such that the careful choice of parties for spring sledging is one of the most important duties of the leader of an expedition. Very few men would, I believe, have returned alive from that most terrible of all Antarctic

winter sledging trips, the journey to Cape Crozier in Scott's last expedition. Many men might have been physically more capable than at least two of the members of the party. It would, however, have been difficult to find a team of three so temperamentally suited as to have withstood such an unparalleled strain. It is a fact that only the best-constituted parties can stand a prolonged spell either of Barrier or Plateau, or of spring or winter sledging without asperity and discord.

The third factor enumerated above—monotony of colour, of occupation, and of companionship—is particularly accentuated when, as in Barrier or Plateau travelling, nothing of outstanding interest is seen to attract the eye, or occurs to draw the attention, for many days together. Sledging along a new coast or up a new glacier provides so much fresh material of absorbing interest each day that monotony of companionship is to some extent relieved. Indeed, if things happen fast enough and there is enough incident, one's own character and that of one's companions reacts to some extent to the changing environment. Diversity in one's surroundings is thus reflected in an equally pleasing diversity in the temperaments of the party. If monotony does persist to such a degree as to have a noticeable effect it will make itself felt in a tendency to become taciturn; to be intolerant of otherwise harmless waggyery; and to easy irritation and prolonged moodiness.

On a particular winter journey without sun, with a nagging wind and a low temperature, I can well remember conditions being such that, despite the fact that all the members of the party were close friends, conversation was practically tabooed all the forenoon. It was not until after the stimulating drink of tea in the middle of the day that any raillery became safe. Remarks during the morning were confined to a caustic and muttered commentary on the wind, the sledge runners, the surface temperature, anything, in fact, but one's companions. It was spring sledging which first taught me to swear; and I honestly believe that pungency of language as the only apparent safety valve for a temper frayed beyond ordinary words had a distinct use.

It is not only hardship, however, that may produce this extraordinary irritation. A long, apparently endless pull towards a miraged cliff has had a similar blighting effect on otherwise sunny characters. I remember one never-to-be-forgotten trek towards the Nordenskjöld Ice Tongue, the cliff of which was miraged up to appear about a mile and a half away. Hour after hour we pulled at a steady one and a half to two miles per hour and further and further away did the cliff appear to recede. Perspiration streamed off our faces, for we were over-exerting ourselves from sheer exasperation. Finally, the party was forced to camp without reaching its objective. As camp was pitched, the cliff and snowdrifts looked no more than a few hundred yards away; so near that one was tempted to go to it to gather ice for the cooker. We broke camp at six the following morning but did not reach the ice tongue until 4 p.m.

That second day's journey nearly dissolved the party altogether. Had it not been composed of men who for two years had been tried together under the harshest circumstances, the day could not have passed without serious trouble. It is a well-known truism of polar exploration that, apart altogether from mirage effects, miscalculation of distances is a definite danger to be carefully guarded against. The psychological effect of this on a sledge party is undoubted, for nothing is so fraying to the temper as the failure to arrive at an objective apparently within reasonable distance. Altogether different from these experiences, however, there is a marked tendency toward illusions in any sledge party that has been extended to the limit either of its physical or mental strength for some considerable time. Space permits of the citation of only two such cases here.

During the last Scott expedition a party was sitting in a tent eating a meal when one of its members exclaimed: "Why, there is the dog team coming out to meet us." One after another of his companions looked out and verified his statement. The team was quite clearly a long way off so they continued their meal, hastening as much as possible to be ready to greet the new arrivals. From

time to time a glance outside showed the team still approaching at a rapid run, but strangely not appearing any larger. At last Captain Scott stepped out of the tent and at once, to his surprise, lost sight of the approaching team. His companions could not understand for they still saw it as plainly as ever. One after another tried the test and found the vision vanish as he left the tent. This caused close examination of the surroundings and the fact on which the illusion was based was found to be a little scrap of black film paper torn from a film pack and fluttering between two of the blocks of the skirting of the tent itself. It was one of the "grey" Barrier days without definite horizon, and the incident is quite typical of many similar occurrences to parties similarly strained by several weeks of hard sledging under severe conditions and with disappointing results.

My second example is one from my own personal experience. The Northern party of the same expedition, after a winter of terrible privation, was making its way along the coast in the direction of the main party's base at MacMurdo Sound. For months the thoughts of the whole party had been mainly concentrated on the possibility of relief; the fate of the *Terra Nova* and of the Southern party; and latterly especially, of the meeting which we hoped might take place any day. No one was met with during the two hundred miles or more of the coastal trek, but, on November —, when crossing MacMurdo Sound, one of the sailors reported a sledge party approaching from the direction of Hut Point. Campbell and I walked rapidly towards the party when suddenly its leader drew aside and commenced to semaphore vigorously. We could neither of us make out anything more than disjointed letters, but at Campbell's request I endeavoured to establish communication. The signaller, however, appeared to be quite demented and we soon gave up our attempt and endeavoured to close with the party by walking. As we approached we grew more and more doubtful of their identity, and finally they proved to be emperor penguins. Our desire for relief, and, perhaps, some mirage, had converted a small body of four emperors into a perfect facsimile of a sledge party. It was not the first time this had happened, for a similar incident in mid-winter had led to most acute disappointment. None the less, this did not make the second occasion less exasperating; while it appears certain to me that had it not been for a predisposition to believe all objects other than veritable ice or snowblocks to be what we most wished to see, we should have suspected the true nature of the group much before we did. From this misconception of familiar objects it is not a far step to hallucinations which have no physical basis, and such hallucinations are a characteristic of the mental trouble of which one or more examples have occurred in many polar expeditions.

The effect of the gruelling nature of the work in a man-hauling party is seen mainly in one particular hallucination which must have affected pretty nearly all "man-sledgers" at one time or another. This is, the obsession that one is doing all the work oneself and that one's companions are "slacking on the trace." It is a somewhat ignoble confession, but I know I have had it myself and in the moments of confidence which come sometimes to friends I have discovered that it is sufficiently general to be called a rule. Nothing can be more disastrous for a party than for this suspicion to be based on fact, but this is seldom the case. The feeling is, however, nearly always existent and requires a real fight to be made against it. I have felt it about other people; I have no doubt others have had the same unreasoning suspicion about me. It occurs in spite of the reasoned appreciation each may possess of the other's sterling character, tested again and again in periods both of emergency and routine. A well-balanced mind can reason it away, but while hard sledging continues it will recur again and again.

My fourth heading, the fact that one cannot cast off one's companions of the journey, is peculiar in that it is the opposite of the factor of loneliness which one would expect to play so great a part in Antarctic work. In point of fact, loneliness and homesickness are two things which never affected me during either expedition. I believe that to be the general experience with the exception of isolated examples. Closer examination of the facts of a sledging expedition, especially of a party man-hauling over dangerous country, will bring to light very good reasons why one should wish for temporary loneliness at almost any cost.

Imagine a party of three men, friends though they be, roped together to a refractory sledge on a damnable surface all day ; lying cheek by jowl in neighbouring sleeping bags or even in the same sleeping bag at night. In polar regions it is an almost nightly routine for each man of the party to require to urinate at least once in the night. If the country is very badly crevassed, each man must be let out on a rope or a companion must accompany him. If a geologist wishes to examine a specimen off the line of march, he must needs take two possibly unwilling sailors with him. If a navigator wishes to take a round of angles he must either rope himself to a sledge or keep back a chafing scientist to help him. If the cook wants snow he dare not dig without being tied to something or somebody. This is an extreme case, but the writer has sledged over snow-covered crevassed country where such precautions were not only desirable but necessary.

Finally, of the factors chosen for illustration, there remains the effect of the dangers of sledging. Two notable ones are the unexpected break-up of sea ice and crevasses. Here we pass over imperceptibly into the next phase of an expedition—the catastrophic phase. The particular dangers mentioned have, however, features of interest because they are encountered on sledging trips. The break-up of sea ice can be considered with comparative equanimity if one has by one any sort of apology for a boat. In many cases, however, no boat has been available. One may be cited as an ideal example of the sharp contrasts which make life peculiarly worth living in the Antarctic. For twenty-four hours three men were adrift on a floe. Two of them already not on too good terms ; one labouring under the responsibility of having made a weak decision which had needlessly set the party adrift. Mutual recriminations might justly have been expected but this is just what did not happen. Even the playful attentions of killer whales attempting to break up the floe were treated with a somewhat dour complacency. It was a very unpleasant, an exceedingly unpleasant, twenty-four hours, but the generalisation that it is not the tragic, but the trivial, which causes the greatest soul wear and tear, held good. Actually when the floe touched shore after its twenty-four hours wandering, at least one member of the party was sound asleep. The impulse to spend the end of their lives rushing about like rabbits in a trap *had* appeared but had been promptly repressed. The repression was more than rewarded by the fortunate fact that the ice finally touched shore within 150 yards of the spot on which the tent was pitched.

As regards crevasses, there is little to say except that, while they give one a cold sensation down the spine at first, one soon gets absolutely used to them. Crevasse-tumbling is a harmless luxury while Alpine rope is good and plentiful. In its absence they are a danger unsurpassed in the Antarctic. With bad luck they may be dangerous in any case. Psychologically they have little effect except, perhaps, in inducing a certain nervousness which is curiously correlated with a continual and restrained attempt to walk as lightly as possible over dangerous areas. The writer has on occasion dreamt of falling down crevasses but such dreams have ousted the more common sensation of falling from a height, which is a normal experience of childhood days.

Perhaps the most interesting of all the reactions between the Antarctic environment and the temperament of the explorer occurs during the catastrophic period of expeditions. For the sake of clearness, this heading also needs subdivision as there are several possible types of catastrophe worthy of separate consideration. Thus we have :

- (1) The detention or loss of the ship in pack ice.
- (2) Catastrophes affecting individual sledge parties.
 - (a) The starvation of an inland sledge party.
 - (b) The marooning of a portion of an expedition with inadequate resources on an unknown coast.
- (3) Polar madness generally.

The first case cited—the detention or loss of the ship in the pack—is unique in its psychological effects in that it involves the whole expedition. This is particularly so because, as all Antarctic explorers will admit, while much care is given and thought expended on the selection of members of a shore party, this is not always the case to the same degree with the crew. Nowadays, the normal *rôle* of the expedition ship is to transport the party to the south; establish them in winter quarters; perhaps land subsidiary parties, and then return. The Antarctic summer cruise is a relaxation after the more stormy work in the zone of the westerlies and no particular strain on the crew is entailed except in the rather infrequent blizzards.

A far different state of affairs exists, however, when the ship also is detained, often under peculiarly unfortunate circumstances. The monotony of existence while held up in the pack is very trying to the best constituted characters. It implies, in the Antarctic at least, the partial failure of the expedition. It searches out the weak points of those least suited to their unexpected environment. It is productive of indiscipline, irritability, physical and mental troubles of all kinds. In the least well-balanced physically, heart disease makes its appearance: in those least strong mentally, polar madness is a likely result.

Should the ship be crushed and the party be obliged to take to boats, or to improvised shelters, or snow or stone huts, all these facts are exaggerated and many casualties may be expected to occur.

A somewhat different aspect is met with in the second and third of the three catastrophes I have tabulated. The essential point common to both is that here we are dealing with picked men of the shore party. Essential differences do, however, also exist. In the one case we have a short sharp trial of strength with overwhelming natural forces which must prevail if the conflict is long enough drawn out. In the other case, we have a struggle for existence which may be prolonged almost indefinitely, growing more acute for some considerable time, but possibly, as the human frame and intelligence adjust themselves to new conditions, becoming somewhat ameliorated in the end. The difference is crystallised in the fact that the inland party is dependent entirely on the food it carries with it; while the coastal party has usually a good chance of living on the country in which it is marooned.

It is not necessary to deal at any length with the first case. The experience and the glorious death of Scott and his companions is well known from the publication of the former's diary in narrative form. The diaries of the other members of the party merely serve to fill out details without in any way contradicting the independent testimony of the leader. The story stands perhaps as the most rounded and outstanding example of the heights to which the human mind and character can rise in a party carefully selected and bound together by ties of affection and respect, and led by a leader of sterling character and lofty

ideals. Emphasis need only be laid on the fact that there is no camouflage whatever about the story, for none was necessary. The private record of the members of the party are an unvarying tribute to the self-sacrifice of their companions. Until the end, mind triumphed over matter to an extent seldom attained in the everyday happenings of an imperfect world.

An equally interesting example of the third type of catastrophe came within the writer's personal experience in the marooning of the northern party of the same expedition at Terra Nova Bay. Here a party of six men, who had not passed the preceding summer in absolute harmony (though the rifts were very small and over trivial things), were faced with a winter quite unparalleled in the history of Antarctic exploration. The thing most worth emphasising as regards our life was the fact that the situation was taken in hand as soon as it was quite certain that we could not be relieved. A conscious decision was then made which contributed greatly towards the ultimate salvation of the party. Life for six months was to be lived in a land afflicted with a continuous blizzard; in a snow hut which could not be kept above freezing-point through lack of fuel; on less than half-rations of monotonous food; and with a minimum of light. Day after day would be spent lying in sleeping bags with nothing to do but brood over our prospects, or rather lack of prospects, unless we consciously endeavoured to lift our lives on to a higher mental plane. The prospect was disquieting, especially in the light of the slight lack of harmony which had already prevailed under easier conditions.

At the end of February, when all hope of being released was given up, a conference of the three officers concerned was held. At the conference four things of moment were resolved:

First, "destroyer" discipline, the hard-times discipline of the Navy, was to be maintained. This was essential, in view of the fact that half the party consisted of long-service naval seamen with their somewhat circumscribed and crystallised outlook upon life. Secondly, it was decided that, whatever happened, nothing should be allowed to cause differences of opinion to arise visibly between the three officers. The leader agreed to discuss frankly all vital, and—just as important—all apparently trivial questions: his subordinates to carry out his final decisions wholeheartedly. Thirdly, the food was placed definitely in the care of the man considered best suited for the purpose. Fourthly, the men were given half of the cave as their "mess deck" and, though it was impossible for the officers not to overhear, they were given free right and privilege to say anything they liked within these territorial limits. As the dimensions of the hut were 12 feet by 9 feet by 5½ feet, it can be imagined that this last was somewhat of an experiment, but, in the event, it worked perfectly. Discussion of naval officers was confined to past ships only, though possibly comparisons were intended

to be drawn on some occasions. Of this fact I am certain, that the things they heard during the next few months must have considerably added to the fitness of both the naval officers concerned for the posts of command they were subsequently to hold.

Time will not permit of a full discussion of the reactions of temperament during the winter, nor for the recital of the means by which the mental tone of the party was kept throughout at quite a high standard. The all-important point is that never, from the time of the conscious resolve, did a cross word pass between any two members of the party either during the winter or afterwards. As an experiment, the policy of facing the facts was absolutely successful. Our experience proved definitely and finally to my mind that it is in the trivial things of life that the danger of the clash of temperaments arises. Once a courageous decision is taken and the facts looked full in the face, any great emergency can be overcome. The means taken to overcome it are likely at the same time to sweep aside the host of petty annoyances which might otherwise cause the utter self-destruction of such an isolated party.

One other aspect of the winter life, of interest, was the effect of environment upon the dream life of the party. The lessons of our conscious life were as recited above, but it is from our dream experiences that it seems possible to gather the dominant effects of environment upon the temperament and mind. The outstanding features of our dream life were dreams about food, relief, and disaster to our companions. So animal is man's nature that the first was undoubtedly the dominant theme. We were half-starved for months on end and once again our thoughts ran mainly upon food. There were, however, some interesting facts that were new to me. To begin with, for the first time, a new type of dream began to haunt us all. To take my own case, which was quite typical, I would dream that I was lying awake hungry, when suddenly would come the realisation that at the back of the hill in the lee of which our snowdrift home was situated, there was a confectioner's shop. I would get up, dress rapidly (cursing myself for a congenital idiot all the time for not remembering this before) and hurry out and round the bluff. The painful process of crawling in haste along the dark, narrow and low tunnel which formed the only medium of access to the open air was always particularly vivid. On arriving at the other side there was the shop sure enough, but, to my chagrin, it was early-closing day and after one o'clock in the afternoon. The shop was closed. The same dream appeared to one after another of the party; but in the case of the smokers it was varied by the substitution of tobacco and matches for food. In all cases, also, so far as my recollection goes, the day varied according to the particular early-closing day of the town from which the individual hailed.

The retailing of our dreams became one of our few relaxations, and hereby hangs a curious study of temperament. Two members of the party were much more lethargic in temperament than the other four. It is an interesting fact that whereas the remaining four of us dreamt continually that the board was laid for meals and then woke up, these two men again and again achieved the subconscious realisation of their desires. Whether it was an afternoon tea, a snack at a fried-fish counter, or a twelve-course City Company dinner, they went solidly through the menu and could describe it with gusto afterwards. This fact was in danger of becoming a grievance with the rest of us, for we had to take hold of ourselves and reason ourselves out of the idea that they were taking an unfair advantage of us. The "quid pro quo" we felt would be to reduce their rations accordingly.

Space will not permit of a close analysis of the other two types of dreams referred to. Their frequency of occurrence is not, however, surprising. Relief was not likely, but there were combinations of circumstances under which it was conceivable that a relief party might have reached us. It was very natural that we should cudgel our brains to think of any such possible situations. Indeed, on one occasion, the arrival of a party of emperors walking in file as a sledge party might do, led to very pleasurable anticipations. The dreams about disaster to other parts of the expedition were the most poignant of all. By a curious chance, at the time when we were waiting for relief there was no pack ice in sight, the belt which held up the ship on her three attempts being out of sight from the elevation from which we watched. Without disaster of some kind it was difficult to account for her absence. Our thoughts ranged from one disaster to another until, wisely, both discussion and thought on this subject were tacitly tabooed. One other curious feature was that—as far as my recollections go—no single one of us ever thought seriously of, or dreamt of, disaster to the polar party.

Finally, before closing the subject, short reference should be made to that very real danger to the polar expedition, the peculiar mental trouble which might perhaps best be called "polar" madness. It is a well-established fact that men mentally unsuited for polar exploration are liable to suffer from temporary mental aberration either during or immediately after an expedition. Cases have occurred in nearly all recent expeditions where real hardships have been incurred. The most extraordinary hallucinations afflict the patient and for the time being he is quite irresponsible. It is a merciful fact that this aberration is apparently temporary only, though in extreme cases it may last for months and even years. One factor worth mentioning is that it appears to be the most inelastic temperaments and minds that succumb. The higher strung and more sensitive the organisation, the better it will withstand extraordinary strain.

CRIMINAL RESPONSIBILITY AND INSANITY

BY E. PRIDEAUX, M.D.

THE question of criminal responsibility and insanity does not appear to have been seriously raised until the end of the eighteenth century, when public opinion, stimulated by the teaching of Pinel, was awakening to the demand for a revolution in the whole treatment of insanity. Before this time, quite irrespective of crime, those who were recognised as insane were compelled to endure all "the horrors of the harshest imprisonment; blows, bleeding and chains were their usual treatment"¹; and horrible accounts have been given of madmen who had to spend the rest of their days bound down in the dark cells of the old madhouses. Earlier still many thousands of insane persons, unrecognised as such, were burnt as witches, and the stories of their trials are amongst the most humiliating memorials of our history. The condemnation of these wretches was eagerly sanctioned by the wisest men of the day, amongst others "by so learned and distinguished a judge as Sir Matthew Hale, and a not less learned and distinguished physician, Sir Thomas Browne, so late as the year 1662."² The particular reasons which Sir Matthew Hale gave for his judgment on the occasion of condemning to death the last two women who were executed for bewitching children in England have a general and lasting interest, for they seem to have been accepted as rational statements by the men of that time and are good examples of what we now call "rationalisation." "That there were such creatures as witches he made no doubt at all; for first the Scriptures had affirmed so much; secondly the wisdom of all nations had provided laws against such persons, which is an argument of their confidence of such crime." A third reason which had its weight in determining the verdict was the statement of Sir Thomas Browne,³ who was clearly of opinion "that the persons were bewitched; that in Denmark there had lately been a great discovery of witches, who used the very same way of afflicting persons."

During the eighteenth century the criterion for responsibility was that laid down by Mr. Justice Tracey in 1724, to the effect that no

¹ W. E. H. Lecky, *History of European Morals*, Vol. II., p. 38.

² H. Maudsley, *Natural Causes and Supernatural Seemings*, 3rd edn. (1897), p. 49.

³ Cf. Sir Thomas Browne, *Religio Medici*: "For my part, I have ever believed, and do now know, that there are witches."

person was exempt from punishment unless he was so deprived of intellect that he did not know what he was doing any more than "an infant, a brute, or a wild beast."

In 1800, just about the time that an agitation was being made as to the treatment of insanity, one Hadfield, who, as Mercier puts it, "was so unquestionably and deeply insane that his punishment would have revolted the consciences of men,"¹ was charged with high treason, in that he fired a loaded horse-pistol at George III. Possibly owing to the enlightenment of public opinion, the "epoch-making speech of Erskine" in defence had so great an effect that Hadfield was acquitted, on the ground that he had not the faculty of knowing right from wrong, notwithstanding the fact, as Sir F. J. Stephen has shown, that Hadfield clearly knew the nature and quality of his act. He also knew that it was wrong, for the very object for which he did it was that he might be put to death in order that the world might be saved.

In 1843 attention was again called to the question of responsibility as the result of the acquittal of Daniel McNaughton on the grounds of insanity. McNaughton, who suffered from the form of insanity known as paranoia, had shot the private secretary of Sir Robert Peel, in mistake for the Prime Minister himself, in order to call attention to the system of persecution which in consequence of his delusion he thought was being directed against him. McNaughton's acquittal evoked considerable excitement and dissatisfaction and formed a subject for debate in the House of Lords. It was as a result of this debate that the fifteen judges were asked to formulate answers to certain abstract questions set them by the Lords relating to the law respecting alleged crimes committed by persons afflicted with insane delusions. These answers followed the ruling laid down in the Hadfield case, except that they were more explicit and limited the "knowing right from wrong" to the particular act committed. They have been given as the most authoritative exposition of the Common Law relating to exemption of responsibility on the grounds of insanity ever since.

Sir F. J. Stephen proposed that the law based on these answers actually is as follows: "No act is a crime if the person who does it is at the time when it is done prevented (either by defective mental power or) by any disease affecting the mind (a) from knowing the nature and quality of his act, or (b) from knowing that the act is wrong. But an act may be a crime although the mind of the person who does it is affected by disease, if such disease does not in fact produce upon his mind one or other of the effects above mentioned in reference to that act." Sir F. J. Stephen would also have liked to add to the above-mentioned effects another: "(c) prevented from controlling his own conduct, unless the absence of the power of control has been produced

¹ C. Mercier, *Criminal Responsibility*, 1905, p. 186.

by his own default," although, as he admitted, this interpretation is a doubtful one; but such an interpretation does not appear to have been adopted, at any rate theoretically, by other judges.

The law based on these doctrines is recognised by all legal and medical authorities as having serious defects, and in regard to it Dr. Nicholson writes: "The dictum is not a satisfactory one, and if it were insisted upon to the bitter end it would have been the means of hanging more than half the women and many men now in Broadmoor as criminal lunatics."¹ Moreover, Mercier has pointed out that the answers formulated by the judges are not answers in reply to the questions asked by the House of Lords. The questions asked dealt with "persons afflicted with insane delusion" and the answers given dealt with persons who "labour under such partial delusions only and are not in other respects insane." It must be remembered that at the time these answers were formulated a person was only considered insane if he suffered from a delusion. In those days delusion and insanity were almost synonymous terms. We now know that a delusion is only a symptom of a deep-seated disorder—insanity—and it is more correct to say that a person has a delusion because he is insane than to say that a person is insane because he has a delusion. So that, as Mercier says, "there is not and there never has been a person who labours under partial delusions only and is not in other respects insane."² These answers, therefore, if strictly interpreted, exclude from their scope all insane persons whatsoever, and admittedly are only meant to refer to a small class of insane persons, those suffering from delusions. This criticism is the gist of the whole matter. "This is the pith and marrow of the objection which medical men have from time to time taken to the law as expressed by the judges." It is upon the assumption that a person can be deluded without being in other respects insane that insanity is regarded by the judges simply as some particular deficiency of intellect and not a disorder of the entire mind. And if we take it, as in practice it has been taken, that the law applies to all cases of insanity, then it is necessary to understand the legal interpretation, if there is one, of the word "know." To establish a defence on the ground of insanity it must be proved "that at the time of committing the act the accused was suffering from such defect of reason from disease of the mind as not to *know* the nature and quality of the act he was doing, or if he did *know* it, that he did not *know* he was doing what was wrong." Now this criterion, as interpreted by medical men, is based on a radically wrong conception of insanity. It did not even apply to the Hadfield case, and if it were now used as a basis for the certification of insane persons our mental

¹ Allbutt's *System of Medicine*, 2nd. edn. (1911), Vol. VIII., p. 1038.

² *Criminal Responsibility*, p. 176.

hospitals would be almost empty. Moreover, it does not allow for the fact that a person's judgment may be just so much at fault that, although that person may know that he is doing wrong, he does not know how wrong. "It is a truth," says Mercier, "on which I have insisted in season and out of season for many years, that a man may know that his act is wrong without knowing how wrong it is."¹ Sir F. J. Stephen instances the case of the idiot who cut off the head of a man whom he found asleep, remarking that it would be great fun to see him look for it when he woke; and adds, "Nothing is more probable than that the idiot would know that people in authority would not approve of this, that it was wrong in the sense in which it is wrong in a child not to learn its lesson, and he obviously knew that it was a mischievous trick."

However, "as a practical guide," writes Sir Herbert Stephen in a recent controversy in the *Times*, "for judges and juries it has worked fairly satisfactorily ever since its adoption."² I would agree that as a practical guide it has worked fairly well, recognising either that it has been ignored when circumstances demanded, or that it has been interpreted differently in individual cases. It is the interpretation of it which is the difficulty. Some judges interpret it one way and some another, and some seem to ignore it altogether. This is well shown in the case of *Rex v. James Jefferson*, a case cited by Dr. Nicholson,³ which I will quote at some length, as it illustrates so many of the points at issue, and as it is the only case of its kind which has been thus dealt with by the Court of Criminal Appeal:

"Jefferson was tried at Leeds before Mr. Justice Bigham and three medical experts gave evidence as to his insanity. The *Times* (20th July, 1908) gives the following account of the concluding portions of the proceedings: In answer to the learned judge, they (the medical men) agreed that he knew he was killing the woman. But on the question whether he knew he was doing wrong their answers differed. Dr. Edgerley said he thought that the prisoner imagined that murdering the woman would be of some advantage to him by ridding him of a persecutor, and that this delusion would probably be so strong in his mind that all idea of right and wrong would be excluded. Dr. Exley said: 'I think he knew he was doing wrong, but I think he had no idea how wrong.' Mr. Justice Bigham directed the jury as follows on the question of insanity: 'If the prisoner knew that he was doing wrong, it does not matter that he knew how wrong. If he knew he was doing wrong, it does not matter that he suffered from delusions or hallucinations. A man commonly described as a lunatic may be as guilty of murder as any of you. You have to determine whether he knew he was doing wrong. It is for the prisoner to satisfy you by his evidence beyond all reasonable doubt.' A Juror: If there is any doubt he is not entitled to the benefit of it? Mr. Justice Bigham: No, it is the other way on; he must satisfy you beyond all reasonable doubt that he did not know he was doing wrong. The Juror: If he knew he was doing wrong but was insane, how then? Mr. Justice Bigham: If he knew he was doing wrong, it does not matter how

¹ *Criminal Responsibility*, p. 191.

² The *Times*, Dec. 11th, 1920.

³ Allbutt's *System of Medicine*, 2nd ed., Vol. VIII., 1911, p. 1039.

insane he was, he is guilty. The jury, after a retirement of one and a half hours, found the prisoner guilty, and he was sentenced to death. The case came before the Court of Criminal Appeal, and the decision arrived at was as follows :

"(From the *Times*, July 31st, 1908). Mr. Justice Lawrance, in giving judgment, said that there was no doubt that the verdict given was unsatisfactory, and in his judgment it ought not to stand. He had read the evidence given by the doctors, and it appeared that there was strong evidence called before the jury which showed that this man was not in such a state of mind as to make him responsible for his act. The verdict given being unsatisfactory, he thought they ought to say that the verdict which the jury should have returned was that the man was insane when he committed the act. The verdict would be set aside, and the order would be that the prisoner should be detained as a criminal lunatic during his Majesty's pleasure."

This is a good example of the different ways in which the law may be interpreted, for the verdict was set aside apparently without reference to the question of "knowing," though it states in the Criminal Appeal Act, 1907, s. 5 (4) that the sentence may be quashed when it appears to the Court that the person is insane so as not to be *responsible according to law* for his actions.

So far it has been necessary for me to discuss the law as it is, or has been, or as it has appeared to me to be, but I must point out that I am not competent to deal with the legal side of the problem. As Sir Frederick Pollock says, when discussing the layman's difficulties in the study of law, "He has not only to discover for himself, often with much bewilderment, the actual contents of legal terms, but to realise the legal point of view and the legal habit of mind."¹ Now my experience of the law only consists in acting for a few years as a Commissioner in one of our Crown Colonies, where the law was codified and interpretation a simple matter, so that I have never got beyond the stage of bewilderment as regards the law, and I can only claim a medical point of view and a psychological habit of mind. I am going, therefore, to approach this problem from the psychological side, but in doing so I shall have to depart from the usual methods of treating it, so that I can only express my personal views based on experience of psychological principles. These views do not as yet represent any authoritative medical opinion, but they will do so to some extent at any rate in the near future.

Now the difficulty in, and very often the cause of, most controversies is that the two parties are talking in different languages, and such is almost always the case in the conflicts between law and medicine. The lawyers are for the most part discussing legal responsibility, and the medical men are discussing moral responsibility. But as far as medicine is concerned, there can be no argument about legal responsibility. Sir F. J. Stephen states that "judges when directing juries have to do exclusively with this question—Is this person responsible

¹ F. Pollock, *A First Book of Jurisprudence*, 1896, p. 5.

in the sense of being liable, by the law of England as it is, to be punished for the act which he has done ? ” Legal responsibility is therefore a question for the judge and jury to decide ; it takes no account of the ignorance of the law, and it admits of no controversy except on points of law. Mr. Justice Bigham’s direction to the jury in the Jefferson case would appear to me, if I might be allowed to express an opinion on such a matter, to be as good an exposition of Sir F. J. Stephen’s principle as it would be possible to find.

The only question at issue is that of moral responsibility and whether the law of England as it is can be justified. “ The administration of criminal justice,” says Sir F. J. Stephen, “ is based upon morality. It is rendered possible by its general correspondence with the moral sentiments of the nation in which it exists, and if it habitually violated those sentiments in any considerable degree it would not be endured.” I think it would be more true to say that the law is actually the witting expression of the moral sentiment of the nation. The moral sentiment which has its origin in instinct and works at first unwittingly gradually assumes the nature of awareness, becomes recognised by the nation, and is eventually established as law. So that law must necessarily always be a little way behind the moral sentiment. Now there appear to be two opposite tendencies which enter into the evolution, of the moral sentiment : (a) those connected with the altruistic tendency which are entirely of an emotional character ; (b) those which are primarily connected with the egoistic tendency, and which with the development of intelligence give rise to the sense of justice. Justice, therefore, is based upon instinct and has its origin, as can be shown both historically and biologically, as a defence reaction corresponding to Dr. Rivers’ “ reaction by aggression to the danger instinct.”¹ It consists first simply of an unwitting reprisal, and as it gradually evolves it leads to an unending state of conflict, which becomes harmful to society. With the further development of intelligence, society takes upon itself the solving of the conflict, making use of intelligence as a means to this end, and thus introduces the methods of arbitration and compensation. A further step is taken in the infliction of punishment by society upon the individual who has acted in opposition to its interests, a penal code is established, and later, by a process of rationalisation, society justifies the punishment on the grounds of determent and reform.

Hence an act which is wrong is one which is injurious to society and becomes a crime, and an act which is right is one which makes for society’s well-being. But this only holds good within the society in which the moral sentiment is formed, so that what is wrong in one society may be right in another, and what is regarded as right at one

¹ W. H. R. Rivers, *Instinct and the Unconscious*, 1920, p. 54.

period of history may be considered wrong at another. So that we have differences in law and moral codes in different countries, and this is the case in the laws relating to insanity and crime. As a contrast to the law in this country, for example, it is enacted in the revised Statutes of the State of New York that "no act done by a person in a state of insanity can be punished as an offence," and the French Penal Code says "there can be no crime nor offence if the accused was in a state of insanity at the time of the act." And whereas our present law allows that children under fourteen may not be legally responsible, and that no child under sixteen may be hanged, this is only an expression of the moral sentiment of the last century, for there is a case on record of a girl aged nine being hanged as late as 1833 for stealing two-pennyworth of paint,¹ and there is the case cited by Dr. Kenny of a brother and sister, aged seven and eleven, being hanged at Lynn for felony in 1708.² And it might also be noticed that whereas during the reign of Henry VIII., lasting thirty-eight years, 72,000 criminals were executed,³ capital sentences now are a little under thirty per annum and only about half of these are actually carried out.

Crime, therefore, from its origin as an act of aggression against an individual has come now to mean an antisocial act—it is an expression of unrestrained egoism. And punishment from its origin as an unwitting reprisal is now assuming a reformatory aspect. But, however much we may revolt, as most of us do, against the terributive theory of punishment and claim with Bentham that terribution is only "a kind of collateral end," psychology shows that deterrent and reform are really secondary aims of punishment, and that deep down in the minds of all of us there is a feeling of satisfaction in revenge, which expresses itself in the popular saying that the punishment must fit the crime.

When, therefore, we say that a man is morally responsible we mean, when we have rejected rationalisation, that we feel the urge for taking revenge and are of the opinion that he ought to be punished, just as when we say that a man is a good fellow we mean that he affects us in a pleasurable way. Now this feeling is a varying attribute in each of us. It varies according to the constitution of the moral sentiment that is in us, and the moral sentiment is, as we have seen, a complex organisation of many tendencies. No longer can we scientifically recognise the old "moral sense" psychology with its conscience as a definite entity. What stands for the moral sentiment may be at the lowest stage of development nothing more than the fear of punishment—the old fear of hell and the devil—or the desire for taking revenge,

¹ A. Wilson, *Education, Personality and Crime*, 1908, p. 212.

² C. S. Kenny, *Outlines of Criminal Law*, 9th edn. (1920), p. 50.

³ W. A. Bonger, *Criminality and Economic Conditions*, 1916, p. 194.

but by a process of higher development and further integration with altruistic tendencies this eventually becomes what is known in psychology as the "moral character," that is, in the words of Professor McDougall, "the whole moral personality, a vastly complex system in which all the elements of personality work harmoniously together towards the supreme end of right conduct."¹ The moral character, then, should be the dominant factor in the hierarchy of the mind if society is to prosper, and it is this which enables us to exert what is usually spoken of as self-control and to act in accordance with the moral code. The feelings of justice which are aroused in each of us have therefore different values, and the attitude we take as to whether an offender is punishable or not probably depends for the most part on whether the egoistic or altruistic tendency is most liable to be stimulated. If the offender is a friend or a relative it is much more easy to regard him as insane and irresponsible than to hold that he is punishable. This is of course an extreme example, but modern psychology has taught us that we cannot escape altogether from such an attitude in other cases. As long as the question of responsibility depends on opinion for its solution, so long must there be a controversy in regard to it. One man may unwittingly develop his sense of justice at the expense of his altruism, and another may develop his altruism at the expense of his sense of justice. So that we find that not only is there a conflict between law and medicine as regards moral responsibility, but also that there is a considerable difference of opinion in each class amongst the lawyers and medical men themselves.

Such being the case, there is at present no alternative solution to the conflict except that of compromise, and this is never a permanent way out for either party. But is there in the future any possibility of a satisfactory solution? Can we hope to base an approbation on anything more substantial than opinion? If not, then the controversy must remain, but we should at least clearly understand the elements on which it is really founded. The answer depends on whether we shall be able to find some standard by which we can measure moral responsibility, and that has not yet been found or even attempted on definite psychological lines. But I believe it can be done, and that it will be possible in the future to find such a standard, and that we shall be able to put forward a series of "responsibility tests" much in the same way that "educability tests" and "vocational tests" have been devised on a physiological and psychological basis. There must be grades of responsibility, but they cannot be standardised by degrees of intelligence, as the law assumes, although, of course, for responsibility or moral character to be present at all there must be a certain degree

¹ The *Hibbert Journal*, Vol. XIX, No. 2, Jan., 1921: article by Prof. W. McDougall, "Is Conscience an Emotion."

of intelligence. But the mere knowing of the difference between right and wrong is of little value in itself—a child may acquire this knowledge quite early in life, without necessarily having a sufficient strength of moral character to prompt him to right conduct. It is the feeling which prompts one to action in accordance with the moral code that is essential.

As in the interval, until these tests are forthcoming, we must have some kind of standard to guide us, I presume that every person on reaching the age of sixteen¹ must be credited with a moral character of such a standard that he is able not merely to decide how far an act is right or wrong, but also to act rightly in accordance with the moral code and control his egoistic impulses. Such a presumption is necessary to escape the metaphysical problem of freewill, if we are to treat the problem scientifically and if there is such a thing as responsibility at all, and it is upon such a presumption that all our laws, education, and institutions of civilisation are founded. Freedom is possible at any rate in so far that in voluntary decision the whole self determines the choice, but at the same time this self that chooses is predetermined. As Bergson says, "What are we in fact? What is our character if not the condensation of the history that we have lived from our birth, nay, even before our birth, since we bring with us prenatal dispositions? Doubtless we think with only a small part of our past, but it is with our entire past, including the original bent of our soul, that we desire, will and act."

I am presuming, therefore, that the self which chooses has such a strength of moral character, in the lowest types perhaps consisting only of the fear of future consequences, that it is able to choose between right and wrong and to act accordingly. From this it follows that a man with such a standard must be held morally responsible for all actions which are the natural outcome of self-determination. This I consider to be the only practical criterion for moral responsibility that is applicable to crime. I would include under such actions impulsive acts, because the moral character must be presumed to have the power of controlling them, but not acts due to insane impulses. I would hold that in alcoholic and other forms of self-induced intoxication a man was responsible, in that he had allowed himself to get into that state, and for the same reason I would hold that a man in a hypnotic state was responsible, but that for acts carried out during sleep or under the influence of drugs which had been administered without his knowledge he would not be responsible.

The degree of responsibility for any act is, then, to be measured

¹ The law allows that no child under sixteen can be hanged—the correct age for full moral responsibility will have to be settled later by psychology. It is here taken as being quite arbitrary, but it is in accord with the Binet-Simon tests for general intelligence.

by the grade of moral character which is present at the time of committing the act. If the offender is of the age of sixteen he must be considered fully responsible for all his acts, unless it can be proved that his moral character does not come up to the required standard. Now the fact that a man is a criminal at all suggests that he has not reached a high plane in the development of moral character. We have now abandoned the positive doctrines of the Lombroso school, and we recognise, as both Maudsley and Mercier always insisted, that we are all potential criminals and that crime is a function of two variable but complementary factors—constitution and opportunity. Whether a man becomes a criminal or not depends both on the strength of the temptation to which he is subjected and on the strength of his fortitude to withstand the temptation.¹ A man with a weak moral character will succumb to any temptation, whilst a man with a strong moral character may succumb to a temptation only of some particular strength or quality.

During the war we had an example of the same principle in the case of the war neuroses. The man with a poor mental constitution broke down during or sometimes even before training, and if he were strong enough to survive this and get out to France he broke down within a week or so, whereas the mentally stable man only collapsed as the result of some severe shock or prolonged strain, and sometimes not until after the armistice.

So it is with insanity, which is so closely connected with crime that it is often difficult to say where crime ends and insanity begins. Both are antisocial modes of adaption to a difficult environment. Crime may be simply unrestrained egoism, or it may occur as the result of a temporary conflict in which egoism gains the day, whereas insanity is the consequence of a prolonged struggle to restrain egoism, and only leads to an offence when the moral character has become so weakened as an effect of the conflict, or so disintegrated by actual disease, that restraint is no longer possible. Thus, as Maudsley puts it, writing in the days before Freud, "An immoral or actual criminal life might positively save a person from madness, and a duke's daughter become insane when a dustman's daughter remained a sane prostitute or thief."²

I must turn now to the two distinct classes of persons in whom the moral character does not come up to the required standard, and in whom some degree of exemption of responsibility must be allowed: (a) when the moral character has never been developed as in cases of what is technically known as Mental Deficiency, and (b) when the moral character has become disintegrated as the result of mental disorder.

¹ Cf. C. Mercier, *Crime and Criminals*, 1918.

² H. Maudsley, *Pathology of Mind*, 1895, p. 82.

(a) Mental Deficiency is defined by Dr. Tredgold as "a state of restricted potentiality for, or arrest of, cerebral development," in consequence of which the person affected is incapable of maintaining existence independently of external support.¹

Recently such cases have been recognised by the law, but it does not seem that the law is either generally known or sufficiently utilised by the authorities. Under the Mental Deficiency Act of 1913, a defective person found guilty of any criminal offence may be dealt with by being sent to an institution for defectives. Goring, as a result of his investigations amongst convicted criminals, states, "against the .45 per cent. of defectives in the general population, the proportion of mentally defective criminals cannot be less than 10 per cent. and is probably not greater than 20 per cent.,"² and that with increasing degrees of recidivism there is a regression in the mean intelligence of convicts, so that with increasing frequency of conviction the proportion increases to 36 per cent., and this is the general opinion of all observers. Mental defect is associated the most intimately, according to Goring, with stock-firing, malicious damage to property, and with unnatural sexual offences.

Under this Act are included idiots, imbeciles, feeble-minded persons and moral imbeciles. The first two present no difficulty and are recognisable by the layman, but high-grade feeble-mindedness and moral imbecility do not present obvious signs of mental defect to a judge and jury, and require expert evidence for their demonstration. The case of moral imbecility is especially difficult. A moral imbecile, according to the Act, is "a person who from an early age displays some permanent mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect." So that it is only after a person has been convicted several times that his condition may be recognised. Such are the cases who spend a few years going in and out of Borstal prisons and finally become certified. As they may show astounding ingenuity and cunning in the perpetration of their crimes, it is often difficult to convince oneself, and it is almost impossible to convince the law, that these persons are defective at all. Hence the law goes on attempting to brace their wills, as the lawyer puts it, by the fear of punishment, regardless of the fact that there is no will to brace, and that one cannot germinate a stone! An extreme example is the case quoted by Mercier of a man in Afghanistan, "who, after having had first his right hand and subsequently his left hand struck off as punishment for theft, seized with his stumps and made off with an earthenware pot of trifling value and of no use

¹ A. F. Tredgold, *Mental Deficiency*, 2nd edn., 1914, p. 8

² C. Goring. Abridged edition of *The English Convict*, 1919, p. 179.

whatever to him, although he must have expected that he would be hanged, and hanged he accordingly was."¹

All mentally deficient persons, then, must be regarded as being not fully responsible, and they may now be so regarded legally by the Mental Deficiency Act, 1913.

(b) Mental Disorders. The problem is more difficult in the case of mental disorders. Dr. Kenny tells us that English law divides, and would seem to be fully justified in dividing, insane persons into two classes :—(a) Those lunatics over whom the threats and prohibition of the criminal law would exercise no control, and (b) those whose form of insanity is only such that—to use Lord Bramwell's apt test—"they would not have yielded to their insanity if a policeman had been at their elbow."² Dr. Kenny recognises the practical difficulty involved in the discrimination of these two classes, and when such discrimination is made on psychological lines, and is put to the test as a criterion for responsibility, it fails, as the majority of mentally defectives come under "the policeman" group. "A policeman at the elbow" removes one of our two complementary factors in the function of crime, the opportunity, and, moreover, many persons may be deeply insane and yet be able to take cognisance of a concrete policeman, when they are not able to think in the abstract and foresee future consequences.

Psychological medicine, however, cannot give the precise criterion which the law is entitled to demand to enable a jury to decide whether a person is insane or not. As yet, insanity is not capable of definition, and it cannot always be proved by a question of facts, but often only by inference from facts, and what a judge and jury would infer and what an expert in mental disease would infer from the same facts are often at variance. I sat in court recently listening to facts related by a doctor concerning the general intelligence of a boy who was alleged to be feeble-minded. From these facts I inferred not merely that the boy was feeble-minded, but that he was probably an imbecile, whereas it appeared that the bench of magistrates was actually inclined to doubt whether he was feeble-minded at all. Not only is this so, but it is often a matter of considerable difficulty for the expert to detect insanity in its early stages. When two medical men examine a patient at different times they may obtain different facts and come to opposite conclusions, whereas if they both had access to the same facts there would be a greater possibility of agreement.

The legal side of the problem is based on an antiquated conception of psychology and insanity, and it would seem desirable that any law which is based upon scientific knowledge should be revised with the progress of science if it is to escape being an archaic absurdity. An

¹ C. Mercier, *Criminal Responsibility*, 1905, p. 190.

² C. S. Kenny, *Outlines of Criminal Law*, p. 53, 9th edn., 1920.

insane person is said to be of unsound mind, but mind is not synonymous with intelligence, as is so often assumed, and we cannot divide up the mind into faculties or speak of intellectual, conative and affective insanities as is done in books of law. It would appear that the intellect may remain to a great extent unaltered with disintegration of the moral character, but that deterioration of the intellect is always accompanied by degeneration of the moral character. So that it seems doubtful whether we can regard the degree of responsibility required for acts which are not antisocial, such as making a will, as being of the same degree as moral responsibility for crime, for the former may remain long after the latter has disappeared.

Theoretically, then, both medicine and law are in a state of ignorance as to the criterion to be applied as a test for insanity, but whereas the law demands that there must be some hard-and-fast rule, medicine replies that theoretically no sharp line can be drawn between the sane and the insane. There are some who must be judged as sane and some who are undoubtedly insane—each case must be dealt with as an individual problem. No law would be applicable at present to all cases if justice is to be served. And this, now, is what appears to be happening in practice, and the law of 1843, although perhaps nominally adhered to, is being in reality often disregarded.

There is no practical difficulty with regard to persons who are deeply and unquestionably insane. They are dealt with on arraignment as unfit to plead, and most people are agreed that they are not responsible, though very few of them would satisfy the test of insanity laid down in 1843. And as regards moral responsibility, it would seem to be a correct interpretation of the existing moral sentiment of the nation to say that no person who was certifiable under the Lunacy Act, 1890, was fully responsible. It therefore seems an anomaly in law that persons who are certifiable under the Mental Deficiency Act, 1913, may be exempt from legal responsibility and can be dealt with in the police courts, whilst persons who are certifiable under the Lunacy Act of 1890 cannot be so dealt with by a magistrate in the police court on the grounds of insanity, but must go on to the higher court, and if not dealt with on arraignment are held to be legally responsible unless proved by the old dictum to the contrary.

I cannot deal now with the special cases which crop up from time to time, but I must briefly refer to those cases of insane or irresistible impulses which have been the subject of recent controversy. I stated previously that in my view persons could not be held morally responsible for acts carried out under the influence of such impulses. I am unable here to go into their pathology, but I suspect the cause of the controversy to be that medical men do not clearly distinguish between an irresistible impulse and one that is not resisted.

In the case of *Rex v. Fred. Quarmby* at Manchester on

February 25th, 1921, Mr. Justice Acton is reported as having directed the jury on the old dictum that "the only test was whether the prisoner was in such a defective state of mind that he could not appreciate the nature and quality of his act, but that irresistible impulse had never yet been accepted as an excuse for crime. . . . The evidence of uncontrollable impulse was based on speculative theories which had not yet been generally accepted."¹ Now although I would agree that in this particular case there was no evidence of irresistible impulse, and perhaps not even of an impulse that was not resisted, as the murder seemed to be a planned and deliberate act, exception must be taken to Mr. Justice Acton's direction if he means that such impulses, which we call obsessions, do not occur, or that the evidence for their existence is based on speculative theories which have not yet been generally accepted. It is, of course, quite open to anyone to reject any scientific theory—he may even reject that of the law of gravitation, for instance but when we are told that physicists find it satisfactory, and when we have learnt by experience that a slate falling off the roof may hit us on the head, we generally regard anyone who has their doubts about it rather suspiciously from the mental point of view. So when the true character of these impulses has been acknowledged by all mental specialists throughout the world for probably fifty years or more, when some of us are treating many of these cases every year, when so learned a judge as Sir J. F. Stephen would have liked to interpret the law as it is to include them, and when some countries, for example Queensland,² do actually include them in their laws, then medicine waxes wroth and says that the law is unreasonable when it rejects these theories in effect because it has no direct personal experience of them and cannot understand them. It is indeed remarkable that not more cases occur in connection with crime. Undoubtedly a good many cases of suicide are of this nature, but it is the rule in these obsessional cases that the patients are aware of their impulses, and so they put themselves under treatment and restraint to remove any possible opportunity for gratifying them. A satisfactory proof of an irresistible impulse as an exemption from responsibility would appear to be that the person was known to suffer from it before committing the crime incited by it, that he had himself taken steps to ensure himself against acting upon it, that the act was contrary to egoistic desires, and that it was not compatible with the then existing moral nature of the man as shown by the remainder of his conduct. If it can thus be proved that an irresistible impulse has incited a person to commit a crime, he should not be held to be morally responsible.

¹ *The News of the World*, Feb. 27th, 1921.

² The Queensland Code of 1899 exempts a person from responsibility if he is deprived of "capacity to understand what he is doing or of capacity to control his actions."

In conclusion I will attempt to sum up what I have been trying to show. It would appear that, from the very nature of our being, a controversy over this question must always be inevitable, and that it cannot be resolved until we have some definite standard for moral responsibility. And experience of psychological principles justifies us in saying that moral responsibility cannot be decided by any test of intelligence, but that the moral essential factor is the presence of the moral character, in the absence of which we should all be actual criminals. And I have held that in all cases of mental deficiency and mental disorder there is some disintegration of the moral character, and that in such cases full responsibility would not appear to lie. I have pointed out that the law of 1843 is based on a faulty psychology, and that its strict interpretation must involve a miscarriage of justice, if justice is to be based on morality. But at the same time, medicine is not yet in a position to advise as to any precise criterion which might be formulated as law, and is of the opinion that the moral responsibility in each case must be decided practically as an individual problem. Moreover, it would appear desirable that just as law must coincide with the moral sentiment of the nation, so legal responsibility should coincide with moral responsibility.

If these opinions are acceptable, then it becomes a question for the law to decide whether it would be possible to take steps to enable each case to be decided on its own merits, and whether it would not be advisable to scrap an old law which is not in conformity with modern knowledge. It has been proposed by medical men that the question of insanity should not be allowed to be raised at all during the trial, if the offender is fit to plead, and that only after conviction should the defence of insanity be considered. In such case they suggest that a further trial might be held as to the questioning of insanity and the jury might be helped to a decision by a report from a specified number of medical experts who had held a medical board amongst themselves as to the mental state of the prisoner, or that the question might be decided by the judge sitting with a certain number of medical assessors. Whatever method be adopted, if the person is found to be irresponsible, although we hold that punishment should fit the criminal and not the crime, society must needs be protected from such a person, and he would be sent to Broadmoor and detained during his Majesty's pleasure, for I would agree with the words of Anatole France: "The interests of justice are sacred, the interests of the offender are doubly sacred, but the interests of society are thrice sacred."

SCIENTISTS AND PSYCHICAL RESEARCH

BY E. J. DINGWALL, M.A.

IT is usually customary for scientific men to fight shy of the problems connected with psychical research. In the past a few found themselves forced to investigate for themselves, and their colleagues were delighted at the prospect of mediumistic humbug being exposed, only to be met with the sad admission of the investigators that they had found what they believed to be genuine phenomena and not the shameless fraud that their colleagues had expected. It is probable that in certain cases these scientific investigators were actually deceived, such as Alfred Russell Wallace, who appeared totally unable to distinguish genuine from fraudulent phenomena and who was almost undoubtedly taken in by certain slate-writing mediums. In other cases, however, and especially with regard to certain minor experiments, the excellent evidence in favour of the supernormal character of the occurrences was not even discussed, and critics contented themselves with abusing the investigators. Such an attitude on the part of scientific men was deplorable in the days of Daniel Home, but it is doubly deplorable now, when the mass of carefully sifted evidence for supernormal "psychic" occurrences can be scarcely any longer curtly dismissed as mere rubbish. How are we to account, therefore, for the scornful view that so many scientific men take of psychic phenomena? I propose in this paper to try to answer the question and at the same time to indicate briefly the best avenues of approach through which psychical researchers may enlist the help, and possibly also the sympathy, of their co-workers in other branches of science. In doing this I shall say some hard things about "scientists" and also about "spiritualists," but it is as well to face the position squarely and not to pretend that agreement can exist where none is possible or even desirable.

Firstly, then, as to the scientific point of view. In discussing this we must understand exactly what we mean by the word *scientist*. By a scientist is usually understood a person trained in exact observation and one who, when considering the external world, has brought himself to apply certain well-defined canons through which evidence may be collected and sifted. In brief, a scientist is one who observes *facts*, classifies them, and finally forms some theory which apparently describes them. These theories, when they appear to cover all the facts observed, are sometimes called *laws*, although it is quite possible that some

further facts may be observed later which tend to modify or even upset previous theories derived from an incomplete set of observed facts. There are, of course, scientists engaged in many different kinds of work. One may observe facts connected with the earth and its rocks: he is called a geologist. Another may study the formation of the human body and its relation to other animal forms: he is called an anatomist. A third may study the development of bacilli: he is called a bacteriologist. Now psychical research is very often criticised by biologists, anatomists, and zoologists, and there are many members of the public and some few psychic researchers who consider their opinions valuable. The opinion of a zoologist about psychical research is only important if his training in observing *zoological facts* has been used in observing *psychical facts*. Usually it happens that he has had practically no opportunities whatever for observing any psychical facts, but nevertheless, as a scientist, he gives his opinion about them. I could never understand myself why people do not ridicule instead of reverencing these foolish utterances. Supposing that I gave my opinion concerning certain problems connected with the structure of a chameleon's eyes or proceeded to write an article about pellagra, my utterances would be treated with disdain, and quite rightly so, for it would be obvious to any zoologist or medical man that I knew next to nothing about these matters. But let a zoologist or doctor of medicine write reams of rubbish about psychical research. The case then is very different. His opinions are treated with respect, and sceptics gravely produce the names of Sir A. this and Sir B. that as supporting their own foolish assertions. Spiritualists do the same thing when they bring forth arguments which support the opposite standpoint. They are very fond of turning their academic supporters into professors in the hope of making the names sound more weighty, and are also constantly confusing those persons who accept the evidence in favour of some kind of psychic *force* with those who think that this force is controlled or produced through the agency of spirits. Again, the physical or mental condition of the "scientist" does not matter to the spiritualist. He may be very shortsighted, or even half blind, but if his testimony is in favour of the reality of psychic phenomena then his name appears again and again with a wearying monotony. We cannot, however, dwell on these points but must return to our sceptical scientist.

In order to illustrate the extreme position adopted by the opponents of psychical theories I wish to draw my readers' attention to an amazing review in *Nature* (Nov. 18th, 1920), a paper which styles itself "A Weekly Illustrated Journal of Science." This article, headed "The Newer Spiritualism," and which is actually *unsigned*, consists of an attack upon Dr. Fournier D'Albe's admirable translation of Baron von Schrenck-Notzing's work on the *Phenomena of Materialisation*.

As this article well illustrates the hysteria which afflicts certain "scientific" writers when confronted with unpleasant facts, I propose examining it in some detail. The first complaint of the reviewer is that the details of the séances "are like one another as peas in a pod." This is most interesting, since usually if a single *unimportant* detail is omitted the accusation is that judgment is impossible since the facts are not published. Here, where details are plentiful (although in my opinion not full enough), our reviewer is grieved that so many are given, and evidently prefers, according to what, I suppose, is "The Newer Science" a mere record of phenomena without any of the accompanying conditions. This method of attack was employed recently against the Society for Psychical Research, in the *Proceedings* of which appeared some records of trance phenomena indicating that supernormal information was in some way being acquired by the medium's mind. In the course of the messages a good deal of apparent rubbish came through, such as an alleged spirit horse which a lady was learning to ride and the existence of spirit water, etc. In several quarters attacks were made on the Society in which the writers evidently preferred it to delete supposedly foolish portions of the communications, publishing only those which indicated supernormal agencies! Could a more unscientific method be imagined? The question has only to be asked to be answered immediately.

As will be remembered by those who have read Baron von Schrenck's volume, the phenomena which take place in the presence of Eva C. have been thought to be of what has been called an *ideoplastic* or *teleplastic* nature, words which the reviewer describes as "pseudo-scientific jargon." It is difficult to see in this statement anything but prejudiced animosity, and I pass on to a later statement which declares that "numerous photographs" of the medium "are sandwiched between faked spirit photographs." Now to the person who has not read or seen the book this implies that portraits of the medium are scattered up and down the book, which also contains photographs of alleged spirits which have been fraudulently produced. Now, firstly, will the reader believe me when I tell him that the photographs of the medium are simply those in which phenomena are exhibited, where naturally the producer of the phenomena is included in the picture; and, secondly, that there is not a single spirit photograph in the book, if we take the meaning of "spirit photograph" to be that which is generally understood by that term? After this assertion we must not be surprised to find the reviewer saying that, "Apart from M. Richet, a somewhat credulous savant, no prominent man of science was present at the sittings, save one Dr. Specht, who, after three attendances, said that he had been 'shown materialisations which do not exist.'" Professor Richet is at once dismissed, as he has studied psychic phenomena somewhat closely and is therefore a person to be

discounted. Dr. Specht is singled out because, although profoundly impressed by what he had seen, he confessed himself too ignorant of the possibilities of deception to bring himself to any other attitude of mind than one which was strongly negative. No mention is made of course of Dr. Bourbon, who was present at many more sittings than Dr. Specht and was apparently convinced that the phenomena were genuine. Similarly with Dr. Geley. The reviewer has, however, a suggestion which he thinks would put the matter beyond doubt. It is to form a committee to examine the phenomena, and of this body he proposes that Sir Ray Lankester, Sir Bryan Donkin, and Mr. Nevil Maskelyne should be members. This is indeed a bright idea, but why suggest Sir Ray Lankester and Sir Bryan Donkin? Everyone knows why Mr. Maskelyne is proposed, but why ask a zoologist, and why, oh why, a Director of Convict Prisons? This is not a question of a tapir's hind leg or the sanitary state of Princetown Prison. Why, then, request the attendance of experts on these subjects? The reason is obvious. The reviewer, simple "scientific" soul, has remembered a certain incident which is supposed, although quite wrongly, to redound to the credit of these experts on pigs and penitentiaries. The story is briefly this: Dr. Henry Slade was a certain medium presenting slate-writing phenomena. Anyone who knows anything about psychic research is apt to think that scarcely a particle of evidence exists for genuine slate-writing phenomena. He takes the opportunity of sitting with such mediums in order to pick up useful hints on deceptive psychology. But not so our zoologist and prison commissioner. Sitting with Slade many years ago, one of them seized a slate upon which was naturally written the message prepared beforehand, and, wonderful to relate, they found it! Triumphant they caused Slade to be prosecuted, and ever since have preserved a great reputation for the exposure of mediums. Another observer, Prof. Carvill Lewis, also sat with a slate-writing medium called Eglinton. Unlike the zoologist and the prison commissioner, he kept his head, and instead of hysterically seizing the slates he watched the *modus operandi*, and in a masterly report described exactly how the effects were produced and how the medium endeavoured to distract his attention. The two former investigators, however, are the ones selected by *Nature's* reviewer to investigate the phenomena of Eva C., and he proceeds to assert that the "so-called" evidence would be "judicially sifted" by them. What would he say to a proposal of mine that in order to examine the principles underlying radio-activity a committee be appointed of which an ornithologist and an inspector of slaughter-houses should be members, with the added proviso that these two members should have the reputation of bungling a previous experiment which they had been foolishly permitted to conduct? Let us have an end of this rubbish and proceed to consider at somewhat greater length the

real reasons underlying all this foolish venom and hysterical spite which disgrace the pages of a journal like *Nature*.

First, then, it is as well to remember that psychic phenomena at their present stage of development are of interest to but a few classes of scientific men. The physicist and the physiologist would find much material in the study of the physical phenomena, whilst the psychologist and the psychiatrist would profit by a careful survey of that wide field usually designated under the name of the mental phenomena. I have often discussed this question with physicists, and I think that I understand their point of view. Baldly stated, it is this: "These subjects are very interesting, but we have not the time to give to them. In the first place there is a great deal of fraud, and we have not been trained to detect deceptions of this kind. Nearly every medium has been found out at one time or another, and we cannot afford to waste our time and energy in investigating phenomena which may prove in the long run to be fraudulently produced. Even if genuine phenomena do exist, they are so hopelessly mixed up with deception that it is not worth while to disentangle them. The assertions also of the spiritualists annoy us. Every smear on a photographic plate is nowadays supposed to be the work of spirits, and when the developing solution has not been evenly applied the spirits have been weaving spirit garlands into the picture. Besides, the phenomena that we hear of are so silly and childish as to be almost revolting, and we can have nothing to do with them."

On turning to the comments of the psychologists we do not find that they are any more encouraging. Just now psycho-analysis is very popular in England and America. It is sometimes called the new psychology, not because it is really new, but because English-speaking psychologists have just discovered that some of the books on it have been translated into English. Like many valuable instruments of research, the psycho-analytic method was, and is still, violently assailed by people who do not understand it and whose own complexes are disturbed by its unpleasant truths. It is, however, being used as a sort of weapon against psychical research. Jung dealt with a case of what he styled "so-called occult phenomena" which has been translated in his *Collected Papers*, and recently a book has been published on spiritualism and the new psychology which professes to explain psychical occurrences by referring them to normal and abnormal unconscious psychological processes. I fear I cannot congratulate the new psychologists on their efforts, as they betray the fact that they know little, if anything, about psychic research in any of its phases. This brings us to the root difficulty in discussing psychic matters with scientific men. They know so little about it as to make their observations practically worthless, and in the case of those who have studied the material we find that they almost invariably accept the

facts but differ in the *interpretation* of the facts. No opposition from so-called scientific men will ever alter facts. The facts may be unpleasant or may be destructive of existing theories, but if they are facts no ridicule nor attitudes of superiority can upset them. Thus, whatever "scientists" may say, it is a fact that so-called physical phenomena sometimes occur, and it is also a fact that information *not obtained through the ordinary channels of sense* sometimes comes through the agency of an entranced medium. The sceptic will immediately reply that this is an unwarranted assumption and the mediums employ tricks which even the skilled magician cannot discover. This is an old difficulty, and although I have dealt with it elsewhere a few words at this point may not be out of place. An interesting example comes to my mind in this connection. The other day I was talking to a thoroughly well-educated man who was engaged on scientific work. He told me that he had just visited a place of entertainment and had witnessed a version of what is commonly called the "Dictionary Trick," the effect of which is briefly as follows. The performer requests a member of the audience to thrust a paper-knife between the pages of a large dictionary, which can be examined at any time during the progress of the experiment. A word is then chosen on one of the pages through some such method as selecting numbers jumbled in a hat or a ballot-box, but before doing so a piece of folded paper with a prophecy as to the word to be chosen is handed to a member of the audience with the request to keep it safely until called upon to procure it. The word is then chosen, and upon unfolding the paper the same word is found written upon it. My friend was very much surprised at the apparent miracle and his explanation was most instructive. "Conjurers," he said, "can make you take any card in a pack, and therefore, I suppose, they can make you poke the knife into any page of the dictionary they like, and it was the same thing with the numbers." A similar explanation is constantly put forward by scientists to account for supernatural phenomena, and the argument is entirely fallacious. They assume what they want to prove. No magician in the world could have made that man thrust a paper-knife into any particular page of *that* dictionary. It was a matter of pure chance, although he saw no difference between forcing a card and forcing a page. I do not propose to explain the difference because I do not intend to explain how the experiment was accomplished, but I do say that until scientists begin to understand these things they will never be of much use in investigating psychic phenomena. Prejudice must be entirely absent if good results are to be obtained.

In the January number of *Science Progress* is an essay review of Baron von Schrenck's book before mentioned, by Dr. O. L. Brady. After the effort of *Nature's* reviewer it is pleasant reading, but I must take exception to two sentences concerning mediums. "The medium,"

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he says, "sometimes practises fraud to satisfy the audience when genuine results are not forthcoming. This is an attitude difficult to cope with, and is not likely to appeal to the trained investigator." It is, of course, quite true that mediums do resort to fraud if the sitters are foolish enough to expect a long succession of genuine phenomena. This will always tend to occur until mediums are treated rationally and co-operate with the experimenters instead of being exhibited as freaks, with payment by results as the system of remuneration adopted. As to the attitude being difficult to cope with and not likely to appeal to the trained investigator, such statements are strange as coming from a scientific man. There are many branches of scientific inquiry which are difficult to cope with and which do not appeal to various kinds of trained investigators. That is, however, no reason why such inquiries should not be vigorously prosecuted. In psychical research there is much that is difficult to cope with, and much patience and forbearance have to be exercised. If the study does not appeal to scientific men, then it must be pursued by persons who, although not possessing perhaps a science degree, possess the scientific spirit. It does not matter in the least if a man has not passed examinations in Natural Science so long as he is capable of employing scientific method in the observation and classification of facts. Once the facts are obtained, men trained in various branches of scientific inquiry may be profitably consulted for elucidating details of too technical a character for anyone but the specialist. These experts should be called in just as the photographer is called in to photograph the phenomena, in order to give advice and assistance on specific points, and not in any way to act as judges as to the genuine character of the phenomena. The time is fast approaching when psychical researchers should give up the fruitless task of trying eternally to convince scientific men as to the actuality of psychic phenomena. The reality of psychic phenomena is as certain as any other phenomena in nature, and therefore offers a perfectly legitimate field of scientific inquiry. If these occurrences do not seem to fall into any of the well-known provinces within the confines of orthodox science, then a place ought to be assigned to them as soon as possible. Whether they ought to be included as subject-matter for physiologists or psychologists is a question which need not detain us here. It will suffice merely to point out the importance of including them somewhere. There is not the slightest doubt that eventually they will form an ordinary part of the research work undertaken in our great universities. Until that time arrives it is necessary for the work to be carried on by investigators supported by funds supplied by generous donors who have the sense to see the importance of psychical studies being continued. A properly-equipped laboratory for the prosecution of such studies is urgently needed in England to-day. It should be furnished with such apparatus as Grunewald has recently

described and with many other appliances which need and ingenuity would doubtless invent. Such a laboratory could be built and equipped for what is, after all, a trifling sum, and it is a scandal such sufficient money cannot be obtained. As I have pointed out, scientific men will not support the project, principally because they labour under the extraordinary delusion that a medium is a sort of super-magician who can perform miracles. Coupled with this is a kind of superstitious fear lest the verification of these phenomena will lead to a wholesale revision of existing scientific theories and especially of that materialism popular among physiologists who have gained a certain reputation in their own line. Their pathetic welcome of psycho-analysis in the hope that it will save them from the supernormal is sufficient proof by itself that their conversion would be a difficult matter. Fortunately that conversion is not a necessity, and is only perhaps desirable on the ground that, once converted, they would cease from the mischievous activity of endeavouring to prevent any reasonable inquiry into the phenomena in question.

The spiritualists, on the other hand, are even more harmful than the sceptical scientists. As long as they persistently see spirits in every corner and hear spirit-raps in every creak, so long will the subject appear ridiculous to many otherwise quite reasonable people. A great many trance communications must unfortunately be unverifiable matter of doubtful sanity. As long as mediums are brought up in the unswerving belief in the spirit hypothesis, so long will research be hindered by the ritual and traditional observances of the devout séance room. Trance communications irritate and annoy the mass of commonsense people, who are neither capable nor sufficiently informed to be able to pick out those elements which appear to indicate the possibility of supernormal origin. Both spiritualists and scientists will eventually have to bow more or less to the decisions of persons who, from long training and experience, are able to draw broadly the dividing-line between the normal and the supernormal. Nothing, however, can be done without funds, and until these are forthcoming the subject should be left in the hands of persons who must endeavour to steer a straight course through a sea bestrewn with many rocks, and must be undisturbed by the antics of the spiritualists on the one hand and the scientists on the other.

THE HOMING INSTINCT IN DOGS

BY LIEUT.-COLONEL E. H. RICHARDSON.

Author of *British War Dogs*

THE subject of homing instinct is one which leads into many interesting fields of investigation, and is certainly of peculiar attraction to those whose perception is awakened to the fact of causation in mind. This sense of way-finding to a given spot is inherent in all animals more or less, starting at the top of the scale with man, but the real essence of this faculty is less developed in him than in the vast majority of the lower animals.

"God made man perfect but man has sought out many inventions." The word "but" in this sentence has much significance. Perhaps, after all, the many material props which man has produced from his own imagination, and which at first sight seem so highly desirable, have been all the time blinding him to ways and means of simpler and more far-reaching methods of attaining the same ends, but which must be sought in inspiration from a totally different source than his own human brain. When desiring to go to a given spot we consult maps, time-tables, signposts, etc. ; in fact, our only way of getting there is by some assistance of this sort, and without these we should be completely at a loss.

My own actual experiences connected with this form of intelligence have been almost entirely with dogs, in whom this instinct is very highly developed. The intensity, however, differs in individual dogs, and also in various breeds. During the war several hundred dogs were trained as messengers and dispatch carriers. The training for this work was based on the homing instinct, but I found it necessary at the training school to study the psychology of each dog as the bent was much more highly developed in some dogs than in others. Dogs of wise and affectionate natures were the only ones of any use in the strenuous work they had to perform in the field, and the great lever by which the homing instinct was initiated, was that of devotion to the man who was deputed to be the dog's keeper. A dog could be taught the duties of messenger service mechanically, but when it came to maintaining this effort in the field only some very powerful emotion could enable it to overcome the obstacles in its way. In briefly describing these obstacles, I will explain that the messenger dogs for the British Army were concentrated in units behind the line and were

dispatched in groups to those parts of the line where particularly strenuous fighting was expected. They went up in charge of their keepers, each man having three dogs. Arrived at Brigade headquarters, the keepers remained there and the dogs were taken from them by troops occupying the front line. The object of using the dogs was to have a channel of communication available apart from the telephone, which became useless after a bombardment, and also from the human dispatch carrier, to whom the risk was enormous, and who was also much hampered by the difficulties of the ground. The dog messengers, on the other hand, presented a smaller target to the enemy, and were able to negotiate the mud and shell-torn ground with comparative ease and consequently much faster than a man. But they had great difficulties to overcome, nevertheless, and without a powerful incentive, they would never have been able to carry out their duties whereby countless lives were saved. They were frequently taken up to their posts at night, over ground utterly unknown to them previously, and were released some hours afterwards with their messages. Sometimes they returned the way they had been taken up, but more often chose a more direct route straight across country, covering distances up to four miles, sometimes. It will be remembered that this would lead them over trackless ground, or along trenches and roads crowded with every sort of war traffic, through villages full of troops and every sort of obstruction and temptation.

That these dogs accomplished this work is one of the wonders of the war. *How* they did it cannot be fully explained, for the reason that we do not fully understand the influences which control the animals when under an overpowering desire to return to the place from whence they came. Suffice it to say that it was the determination to return to a beloved master, as represented by his keeper, and that as a result of this emotion, portents and signs indistinguishable to man were waymarks on the journey.

There are many instances of animals—of dogs and of cats—being taken by train, sometimes in closed receptacles, and, on being released, of finding their way back to their original starting-point. A very remarkable case is a trek by an Airedale, which is reported from British Columbia. The dog belongs to Mr. Fee, an architect of Vancouver, and he sent it by express over the Grand Trunk Pacific Railway to his brother-in-law, Mr. Paton, at Ardrossan, a station sixteen miles east of Edmonton, Alberta, in 1919. The dog arrived there but, before Mr. Paton could claim it, it managed to escape. In six weeks time "Buster" arrived at his old home emaciated, tired and footsore. The distance between the two points is 770 miles. For the greater part of the way there is no travelled road except the railroad track, which passes through three chains of mountains. Two-thirds of the distance is without habitation except the railroad section houses and, at long

intervals, small stations, many of them without a single inhabitant. This feat of way-finding was very remarkable.

Human beings have risen to this mental sense of direction at times. One occasion came under my own notice. It was the case of a mother who was searching for the spot where her son had fallen on the battlefields of France. She was accompanied by two officers, one of whom had the ground charted out, and whose business it was to know the exact position of each landmark. She was able to give a fairly accurate description as a guide to the spot, which was marked on the map, but the vast upheaval of the ground made identification unexpectedly difficult until actually at the place. The officers searched in certain definite directions aided by their maps, but the mother, without knowing why, felt they were always in the wrong quarter, and instead of following them over the battlefield, she quietly waited till they returned from several fruitless attempts, and then they agreed to go with her in another direction to which she herself would have gone at the commencement. They at once found what they were seeking. She told me she "just knew" where the place was. Now here again you get the mental articulation of a tone from the soul brought out at the inspiration of love.

To revert to this particular faculty in dogs. I found that mere intelligence did not always prove a dog's capacity. There were many extremely clever dogs which quickly grasped the idea presented to them in their training and responded readily, for a time. As the tests became more difficult, however, although it was quite plain that the dog understood perfectly well what was required of him, selfish interests intervened—an interesting playmate in a village, a tasty bone by the wayside, etc. This type of dog lacked the great incentive at the back of the effort of intelligence and would never compass any great feats of endurance and enterprise. The spirit of selflessness is seen in a wonderful degree in other animals—in birds and in fish, etc. In their efforts to reach a given spot they are able to overcome countless obstacles and dangers. The motive power in animals less intelligent than the dog is usually supplied by the instinct of preservation of species. The love of their young involving the determination to seek warmer or more suitable breeding grounds, enables them to make extraordinary journeys across trackless spaces and through many waters.

Darkness and mist do not hinder dogs in their quest. In fact, a dog, once thoroughly trained, seems to work more surely and rapidly when all material help, visible to our eyes, is obliterated. In these circumstances, minute signs seem to become more apparent, and I have found the work done at night with dogs is uniformly more successful than in the daytime. Collies and sheep dogs are very clever, and I have found they are reliable because they are naturally

very affectionate and faithful. Lurchers also are excellent, and they have the advantage also of speed. Certain of the larger terriers are very useful, such as Airedales and large-sized Irish terriers. I am frequently asked if poodles make good messengers, but I have not found them to be reliable. They have not been bred with any idea of honest work, and are too irresponsible, and also the fact of their scarcity and expense would put them out of court for training in any large numbers for public service. Fox-terriers and all the smaller terriers are too small to overcome the difficulties of transit such as rivers, ditches, etc., and also they too, lack the sense of work which in certain breeds have been bred into their natures through many generations. The larger breeds such as Danes, Newfoundlands, St. Bernards, are too heavy to go the distances often required, and it will be understood that any physical hindrances always contribute to a diminution of the natural instinct of home-finding. Sporting dogs are no use whatever as a whole, the reason being that for generations they have been trained away from themselves and have always been under the direction and domination of a human being, as represented by the keeper.

I think, as a whole, the lurcher, the sheep dog, working collie, an the Airedale may be given the palm for home-finding. These breeds have been used in connection with the intimate affairs of man for many generations, and have been trained to apply their intelligence independently of given instruction at any moment. In this way they supply their own initiative according to circumstances. The wisdom and deliberation in times of difficulty and temptation shown by individual dogs of these breeds is a very remarkable manifestation of the highest qualities of mind which man has considered to a great extent as appertaining entirely to himself.

In developing the instinct of home-finding it is necessary to place many obstructions in the dog's path, or rather to make his route lie where distractions and temptations may assail him in increasing proportions as the training develops. Thus, after he has shown that he can find his way across open country, and understands that the hedges, walls and streams must in no way interfere with his progress, but that he must by some method negotiate all these difficulties, he can then be sent through a village, where the temptation of the shops, the butchers' and the fish shops especially, the pleasures of a game with another dog, etc., etc., have to be met and overcome. All this has to be done gradually, and I have found the time necessary to develop the idea thoroughly in each dog's mind to vary very much according to the individual. Some dogs take longer but are more reliable in the end. Three months is a safe period, and I have found that; after that period, a dog that is going to be an efficient worker will generally be capable of taking a message four miles and pass through several villages *en route* without stopping. After that, steady daily routine

running only tends to confirm the training, and care should then be taken not to over-fatigue the animal, and to change the training runs as frequently as possible to avoid staleness.

Reward is of course part of the training—and a very important part. Compulsion, coercion and punishment are anathema to all forms of training which is to remain on a permanent and satisfactory basis. I have never used a whip on a dog under course of instruction, and the only use of a weapon of chastisement, which generally takes the form of a good strong stick, is for the purpose of separating dogs fighting together. This behaviour on the part of the dog is a misdemeanour of the first importance, and the dog must be made to understand that it cannot be tolerated under any circumstances whatever.

The trainer's object is to develop an honest pride and love for the work in the dog's mind. The qualities of straightforward dealing and honest purpose have to be brought out, and one of the great interests in the task of training messenger dogs is that of watching these traits increase. The training is given daily and has to be steady and regular. The distances the dog is asked to cover are of course quite short at first, and increase in length from day to day. Tests must be given both by day and night and in fog and mist and rain. I could give many instances of particular runs, whereby the sagacity and pertinacity under countless difficulties are illustrated, but I have said enough to show that there is a wonderful source of interest to all students of psychology in this training of the homing instinct in the dog. That we do not understand it better is perhaps because so little attention has been given to it by those interested in the science of soul in the animal creation. When the creatures are studied from this point of view much may be explained which is now a mystery.

SLEEP

BY H. HARTRIDGE, M.D., AND W. WHEATELY SMITH

THE study of dreams has played so large a part in the formation of modern psychological doctrines that it is surprising to find so little attention paid to the condition of Sleep as such. It is true that the dreams of deep sleep form but one extreme of a graded series of mental processes ranging through day-dreams and phantasies up to the fully conscious activities of waking life and that a similar gradation can be observed in the hypnoidal or quiescent conditions which accompany them. But the true dream is so closely correlated with the condition of full sleep that one would have expected psychologists to have attempted more seriously than they have done to show how the peculiar characteristics of mental activity during sleep (dreams) are determined by the physiological features of the state itself.

The object of this paper is to present, as concisely as possible, some account of these features and to state the rival views which have been advanced from different quarters to explain the phenomena observed.

The Physiological Phenomena of Sleep.—The more important physiological changes which accompany sleep may be summarised as follows :

(a) *Blood Pressure.* With the onset of sleep, the blood pressure drops ; it then remains approximately constant until sleep actually begins, when there is a further and greater fall. During sleep there is a gradual recovery to a point slightly below the normal value, which is reached by a sharp rise at the moment of waking.

(b) *Temperature.* In a very similar fashion the temperature falls before sleep actually begins, and after this there is a further fall. It starts to rise again, as a rule, about 3 a.m., and regains the normal value at waking, if it has not already done so.

(c) *Respiration* becomes slower and deeper ; in waking life inspiration and expiration take approximately the same time, but in sleep inspiration is much slower and expiration relatively quick. As might be expected from the greatly reduced expenditure of energy, the output of carbon dioxide is decreased. In daytime, respiration is mainly effected by means of movements of the diaphragm, but at night the costal muscles take a relatively greater share of the work ; this is probably due to the fact that in the daytime the weight of the viscera

is operative, whereas in the recumbent position of normal sleep it is not.

(d) *Reflexes*, such as the knee-jerk or the *tendo Achillis* reflex, are much depressed—that is to say, much less marked—both in sleep itself and during its onset.

(e) *Muscle tone*—i.e., the degree of permanent tension of muscles—is reduced and, similarly, reaction-time to stimuli is prolonged.

(f) The output of *Sweat* is approximately doubled.

(g) *Digestion*. The action of the digestive functions is accelerated to an extent of, probably, some 30 to 40 per cent.

(h) *The Special Senses*. The changes in these (Sight, Smell, Hearing, Taste and Touch) are distinctly the most important from the psychological point of view, and may with advantage be considered *seriatim*.

(i.) *Sight*. The pupils of the eyes are contracted and the eyeballs are commonly turned inwards and upwards, but this is not necessarily the case; the position adopted depends on the relative strengths of the muscles controlling the movements of the eyes, and any slight abnormality in these will result in a correspondingly different position of equilibrium when external stimuli are removed.

A sleeping person is *not* easily roused by a light stimulus thrown into the eye, and the threshold of sensation for sight is very distinctly raised; that is to say, a more intense stimulus is needed in order to produce a given sensational effect.

(ii.) *Smell*. Here, too, the threshold is raised, but not so markedly so as in the case of sight.

(iii.) The same is true of *Hearing* and *Taste*, but in a still smaller degree. The former recovers after about an hour's sleep to a point very close to its normal value, until just before waking, when it again rises slightly.

(iv.) In the case of *Touch*, the same thing occurs; there is a slight reduction of susceptibility to stimuli, but this is also of short duration.

It should be noticed that all the changes hitherto enumerated are in the same direction. That is to say, the general activity of the body is reduced; it becomes less receptive of stimuli from the external world and less ready to react to such as may be received. The psychological importance of this will be pointed out later.

Deprivation of sleep. The effects of deprivation of sleep are exceedingly severe and much more liable to lead to fatal results than abstinence from food for similar periods. Fasts of a month and more are not uncommon, whereas it seems that seven days and nights without sleep approximates to the limit of human endurance. Thus it is on record that three boys of average intelligence and vigour vowed they would not sleep for a week. On the fifth day the youngest suddenly

fell asleep after gymnastic exercise ; on the sixth the second fell asleep on horseback ; on the seventh the eldest died. A servant girl nursing her mistress went into convulsions accompanied by amnesia and other symptoms on the seventh day. Perseus, king of Persia, deprived of sleep by his enemies, died on the seventh day, and a mechanic responsible for the maintenance of important plant in an emergency was taken seriously ill on the sixth sleepless day.

A patient deprived of sleep loses weight, and it is claimed that microscopic changes can be observed in certain brain-cells (nuclei do not stain ; deformation and swelling ; chromatolysis), but these are questioned by some authorities.

Theories as to the cause of sleep. Certain investigators have stated that sleep can be induced in normal animals by the injection of the cerebro-spinal fluid of other animals which have been deprived of sleep for long periods. From this it is argued that some kind of toxic substance is produced in the course of waking activity which is responsible for the physiological changes characteristic of sleep. This view is flatly contradicted by other experimenters who have failed to obtain these effects, but this is merely negative evidence, and on the whole this "toxic" theory seems the most satisfactory.

If this view is ultimately substantiated it will be readily correlated with similar doctrines which have been advanced to explain the phenomena of fatigue, and it would certainly be beneficial if those engaged on these two lines of investigation were to co-ordinate their results more closely than has hitherto been done.

It is also probable that the study of sleeping sickness and the effects of alcohol and other drugs may throw further light on the nature and mode of operation of the toxic products in question.

Perhaps the most formidable alternative view is to the effect that sleep is caused by a lowering of blood pressure, and it is noteworthy that an artificial lowering of pressure does induce a tendency to sleep. It is also quite fair to claim that a reduction in blood pressure must involve a smaller supply of oxygen all round and that this is calculated to produce just those effects which naturally characterise sleep. But the objection to this view, as also to that which regards the fall of temperature as the most important cause, is that, although the change in question is indubitably conducive to somnolence, it is not clear what process is responsible for originating it. Once the vicious circle is regarded as having been started, the argument is unimpeachable, but one wants to know what initiates the vicious circle, and it is difficult to answer this question without bringing in something of the nature of a fatigue-product of a toxic nature, which, of course, reintroduces the first theory.

In connection with the view that sleep is produced by a fall of

temperature, it is interesting to note that a dormouse hibernates if placed in a freezing mixture and that Russian peasants behave in a very similar fashion at the onset of winter.

Another view is that sleep is of entirely nervous origin. It is well known that the connection between different cellular elements of the nervous system in the body is maintained through extensions of the cells (known as *dendritic processes*) which ramify from them and make contact, so to speak, with the adjacent cells. In normal waking life these dendritic processes are in functional relationship with the cells they serve, and it is suggested that in sleep they retract and thus increase the resistance offered to the passage of nervous impulses. This involves the supposition that there is some kind of a chemical or chemico-physical change at the dendritic junctions and of this there is no direct evidence, but the theory—if taken as ancillary to the main “toxic” theory mentioned above—seems plausible as a statement of *how* the toxic substances produce their effect or a part thereof.

At this point it is interesting to compare hypnotic with normal sleep. Dr. Rivers and others state that there is a very close resemblance between the two, and from this resemblance it has been argued that the origin of sleep is purely psychical. Such a conclusion appears weak, however. If we administer plain water to a hypnotised subject telling him that it is neat whisky, and he then shows every sign of intoxication, we will not, surely, maintain that every *physiological* effect of alcohol has been produced and that he is really intoxicated in a physiological sense. On the contrary, there is every reason to suppose that he is no more than playing a part—that of a drunkard—to the best of his ability, just as he might in the waking state if he possessed sufficient histrionic skill and the appropriate motive were supplied.

Similarly one suspects that the *vraisemblance* of hypnotic sleep is equally due to the acting of a suggested part.

It seems quite indefensible, in fact, to maintain that psychical changes are normally responsible for sleep: to do so is to put the cart before the horse. It seems unquestionable that what necessitates sleep is bodily fatigue due to prolonged activity, which demands a period of quiescence for the elimination of toxic products and the re-establishment of equilibrium in the body. It is not impossible that there is also a necessity for some kind of a psychical replenishment or “re-charging,” as certain exponents of the transmissive theory of consciousness have maintained, or it may be that whereas most of the ravages of activity may be repaired in waking life by the ingestion of food and the consequent acquisition of physical energy, there are others—those in the brain to wit—which demand complete quiescence before they can be effected. But in any event, the psychical theory of the origin of sleep seems open to criticism as a *hysteron proteron*.

Blood supply to the brain during sleep. The evidence on this point is, perhaps, somewhat inconclusive. On the one hand it is stated that in infants the spaces between the sutures of the skull show that there is a diminished supply of blood during sleep; on the other that the pulsations of the brain are more obvious in sleep, from which it is argued that the blood supply must be more copious. But this is a *non sequitur*, and other experiments depending on a determination of the relative *weights* of the brain in sleeping and waking life seem to indicate that the supply is diminished. But, in any event, it is unlikely that, in normal sleep at any rate, the question of blood supply is of more than secondary importance. The view that sleep is due to this cause is also clearly open to the same criticisms as were brought against the "blood pressure" and "temperature" theories mentioned above.

Insomnia. The usual treatment for insomnia at the present time consists in the administration of a sleeping draught. This is merely stupid, since, in defiance of all sound medical principles, it aims merely at the elimination of symptoms and not at the removal of their causes.

One of the present writers has had much experience of insomnia in his own person, and has also enjoyed considerable success in treating it in his patients. He finds that most persons who complain of sleeplessness admit that, at one time or another during the evening, they "feel sleepy," but add that "the feeling passes off." He has found it advisable to urge them to go to bed whenever they feel sleepy—no matter at what hour—and he further believes that the common practice among such cases of taking a very light supper is quite wrong. A good solid meal is one of the best predisposing factors for sleep, and a short walk after it, continued until a feeling of somnolence sets in, is usually beneficial.

He has also noticed that *dryness of the cornea* is another very potent predisposing cause, and is of the opinion that if this can be induced sleep is very likely to follow. He has found that the application of a suitable preparation of menthol (Unguentum methyl salycilatis, CO fortis) to the face and nose is very efficacious in this connection.

This procedure is so simple that most patients require additional suggestive treatment in the form of a "placebo." For this purpose a judicious mixture of ginger, mustard and peppermint is valuable. It is a good carminative, and probably assists matters by causing vasodilatation of the stomach and thereby lowering the blood pressure in the brain.

The psychological significance of sleep. It has already been pointed out that the condition of sleep is of very great relevance to the phenomena of dreams, which have played so large a part in the development of modern psychological thought, and this article may well be concluded by a short discussion of this aspect of our subject.

A considerable advance of a certain kind was registered when it was realised that dream processes closely resemble those of infantile and primitive life. But, interesting as this conclusion is, it is not in itself an advance in explanation. It is necessary to ask ourselves *why* the conditions of sleep produce psychical results similar to those obtaining in infants or savages, and we ought not to be satisfied with our account of dream processes until we are in a position to answer this question in terms of those characteristic features of the condition of sleep itself which distinguish it from waking life.

To do this is, we believe, much less difficult than might at first sight appear.

Many modern psychologists, following Freud, distinguish two opposing groups of mental tendencies, which are referred to as the Pleasure and Reality principles respectively. Of these, the former represents the crude, innate, instinctive cravings such as Hunger, Self-preservation, Sexuality and the like, while the latter is based on acquired experience, and comprises systems of ideas of a social, ethical, or cultural nature whose potency arises from the necessity of an individual organism adapting itself to the conditions of communal life.

It is by the conflict between these two kinds of tendency that the course of mental processes is determined. The fundamental instinctive tendencies are primarily asocial, but by contact with the social environment derivations of them are produced which conflict with their direct and crude satisfaction.

The problem is to decide why, in normal waking life, the systems of ideas corresponding to the reality principle should prove more powerful than those corresponding to the pleasure principle; why the former should be less easy of displacement than the latter, and why this should be reversed during sleep.

It seems probable that the answer is to the effect that the "reality systems" are kept more or less in the foreground of consciousness, so to speak, by the associations perpetually aroused by the incessant stream of sensory stimuli which bombards us throughout our waking life. We are constantly held up, as it were, against the hard world of reality by the sensations which for ever pour in upon us. Common-place objects, tables and chairs, trees and houses, our fellow men and women, are constantly presented to us and keep in the foreground of our minds countless systems of associated ideas corresponding to our experience of their properties and behaviour. It is with these that the "pleasure systems" conflict; it is these which differentiate Dream and Phantasy from Reality.

We can, to be sure, conjure up the most delectable images at any time, but we know them to be imaginary and not real because we cannot touch them or otherwise deal with them as we can with the objects which actually surround us.

But if we close our eyes and our senses become less acute with the onset of sleep in the manner described above; if the stream of sensory stimuli is wholly or even largely cut off, then there is nothing to hold us up against reality, and we can no longer recognise phantasy as such.

Consequently, the aforesaid cultural, ethical or practical systems are no longer kept in the foreground, and the instinctive tendencies of the mind have proportionately freer play.

This seems likely to be not merely the chief but absolutely the *only* essential difference between the waking and sleeping states on the psychical side.

We are thus in a position to understand precisely *why* dream processes resemble those of infants and savages. The latter possess relatively little of the experience on which the Reality Principle of civilised adults is based, whereas they possess innate primitive cravings in full measure. And in dreams the experience responsible for the Reality Principle and for the cultural and ethical systems which lead to the repression of "complexes" based on primitive tendencies is deprived of its normal weight because it is no longer kept in the foreground by sensory stimuli.

The balance is, in fact, in favour of the instinctive cravings, because the *somatic* sensations which keep *them* active appear to be much less deadened in sleep than are the extero-receptive sense organs concerned with the picking up of stimuli from the outside world.

On these lines it seems possible to account for the irrationality of dreams and their divergence from the ethical standards of waking life without being compelled to ascribe any magical properties to the sleeping state as such. If the view outlined above be correct the differences between the results of mental activity in dream, infancy, savagery and adult waking life respectively are due not to different kinds of processes or laws being involved, but to the latter having different materials, so to speak, to work on. And this difference in material is directly explicable as a necessary consequence of the obvious characteristics of the sleeping, infantile or primitive conditions. This seems to constitute a more real unification of the processes concerned than does the mere statement of the resemblance of these states.

THE NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY

We have much pleasure in printing the following notes on the work and aims of the National Institute of Industrial Psychology. There can be no question but that Psychology is destined to play a great part in the future development of industrial methods, in the increase of efficiency, and in the solution of many difficulties which are at present impeding the utilisation of human resources to the best advantage.

Elaborate methods are commonly employed for the selection and grading of raw material so as to ensure the allocation of its different varieties to the uses for which they are best fitted. But comparatively little has hitherto been done with regard to the equally important and variable human element.

The National Institute of Industrial Psychology, initiated by Dr. C. S. Myers, the present Director of the Psychological Laboratory at Cambridge, to whom we are indebted for these notes, has already done invaluable pioneer work in this field and is certain to prove of the utmost value in the future.

We hope to be able to publish reports of progress and research work accomplished in subsequent issues.—[Ed. PSYCHE.]

BY DR. G. H. MILES.

THE most urgent problems which face industry and commerce at the present day concern the human rather than the material side. The material problems already receive the careful attention of expert physicists and chemists who have at their disposal not only well-equipped laboratories and highly-trained staffs, but also the results of years of carefully-established facts to guide them. In striking contrast, human problems are still decided by rule-of-thumb methods, and there is an alarming dearth of accurate information on which to base methods for the best application and conservation of the nation's greatest asset—its human life and energy.

There is here a great field for careful research and investigation, but at present industry has neither time nor scientific resources available for dealing with these problems.

To meet what is now an urgent need, the National Institute of Industrial Psychology has been established. It will, on the one hand, make known to physiologists and psychologists what problems are calling for attention and, on the other, will assist in the practical application of the results of research.

In order to carry out the Institute's schemes satisfactorily there is need for very careful co-ordination of purely scientific research work throughout the country, and at a recent meeting of the Scientific Committee arrangements were made for this to be done. But although this is essential to progress, it is equally necessary to discover the best methods of the application of the laboratory results, and for this purpose specially trained men are necessary; for although the Universities provide courses in pure science, further training in its application to industrial conditions is required. The Institute has therefore taken in hand the preparation of suitable training courses.

Industry is giving its help, and, in spite of the critical times through which we are passing, many of the more progressive firms are providing liberal support. The Carnegie United Kingdom Trust, the funds of which are applied to the improvement of the well-being of the masses, has also given a generous donation for a period of five years. All funds are to be devoted to the extension of work, and if only a start can be made on a sufficiently broad basis it is hoped at the end of five years the Institute will be self-supporting. Many requests have already been received from firms who wish to have their special problems investigated and who are prepared to pay substantial fees for the work, since they realise its value and necessity under modern conditions.

A number of Trades Unions and Labour Organisations have also been approached, and in every case a very satisfactory response has been obtained, the leaders being evidently convinced of the necessity of the application of science to the human side of industry.

The Immediate Work of the Institute

(a) The Institute's Scientific Committee, consisting of those heads of laboratories and scientific departments in Universities, Technical Colleges, etc., who are specially interested in industrial physiology and psychology, has provided for co-ordination of research work in these branches. It is arranging for a supply of investigators properly trained in the general principles of physiology and psychology, and it will also serve as a *liaison* between those engaged in scientific research and its industrial and commercial application.

(b) Organisation of training courses. These are being at once organised for welfare workers, etc., and for investigators who have already received the proper scientific training.

(c) Throughout the country the Research Associations formed for the purpose of dealing with the material side of industry are finding that the success of their work will be largely dependent on a thorough understanding of the psychological factors involved. The Institute has already been approached by the Cotton, Wool, Glass and Launderers' Research Association in connection with the psychological

problems encountered by them. To the workers in these and other industries the Institute can be of the greatest use by co-operating with such associations and advising as to the best methods of dealing with the human problems which confront them.

It is, however, imperative that many more investigators should be trained, but the initial expenses connected with this are heavy. The Institute is also repeatedly receiving requests for vocational guidance,¹ and although good work has been done in this direction there is need for much more research. This, again, is unremunerative until it can be applied, and the Institute is appealing for funds to cover a period of five years in order that this preliminary research work may be done thoroughly and well. The demand for work of the type which the Institute is undertaking is so great that there is already a danger that it may be attempted by unqualified persons to the discredit of science and the detriment of the worker. The Institute has on its Scientific Committee those who are foremost in their respective branches of science, and the constitution of its Council and Executive is a guarantee that its work and aims will be in the best interests of those engaged in industry and commerce.

The address of the Institute is 329, High Holborn, London, W.C.

¹ "Vocational guidance" consists in advising workers as to the occupations for which their innate capacities best fit them. It can only be achieved as a result of thorough experimentation in the specific capacities required for different occupations and the best ways of detecting them in individuals.—[Ed., *Psyché*.]

FIRST STEPS IN PSYCHOLOGY

BY I. A. RICHARDS AND C. K. OGDEN

A FEW years ago the word Psychology was a technicality covering a field of inquiry in which none but specialists and perhaps a few enterprising teachers were expected to take an interest. To-day it would be hard to find a general reader of current literature who had not at any rate browsed through one or more of the books on psychological topics which appear every other day.

There are, however, among these readers many who feel a difficulty in comparing and combining together the views, opinions, and information thus casually obtained. Although interested, they have no time for the study of voluminous works on first principles. They would like to read the *Principles of Psychology* of William James, the *Analytic Psychology* of Professor Stout (having dipped perhaps into a volume with almost the same title by Dr. Jung), Urban's exhaustive investigation of *Valuation*, Professor Ward's *Psychological Principles*, or Baldwin's *Thought and Things*. But even for those who have the time to make such an experiment, it is not readily discoverable which is filled with mysticism and which with meat.

It was therefore suggested that readers who are seriously approaching the subject for the first time, and who look to *Psyche* to help them in forming an estimate of current tendencies, would welcome a brief account of the nucleus of accredited opinion from which the growing science of Psychology is tending to develop. In what follows, therefore, will be found an endeavour to deal in the simplest possible language with elementary subjects as discussed in standard works, and to deal with it more concisely than has been done by any introduction hitherto. This conciseness must be an excuse for any lack of precision. No attempt at originality has been made, nor are the views here represented in all cases those which, given the opportunity of a full technical statement, the authors would regard as most satisfactory. The refinements and adjustments which any science demands for its adequate formulation cannot in all cases be simply stated until some of its special terms have become current.

A sudden interest in any science is due either to new methods (as in the case of modern mathematics), or to new subject matter, as in the case of Radio-activity. In the case of Psychology, both these causes

have been present. New methods—the laboratory and the new hypotheses of the Unconscious, and the Mneme. New subject matter—Hypnosis, Psychical Research, “Neurasthenia.”

As a result Psychology, the study of the Psyche, now sets about its business just as any other study, collecting its information from any source which gives relevant results; partly by introspection and partly by deliberately selecting and interpreting various signs as corroborative evidence. There are, it should be noticed, no other facts which can be *directly* studied quite in the same way as our own “experiences,” our own feelings; upon these, and upon the study of Behaviour, psychology is based. Behaviour, which is particularly of value in providing corroboration, is studied like any other subject matter. This possibility of direct study (introspection) gives to psychology a privileged position, and adds to its fascination as the most fundamental and intimate method of studying any portion of reality. The fundamental nature of psychology is also shewn by the fact that all our knowledge starts from sensations, the investigation of which is an important branch of psychology. Starting from sensations we proceed by processes of interpretation to infer the nature of the universe, the laws of these inferences being known as physics, physiology, chemistry, and the other sciences.

A certain amount of training is, however, necessary in introspection as in all other pursuits, and from a practical point of view psychology is largely an acquirement of this training. The subject matter on which it is exercised is perhaps best indicated by an example.

As the reader reads these words he will probably agree that many things happen “in his mind.”

He *attends* to the marks on the paper, he *thinks* and *understands*, he takes up an *attitude*, he *remembers*, he is *interested* or *bored* as a consequence, his *instinct* of curiosity is perhaps aroused, or possibly he is *irritated* by the obscurity of the style. He *endeavours* to persevere, until eventually he feels *tired*, and to avoid *pain* he falls *asleep*. But even then he may *dream*, and on awakening may *forget* his dream—though if *hypnotised* he may rescue it from the *unconscious*.

All these are psychological events described in current psychological language, and in psychology we are either engaged in classifying such events and elaborating our descriptions of what takes place, or in seeking for their causes, *i.e.*, explaining why just that particular process took place at just that time in just that way.

The first of these, classification, is academic psychology—useful when wanted, but receding in favour of genetic and causal treatment. By genetic treatment is meant the treatment which seeks for light upon the things with which it deals through the study of their history and development. When we thus approach the mind we find that the importance of past history is far greater than it is with physical

processes. A tea-cup, for instance, is little affected in its behaviour by what has happened to it in the past, but nothing that a mind does, or that can be done by a mind, is unaffected by its previous experience. It is, in fact, the first principle of psychology to recognise the peculiar way in which experience leaves effects behind it. Whenever we think of anything as being this or that, there are, as Professor Stout puts it, "processes of interpreting, identifying, classifying, recognising, etc., by which the object is brought into relation with the results of previous experience as retained and organised in preformed dispositions." Similarly anything we do by habit we do only thanks to our past experience. Instincts may be regarded as habits pre-natally formed. Thus we never think or feel or act quite freshly and spontaneously, for the character of our thinking, our feeling, and our acting is always due, in part at least, to the ways in which we have thought and felt and acted in the past. What exactly this dependence in any particular case may be is the main question which psychology attempts to answer, and it is chiefly in order to trace these connexions more easily that it adopts certain technical distinctions.

Popular language in all matters that are connected with the mind is apt to be vague and misleading. Psychologists have, therefore, felt obliged to introduce terms freer from irrelevant associations than those in ordinary use, and these often make the subject seem dry and abstract to the beginner. But if it is realised that they are only names for what must from the nature of the case be processes familiar to everyone as part of ordinary experience, a little patience is all that is necessary for the mastery of current opinions.

Thus we find *Psychosis* ("state of mind," and sometimes "abnormal state of mind"; much as *phenomenon* = "appearance" and sometimes "abnormal appearance"), *Conation* (striving), *Volition* (will), *Affect* (feeling), *Cognition* (knowing process), *Engram* (disposition), *Presentation* (sensation), *Ideation* (thinking), *Hedonic tone* (pleasure), *Endo-somatic* (inside the skin).

Described in the most general terms, the business of the mind is to adapt the organism to its environment. The process of continual change from adaptation to adaptation is what is known as *Conation*. In cases where there is conscious effort this process is popularly known as "willing." It is, however, now widely held that there is no essential difference between automatic responses to the environment and those responses which, owing to a conflict of tendencies, seem to involve the efforts of something which may be called "the Will." There are difficulties in admitting such an agent as the Will into psychology as a science, since if there were such a thing, it appears that nothing could be known about it. On the view that all mental change is conative, we must of course admit that we are "willing" even when we are asleep, and much of the work of modern psychologists, such as Freud,

is devoted to shewing that we constantly have volitional processes of which we are unconscious. The "libido," which now appears so prominently in psycho-analytic writings, is a name for this general striving activity, which is regarded as hardly if ever suspended.

The exact forms which this striving takes on any occasion, those features which make an act or adaptation applicable to one thing rather than to another, are *Thinking*. There are not two kinds of activities which we perform: (1) Thinking, (2) Willing. They are inseparable aspects of a single process. The thinking is a form of the willing, much as the contour of a mountain is not something independent of its stuff, but simply the stuff in a certain shape—the shape of course depending on the nature of that stuff, *e.g.*, pitch or porphyry.

How this stream of striving and thinking proceeds in any individual depends partly on sensations impressed by the external world, but also partly on internal factors. Certain of the latter are of particular importance, because their character determines the direction of the stream. To these factors the name *Feeling* is technically restricted. Pleasantness and painfulness, and unnamed characters intermediate between these, clearly play a great part in controlling our behaviour, and this pleasure-pain aspect is what is generally spoken of as feeling-tone.

Where in such an account does Consciousness appear? It cannot be too clearly realised that much of what is quite properly to be called mental activity is not conscious. Only some of the elements involved have the peculiar character which we name conscious. These elements are perhaps reducible to two kinds—*Sensations* and *Images*. Sensations are modifications of the organism, due to stimuli from outside the body, *e.g.*, in vision, or to the stimulation by one part of the body of another. A toothache, or a colic, is essentially the same in its origin as the sensation obtained, *e.g.*, by clenching the fist. The importance of these sensations due to the action of one part of the body or another will be clear when we come to discuss *emotions*.

It is obvious that not all effects of stimuli on the organism are, or give rise to, sensations. What may be the difference between effects which give rise to sensations and those which do not, is a matter upon which no light has yet been thrown. It illustrates the relative unimportance of the idea of consciousness in psychology that this problem is rarely discussed. Consciousness is supposed to be associated with the higher or more central parts of the nervous system, the bringing in of these higher systems being known as the act of *attending*. It is plain that attention alone may suffice to make conscious what has hitherto been present but unperceived. If we keep our eyes motionless, we can discover, by merely attending to the edges of the field of view, that we are all the time seeing far more than we are ordinarily conscious of seeing. Thus at all times there is a large field of

inattention which is affecting us without causing consciousness, and an interesting attempt has been made by Mr. H. R. Marshall in his work on *Consciousness* to identify the "field of inattention" with what is usually called the Self.

The other kind of element which appears in consciousness is the *image*. A great deal of work has been done on images since Galton's *Inquiry Concerning the Human Faculty* drew attention to the vast range of difference between individuals both as to the images they habitually employ, and as to their powers of forming imagery of any kind. There are psychologists, such as Professor Watson in his *Behaviour*, who deny that any kind of imagery is necessary, or indeed occurs at all. There is also an interesting controversy as to how far thought can be conducted without it. The chief kinds of imagery hitherto enumerated are visual, auditory, tactual, olfactory, gustatory, motor, kinæsthetic, thermal and organic. In fact, images corresponding to every kind of sensation can be formed.

One of the most striking instances of the possibility of applying psychology to practical affairs is the educational significance of modern views on imagery. It is of little use appealing to children of an auditory type by metaphors or diagrams suitable to visualisers; and if, as seems probable, various abilities depend largely on the possession of special powers of imagery of one type or another, it should eventually be possible to avoid much disappointment and waste of time due to the early selection of unsuitable occupations.

These great differences between the type of imagery which is employed by different people raise a special problem, as to how far people with different imagery can be said to have the same thoughts. If my consciousness is filled, say, with mental pictures (visual images) and your consciousness is filled with the mental echoes of the sounds of words, how can we be said to have the same thoughts? And yet there is plainly a sense in which people who use quite different images can be said truly to be in agreement, to be thinking similarly.

This problem, which is very important both historically and theoretically, is the same as the old question, "What is an idea?" when this question is asked in Psychology. The full answer is very complicated, but an outline may be given which shews how the difficulty we have raised, and which would result from an attempt to identify ideas with images, may be avoided.

For this purpose we require the biological notion of adaptation with which we began our account. We saw that all thinking, all mental activity is adaptation. When we have an image, the actual occurrence (which appears to us as an image) is an adaptation. It is a repetition of a previous adaptation, namely, that which we made when we had the original sensation of which the image is a copy.

Since it is an adaptation there must be something to which it is adapted. If, for instance, I am thinking by means of an image of the Dome of St. Paul's, and you are thinking by means of the words "St. Paul's," we shall each be adapted to something. If this is the same then we can be said to be thinking of the same thing, and so to be having the same thoughts, *i.e.*, adaptations, the same ideas, in spite of the difference in our imagery. Thus an *idea*, which is synonymous with a "conception," a "concept," a "notion" and a "universal," is a way of thinking applicable to something, and as is implied by the term "adaptation," all "thought" may be regarded as determined by the necessity of reacting to situations and as directed towards action of some kind or other.

We may now, keeping this idea of adaptation in our minds, turn again to striving, instincts, and the emotions. According to a view which leads to a great simplification in psychology and is named after its first and most prominent exponents, the James-Lange theory, the distinctive feature of emotional as opposed to other experience is the presence of certain sensations due to physiological changes in the main tissues and organs of the body. Different groups of these give their special characters to the distinct *emotions*, such as anger, fear, disgust, or wonder.

It must not be supposed that these sensations are all that constitutes such an emotion as anger. We have to examine the causes to which the sensations themselves are due. We then find that there are a small number of primitive *instincts*, innate arrangements of the organism, which lead it to respond to typical situations in a specific fashion. Thus if a jaguar rushes suddenly upon us, our instinctive adaptation takes the form of *flight*. But to facilitate flight the internal conditions of the body, the heart-beat, the breathing and glandular changes, are modified; and these modifications give rise to the sensational part of the emotions above indicated. In other words, we are sorry, as James put it, because we cry, rather than *vice versa*. On the other hand a fly in the eye will make that organ water, but we do not necessarily experience grief. That is to say it is only bodily sensations, instinctively originated, which constitute emotions or "affects" as they are often called by modern writers. In some such way as this the chief objection to William James' view, namely, Professor Stout's contention that a stomach-ache is not an emotion, is avoided.

The accepted classification of fundamental instincts, or conative tendencies, inherited modes of striving or acting, are the following:

Flight (fear).

Pugnacity (anger).

Repulsion (disgust).

Parental instinct (tenderness).

Reproduction.

Feeding.

Curiosity (wonder).	Gregariousness.
Self-assertion (elation).	Acquisition.
Self-abasement (subjection).	Construction.

This is Professor McDougall's classification. Names for the emotions which accompany the instincts which he thinks it possible to distinguish, are not easily discovered, and he finds himself forced to omit some. The subject clearly requires more discussion than it has received, before any such list can be regarded as more than provisional. If feeding, for example, why not sleeping? If constructiveness, why not destructiveness? Further, it is fairly clear that instinctive activity may be unaccompanied by emotion in the sense in which we have used the term. Many, however, would maintain that emotions do accompany such instincts even when not consciously experienced, but "in the unconscious" to which we may now turn.

It is the recognition, chiefly since the opening of the present century, that most of our mental life has not the character of consciousness which is responsible for much of the present popular interest in the subject. The laws of the inter-connexions of conscious elements had been elaborately studied a hundred years ago by writers like Hartley, and already by the time of John Stuart Mill it seemed unlikely that much more could be added. Authorities like Bain were producing definitive treatises on the intellect and the emotions, and, though there were sporadic attempts to found a science of animal psychology and laboratory methods were being developed, it hardly appeared possible to do more than put the finishing touches on so monumental a structure.

At this point morbid psychology, through the work of medical men and alienists, began to force upon the attention of the official representatives of the science the necessity for fresh hypotheses.

As so often, advance was due to the fresh stimulus provided by strange occurrences for which accepted theories could suggest no explanation. Hypnotism, alternating personalities, automatic writing and psychical research, hysteria, phobias and neuroses in general, particularly those relating to sex, became the central points of interest. Resemblances between the phenomena of dreams and those of mental diseases led to a completely new account of what happens in the mind when conscious control is relaxed.

The facts thus brought to light show that only a small part of our mental life is under conscious control, *i.e.*, controlled by processes accompanied by consciousness. This has emphasised the fact that consciousness is the exception rather than the rule in the processes studied by psychology. In dealing, however, with 'The Unconscious' which is becoming too ready a resource in psychological difficulties, the first necessity is to decide as to the precise way in which

we are going to use our language. Most discussions of the unconscious proceed as though there were two distinct realms, the conscious and the unconscious ; as when it is said that what was in the unconscious can be brought into consciousness or what is conscious may be repressed into the unconscious. The mind is thus regarded as composed of separate strata, and in addition to the Unconscious, we hear of the Sub-conscious, the Pre-conscious, the Fore-conscious and so forth. This metaphorical language is convenient for some purposes, but no clear understanding of the problems can be reached unless we are prepared to go behind such verbal devices.

When we say that under certain circumstances (hypnosis, word-association tests, or dream-analysis) we are able to recover from the unconscious repressed memories of early childhood, or to liberate portions of experience, we are apt to forget that for other purposes we can describe the facts quite differently. We say, for example, that we can remember what we have not hitherto remembered ; and when asked what we mean by remembering we reply, still without bringing in the unconscious, in terms of the effects of past experiences or our present behaviour. And in doing this we are not only avoiding the word "unconscious" but a certain idea or hypothesis. The word "unconscious" is, indeed, only useful when deliberately used by way of metaphor, *i.e.*, so as to avoid this idea. What is the idea in question ? The answer leads us to the heart of the problem.

We may say of the physical world, of a stone, for example, that it is unconscious, *i.e.*, not conscious at all in any fashion. But in psychology the unconscious is often used to mean "conscious but not in my personal consciousness." Thus a common argument runs as follows :

"There can be no doubt at all that there are processes of which we are not personally conscious or aware—processes of exactly the same kind as those from which we infer consciousness in other people. Intelligent behaviour for example. If we are not entitled to call such processes conscious, we have no evidence of conscious process anywhere except in our own immediate consciousness." As an instance, when a clock, of whose ticking we have not been aware, stops we will often notice the change. Obviously, though we were not aware of the ticking, it must have been exercising some kind of influence on us. We are asked to suppose that "we must have been *conscious* of it below the threshold of personal consciousness," *i.e.*, we are asked to suppose that there is some other kind of consciousness, namely unconsciousness, which is not personal consciousness.

In the first place we have no direct evidence for any other than ordinary, or what is here called personal, consciousness. The argument from indirect evidence breaks down for the reason that, although we are justified in inferring consciousness in *other* people if they behave as we do when *we* are conscious, we are not justified in inferring consciousness

in *ourselves* when we behave in like manner without experiencing it. The result has been a revival of almost mediæval views of "possession"—whereby from time to time the personality is invaded and occupied by what amounts to a separate spirit. Or as Professor Russell in his *Analysis of Mind* well puts it, "the unconscious becomes a sort of underground prisoner, living in a dungeon, breaking in at long intervals upon our daylight respectability with dark groans and maledictions and strange atavistic lusts"—his own view being that an unconscious desire is merely a causal law of our behaviour, namely "that we remain restlessly active until a certain state of affairs is realised, when we achieve temporary equilibrium. If we know beforehand what this state of affairs is our desire is conscious, if not, unconscious. The unconscious desire is not something actually existing, but merely a tendency to a certain behaviour; it has exactly the status of a force in physics."

Arising out of the metaphor of "force" in physics we have an extensive metaphorical vocabulary of impulses, resistances, impacts, pulls and pushes, which at a certain level of analysis have their usefulness, but are carefully excluded by the physicist from any exact statement. Similarly we may use the metaphors of "unconscious desires," "the censor," "repressed complexes," and Mr. Tansley in his popular introduction to *The New Psychology* does not hesitate to write of a dream: "The barriers of the Freudian unconscious are less tightly closed during sleep, and elements from behind these barriers, as well as ordinary elements from the fore-conscious, from the marginal zone, and from the primary unconscious may all play their part." It is hardly necessary to point out that all this language will vanish as the science advances. But just as the scaffolding erected by builders is often more interesting to the public than their final architectural achievements, so the psychology of desire and memory in its early stages has lent itself to a picturesque treatment which, now that its work has been done, can profitably be discarded.

There is thus reason to expect that many phenomena for which the most desperate hypotheses have been required will be found to be explained by quite reasonable scientific assumptions. *Dreams*, for example, are being shown to bear the closest resemblance to many normal forms of conscious thinking. Dreaming is, in fact, a metaphorical or symbolical mode of thinking, allowing the analogies upon which metaphor depends to be so strained and far-fetched that the fully awakened mind is often entirely unable to recognise what has been the subject of thought. Now thinking, as was pointed out above, never takes place without desire or striving of some sort—thinking being the *form* taken by conation. Thus the unrecognisable form or expression of the desire active at the time is what characterises dreaming, rather than any suppression or censorship of the desire itself.

Similarly no fresh factors or strange hypotheses are required to deal with the phenomena of alternating or dissociated personalities. Cases have been carefully studied in which a person has appeared to live two or even more independent lives, the memories of one being inaccessible to those of the other. In a milder form the same thing often happens in neuroses, when patients suffer from what are known as fugues, lapses into behaviour, often of an unusual kind, the memory of which escapes them. In these cases we need not suppose that there is anything actually in the personality during one phase which in the least corresponds to, or partakes of, the other phase, whether in a repressed, submerged or unconscious form—any more than the signal-man who sends his train along one line supposes that there are suppressed trains rushing along the other lines on which it might have gone. It is true that in these cases we have an unusual multiplication of tracks, but we have only one train. Similar considerations apply to hypnosis and to automatic writing, and when this is realised one set of extended principles will be found to cover both traditional psychology and the newer developments.

While dealing with the nature of consciousness it remains to mention that the answer to the primary question, "Is there a mind?" is still undecided. There are four main answers:

- (1) There is the view of the Behaviourists and Materialists that what appears to be mental is in reality physiological processes. Thinking, for instance, is sub-vocal talking—minimal muscular movements in the organs of speech (Watson, *Behaviour, passim*), or as the neurologists would put it, "As soon as 'mental states' are resolved into reflexes among some of the 10,000,000,000 cortical neurons, it becomes obvious that the word 'mind' is no more than shorthand for neuronal action and interaction when influenced from the outside or by internal stimuli" (Morley Roberts, *Warfare in the Human Body*, p. 229).
- (2) The Animists reply that whatever may be the status of these material phenomena there is a mind or soul also, affected no doubt by the body but likewise affecting it. This interactionist view is advocated in McDougall's *Body and Mind*.
- (3) Various hypotheses have been devised to avoid either of these opposed positions:
 - (a) Parallelism, by which, although mind and body do not affect one another, every event in the higher nervous system is supposed to be accompanied by a mental event, and vice versa.
 - (b) Epiphenomenalism, according to which, mind would be a

by-product of neural process, not reduceable to such process but still quite unable to affect it. This, perhaps sombre, view has lately receded somewhat in favour of (c).

- (c) A view by which both mind and brain would be equally real, both what we experience and what others looking into our heads could presumably observe being equally signs of some more fundamental happenings. The very same event which *appears* to me as my thought, appearing to you, if at all, as neurons in agitation. The disadvantage of such a double-aspect hypothesis is that the fundamental happenings are left in such obscurity.
- (d) To avoid such unknowables a new set of suggestions has recently been put forward by Professor Russell, mind being reduced to sensations and images, and these regarded as probably reduceable to physiological events. At the same time his treatment of matter turns the universe into sense-data and sensibilia. Thus the two suggestions meet in a kind of neutral stuff, those changes in this stuff which follow psychological laws being mental, those which follow physical laws being physical. Much interest is certain to centre round this view, which is, however, far from representing a stable position.

It is fortunately not necessary for psychology to assume any one of these hypotheses in order to continue its work, any more than physics needs the aid of metaphysics. The most interesting thing about these meta-psychologies is the extreme degree in which they resemble one another when fully stated. A fact which suggests that their remaining apparent differences may be due merely to the language in which they are stated.

Having now described the main features of the science of Psychology, we may turn to the question of its use. Since society is composed of human beings, it is not surprising that most topics of social importance and interest have their psychological side. Our knowledge has, however, only recently reached a stage at which it can be of assistance in this sphere. In some branches uncertainty still prevails. Thus to deal with the differences in behaviour of individuals considered as members of different groups, some writers, notably Professor McDougall in his study, *The Group Mind*, favour the suggestion of a group mind or collective spirit. The difficulties raised by this view, *e.g.*, what happens when a new member joins the group, are regarded as far outweighing its advantages by those who hold that a wood is nothing more than the trees of which it consists, and that the methods of individual psychology are as sufficient in social psychology,

as is the study of individual trees (modified doubtless by their environment) in forestry.

The main ways in which the members of a group influence one another, are through their common use of language, and through imitation. A striking, if somewhat bizarre, treatment of the social aspects of language will be found in a volume entitled *Psyche's Lamp* by R. Briffault, while Taine is still the most readable advocate of the influence of imitation.

It is hard to find any branch of human activity upon which psychology cannot throw fresh light. The practice and theory of education owe most of their recent developments to our increasing knowledge of mental laws. The study of mental processes in childhood and infancy has led to new methods like those of Dr. Montessori, while in a variety of special problems such as the acquisition of language discussed by O'Shea (*Linguistic Development*) much fruitful material is being made available.

The control of attention also, the function of apperception or assimilation in determining interest, and the technique of memorisation are instances. Contrary to expectation, experimentalists have come to regard it as proved that it is easier to memorise passages as wholes rather than piecemeal. The conditions and effects of fatigue are of obvious importance here and wherever, as in industry, efficiency or output are an essential consideration. It is becoming recognised that there is no more decisive factor in securing that time is spent to the best advantage than the judicious arrangement of rest-intervals and spells of work. In industry too, as in education, the problem of specialisation, of endowments and aptitudes, is in urgent need of investigation. Intelligence tests are being devised, of which an account is given in Stockbridge's *Measure your Mind* and in Maxwell Garnett's notable work, *Education and World Citizenship*. Further, the analysis of character so fundamental for all educational progress has also been greatly advanced of recent years by Mr. A. F. Shand (*The Foundations of Character*) and others.

The psychological understanding of character is closely allied to the direction of impulse, motive and desire, and so to the formulation of aims and ideals. What we value, what has "affective volitional meaning" for us, and why we value it are formidable psychological problems which few have ventured to explore, though such a work as Urban's *Valuation* breaks much new ground, in the fields of economics and aesthetics as well as in ethics. It is not often realised, for instance, that when we discuss poems or pictures we are dealing with almost purely psychological objects. *Paradise Lost*, 'La Gioconda,' and 'The Magic Flute' are, aesthetically, sets of sensations, images, emotions, impulses and thoughts which we experience. The selection of some of these experiences and the rejection of others as too unlike those which

the standard reader or listener, or ideal man, could experience, raises through its appeal to mental health issues equally dependent on our knowledge of the mind.

Finally, a knowledge of general psychological principles is requisite for any attempt to investigate the alluring and important problems of telepathy, materialisation and mediumship, studied under the general heading of Psychical Research, in their bearing on survival. Herewith we reach the limits of this outline, and those who wish to pursue the study further will, it is hoped, find sufficient indication of the most interesting material for their purpose in the works mentioned in the course of the discussion.

NOTES AND NEWS

THE most interesting recent event in the psychological world is the appointment of Dr. William Brown, M.D., D.Sc., to the Wilde Readership in Mental Philosophy in the University of Oxford. Dr. Brown has held the position of Reader in Psychology in the University of London since 1908 and is well known as the author of *Mental Measurement* (Cambridge University Press). His latest book, *Psychology and Psycho-therapy*, has also attracted much attention, for he has had an extensive experience of war neuroses and their treatment. He acted as Consulting Neurologist to the British Armies in France and saw a great deal of psycho-therapeutic work, both in battle areas and behind the lines. He was also in charge of the Craiglockart hospital for a considerable period.

The Wilde Readership was last held by Dr. William McDougall, F.R.S., who is now Professor of Psychology at Harvard University. The terms of the original bequest require the Reader to lecture on the principles of Mental Philosophy as deducible from Observation and Experience, in contradistinction to Experimental Psychology. Subsidiary functions of the Reader are to lecture on certain aspects of anthropological psychology and on the illusions and delusions which beset the human mind.

Doctor Brown hopes to do justice to all aspects of Psychology, while not omitting to pay full attention to modern developments on the medical side, and it will be widely agreed that his experience of general psychology and psycho-therapeutics, combined with his independence of view, well qualify him for the task.

Readers of *Psyche* will, we are sure, join with us in congratulating Dr. Brown on his appointment, and in wishing him every success in his new undertaking.

WE hope in future numbers of *Psyche* to make a strong feature of notes on the work which is being done in the various psychological laboratories, both in England and abroad. We believe that this will prove of value to all who are actively engaged in psychological studies, not only by preventing unnecessary duplication of effort, but by enabling those who are working

at the same subjects from different points of view or by different methods to get in touch with each other, if they wish to do so, and to compare notes to their mutual advantage.

We cordially invite all who are engaged upon research work, and especially Directors of Laboratories, to forward general particulars of experiments which are in progress or projected, together with summaries of results obtained and any other details which are available for publication. We add below a few notes from Manchester, London, and Cambridge.

At Manchester Mr. Frank Watts, whose recently published book is reviewed below, is working on various problems in vocational selection and is devising and applying tests in connection with this subject.

Mr. F. M. Earle has just completed an experimental investigation of some differences between the mentality of blind, blinded, and seeing children, with special reference to the educational implications of this subject. The results will be published shortly.

Professor T. H. Pear is engaged upon a book dealing with the processes involved in remembering, forgetting, and dreams. He is also working at various aspects of the problem of the acquisition of skill.

At King's College, London, much work of a psycho-therapeutic nature is always in progress in connection with King's College Hospital. In addition to this Dr. R. J. Bartlett has been investigating the subject of Memory with special reference to affective tone by an experimental method involving word-association.

Dr. F. H. Cracknell has been experimenting on Suggestibility in school-children.

The Psychological Laboratory at Leeds has only recently been organised, and there are as yet no completed researches to record. It is satisfactory to note, however, that a number of graduate students from various Universities have already registered for research, and we hope to be able to give some account of their activities in later issues.

AT Cambridge Dr. Rivers has been delivering a series of special lectures on Dreams, in the course of which he has developed original views based on his extensive experience of war-neuroses. Mr. R. H. Thouless has also delivered a special course of lectures on the Psychology of Religion, in which he has attempted to bring the phenomena of religious life and experience more closely into

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line with modern psychological doctrines than has hitherto been done. Mr. C. K. Ogden and Mr. I. A. Richards, who contribute an introduction to Psychology in this number, have been continuing their investigations with the Psychology of Thought and the Functions of Symbols.

On the purely experimental side the work may be described under three main heads :

- (1) Experiments of general psychological interest.
- (2) Experiments having industrial applications.
- (3) Experiments having medical applications.

(1) The research in what may be called "pure" experimental psychology include the following :

- (a) By W. Whately Smith : An investigation, by the psychogalvanic reflex method, into the relation between affective processes and memory, together with an attempt to discover the modification of results induced by the use of drugs. A description of part of this work has already been published in the *British Journal of Psychology*, vol. xi., pt. ii., pp. 236-50. Further reports will be published in the Medical Section of the same journal.
- (b) By J. P. Lowson : A study of the psychological effects of the deprivation of oxygen. This work has been carried out in the oxygen chamber belonging to the Physiological Laboratory, and in conjunction with Dr. Barcroft. It consists of the study of test performances of subjects working under conditions of reduced oxygen pressure.
- (c) By Miss K. Banham : Experiments on the relation of affective tone to memory and association of nonsense syllables. This consists largely in a development of the work carried out on the same general topic with meaningful material.
- (d) By Miss L. Feasey : Studies of æsthetic types in the appreciation of rectangular figures, and, by a method of construction, of similar types in the arrangement of various geometrical patterns. In both instances the experiments attempt to arrive at some conclusion concerning the relation between the actual *production* by a subject of artistic forms and his judgment of their æsthetic value.
- (e) By Miss M. Sturt : A study of the understanding of temporal relationships by children, with particular reference to the teaching of history.
- (f) By F. F. Young and F. C. Bartlett : Experiments on the possible effects of fatigue upon the localisation of sound. This work repeats and develops Mr. J. C. Flügel's experiments on "Local Fatigue in the Auditory System" (*Brit. Journ. of*

Psychol., vol. xi., pt. i., pp. 105-134), and is intended to illustrate certain criticisms of his results.

- (g) By F. C. Bartlett: A new determination of the relation of intensity differences to the binaural localisation of sound; and a study of least perceptible differences in pitch over a range of high frequencies.
- (h) By F. C. Bartlett: Certain experiments on the reproduction of stories and symbols intended to throw light upon the processes of conventionalisation.

(2) Research with industrial applications, mainly under the direction of Mr. B. Muscio, includes:

- (a) By Miss S. M. Bevington: Modifications in the "lay out" of the compositor's case in relation to the movements involved in his work.
- (b) By Miss M. Sturt: The relation between speed and accuracy in teaching typewriting.
- (c) By Miss W. S. Clarke: A comparison of voluntary *versus* regulated rates of work in relation to output and accuracy.
- (d) By Miss S. C. M. Sowton: The development of vocational tests for typists.

(3) Research which is largely of Medical Interest is the investigation by Dr. E. Prideaux into the nature and conditions of the psycho-galvanic reflex, with particular reference to the way in which, if at all, it may be taken as an expression of emotion. Into this class also falls Miss L. Fildes' research on mentally defective children, carried on at the Littleton House School, Girton.

THE postponed meeting of the British Psychological Society will take place at Cambridge on July 23rd. The principal papers to be read are one on Methods of Dream Analysis, by Dr. W. H. R. Rivers, F.R.S., and on Sentiments, by Dr. C. S. Myers, F.R.S. In addition the Research Students of the Laboratory will give demonstrations of their methods and results.

MR. GARDNER MURPHY, of Concord, Massachusetts, U.S.A., hopes shortly to undertake a prolonged series of experiments in Telepathy in connection with the Hodgson Memorial Fund. He proposes to pay special attention to the transmission of ideas over long distances and is anxious to get into touch with interested persons in any part of the world who would be willing to co-operate in this work.

In view of the many criticisms which have been brought against much of the evidence for telepathy on the ground of the probable hyperæsthesia of the percipient, this seems to be a very wise decision and it is greatly to be hoped that these experiments will throw further light upon the obscure issues involved. Mr. Murphy has recently been engaged upon lecturing and research work at Columbia University and thus has the advantage of a thorough psychological training in addition to an extensive knowledge of previous experiments in telepathy.

PSYCHICAL RESEARCH at Copenhagen.—The Danish Society for Psychical Research has decided to hold a Congress at Copenhagen from August 26th to September 2nd inclusive, at which papers will be read and problems discussed. Invitations have been addressed to prominent students of the subject throughout the world, and it is hoped that a thoroughly representative gathering will assemble. The promoters consider that the slow progress which is being made is largely due to insufficient co-ordination of the work of scattered investigators, and that a central clearing-house of information would be of value. The chief object of the Congress is to bring students from different parts of the world into touch with each other and so to inaugurate a *régime* of closer co-operation. The organising secretary is Mr. Carl Vett, to whom all communications should be addressed, C/o The Psychical Research Congress, Copenhagen.

THE TUDOR-HART THEORY OF COLOUR

(COMMUNICATED)

[The following communication is made by a writer who has studied exhaustively the various theories of Colour Harmony and Standardisation which have been put forward from time to time. Although it deals only with one particular example of research, it should be useful as a general introduction to this important subject, which we propose to discuss more fully in subsequent issues.—ED. PSYCHE.]

THE laws of Colour are of importance not only to artists as commonly understood, but also to dyers, dressmakers, ophthalmologists, chemists, florists, philatelists, decorators and brewers. In view of this it is rather surprising that so little effort, comparatively, has been made to elucidate the principles which govern the use of colour and to reduce them to a definite form available for æsthetic, commercial, or educational purposes.

Among recent investigators of the subject Mr. Tudor-Hart stands pre-eminent. He has brought the technique of standardising colours to a remarkably high pitch of perfection, and has worked out the laws of colour relationships with great success. This technique, founded on the close analogy which exists between Colour and Sound, has already proved of the utmost practical value, both educationally in Mr. Tudor-Hart's studio and as the basis of his strikingly successful work on camouflage during the war. There can be little doubt that if the potentialities of the scientific treatment of colour were better known the principles evolved would find innumerable applications of great importance.

Meanwhile Professor Ostwald in Germany has been working on similar lines and has recently published a number of works dealing with the subject.¹ In these Professor Ostwald has very properly concerned himself primarily with producing a complete system of colour-standards, for this is an indispensable preliminary to the scientific study of colour relationships. It must be admitted that in this attempt he has enjoyed a greater measure of success than has attended any of his predecessors, such as Munsell, Ross, or Lovibond, for his work is clear and consistent. It has, moreover, already achieved a considerable success in Germany, where the importance of applying scientific methods to æsthetic problems is, perhaps, more widely appreciated than in this country.

Unfortunately Professor Ostwald's work is vitiated by the fact that he has made certain small but all-important errors in the initial stages.

The standardisation of colour must always depend upon the preliminary production of a satisfactory "neutral scale"; a series of tones, that is to say, ranging from dead black to pure white through varying shades of grey. This is essential because, without it, complementary colours

¹ *Die Farbenfel: a primer with hand-coloured diagrams. Die Harmonie der Farben. Farbennormen und Farbharmonien. Die Farbenlehre* (Vols. I & II; other volumes in preparation). *Einführung in die Farbenlehre. Die Farbschule. Goethe, Schopenhauer und die Farbenlehre.* And a variety of apparatus, colour atlases, etc. Most of them can now be obtained in England.

cannot be determined precisely, and unless this is done one is left without accurate *points de depart*, so to speak, for the construction of a range of hues.

Professor Ostwald has made the grave error of assuming that any mat black pigment is a pure neutral black, whereas, as Mr. Tudor-Hart has clearly shown, all the black pigments of commerce are deep tones of red or orange and, therefore, when lightened with neutral white, give greys which are warmer than the true neutral. Similarly Professor Ostwald speaks of barium sulphate as if it were an ideally neutral white, whereas it is really a very weak orange; zinc white, also, reflects a faint greenish light, and this is not mentioned.

Now complementary colours, the determination of which is vital to any scheme of colour-standardisation or to the elucidation of the laws of colour harmony, are defined as those which by their mixture produce a neutral grey tint. The only method of determining them is by adjusting them until when mixed they precisely match a previously standardised tone of neutral grey. It is obvious that unless the latter is truly neutral the colours concerned cannot be selected so as to be truly complementary.

The result has been that many of Professor Ostwald's standardised colours are seriously at fault. Thus he gives in his *Primer* a colour-circle in which pairs of complementary colours are supposed to lie at opposite ends of diameters of the circle. But for the reasons mentioned above only one pair is correct, the others being anything from three to twelve intervals out. The pairs of colours given as complementaries tend, in consequence, to give a grey warmer in tone than the true complementaries would do, and this not only renders his colour scale of little value but also vitiates any conclusions which he draws regarding colour relationships.

He believes, for example, that complementary colours are harmonious, but this erroneous result is due to the fact that he is not really dealing, as he supposes, with true complementaries at all. It is interesting to note that he is distinctly uneasy when, by accident, his standardisation happens to be correct and the resulting complementaries are discordant.

Another point on which his exposition is weak is his failure to realise the fact that a given hue can only "saturate" (i.e., attain its maximum degree of purity) at one particular luminosity (brightness). And yet he justly observes that hue is altered by change of luminosity; orange appearing more red where its brightness is reduced and true dark yellows appearing as dull greens.

It is errors of this kind, it would appear, which lead him to reject the analogy between Colour and Sound which Mr. Tudor-Hart has so successfully worked out. This analogy, which has appealed to many students ever since the days of Newton, depends, first, on a precise standardisation of colour (which Professor Ostwald has just failed to achieve), and, second, on the correct correlation of the variables which determine sound and colour respectively. Each can vary in three ways: Sound in respect to Pitch, Loudness, and Quality, and Colour with regard to Luminosity (brightness), Saturation (purity), and Hue (colour, e.g., red, blue, green, yellow, etc.).

Mr. Tudor-Hart finds, as a result of laborious researches extending over many years, that if these variables are once rightly related to one another (luminosity to pitch, saturation to loudness, and hue to quality) it is possible to transpose from musical harmony into colour harmony without change. That is to say, the colour analogue of a harmonious musical chord will also be harmonious and *vice versa*. Moreover, which is even more

remarkable perhaps, the emotional effects produced by the colour analogue will be equivalent to those produced by the musical chord itself.

This discovery, into the ramifications of which it is not possible to enter here, opens the way to a new treatment of colour problems. It makes possible the production of a standardised colour notation whereby all who are concerned with the handling of colour may refer unambiguously to just that hue, saturation, and luminosity which they have in mind. The value of such an advance for practical work can hardly be over-emphasised, for the colourist will at last be as favourably placed as the musician with regard to technique and the manipulation of his medium; and the vague, even when correct, intuitions of artists will be capable of fixation in determinate form, in the same fashion as are the inspirations of musical composers.

This ideal may still be remote, but Mr. Tudor-Hart's work has unquestionably done more than that of any contemporary student to indicate how it may be attained.

SURVEY OF CURRENT LITERATURE

[As announced in our Editorial, we have made special arrangements, in response to numerous suggestions, whereby any books recommended or mentioned in our pages, as well as other psychological works, can be obtained with the least possible inconvenience and delay from The Cambridge Magazine Bookshops (Psychological Dept.), 6, Kings Parade, Cambridge. The proprietors have kindly consented to a scheme whereby readers of *Psyche* need not forward a remittance with every order; a system which is calculated to save much correspondence and annoyance at a time when, through abnormal trade conditions, books are so constantly out of print or rebinding.—ED. *Psyche*.]

PERIODICALS

The British Journal of Psychology (General Section) for April, 1921, starts with a paper by David Forsyth on "The Infantile Psyche," in which he discusses: Visual hallucinations in childhood: The revival and exterior projections of visual memories: The supernatural in childhood: Psychic reality and objective reality; pleasure and reality principles: Magic and the belief in spirits and demons: Projection of feeling: Rationalisation and magic.

H. Hartridge, in "A Vindication of the Resonance Hypothesis of Audition," describes experiments which indicate the validity of this hypothesis in spite of the criticisms which have been brought against it by Perrett, Wrightson, and others.

J. C. Flügel contributes "A Minor Study of Nyctopsis," and this is followed by "A Method of Measuring Nyctopsis, with some results," by Ll. Wynne Jones.

F. C. Bartlett writes on "The Functions of Images," based on a long series of experiments. The experimental methods are described and the results dealt with under the headings of: The general influence upon sensory imagery of affective factors; The main characteristics of direct sensory imagery; How the use of words affects direct sensory imagery.

The Psychological Review (March, 1921) has papers on "Cerebral Mental Relations," by S. I. Franz; "The Misuse of Instinct in the Social Sciences," by L. L. Bernard; "An Attempt toward a Naturalistic Description of Emotions" (II.), by J. R. Kantor, and "On the Organisation of Intellect," by Prof. Thorndike.

The Journal of Philosophy (May, 1921) has articles by J. R. Kantor on "A Tentative Analysis of the Primary Data of Psychology," and by W. R. Wells on "Is Supernaturalistic Belief Essential in a Definition of

Religion?" Also on "'Crises' in the Life of Reason," by T. M. McClure; the "Co-ordinate Character of Feeling and Cognition," by M. Picardo; and "The Basic Assumption of Experimental Science," by F. Russell Bichowsky.

The most interesting paper in *The Training School Bulletin* (April, 1921) is by E. A. Doll on "Criminal Psychology."

The *Journal of Educational Psychology* (April, 1921) contains a paper by Thorndike on "The Psychology of Drill in Arithmetic: the Amount of Practice." Also a Symposium on "Intelligence and its Measurement" by six authors, and articles on "The Relationship between Eye-perception and Voice-response in Reading," and "Prophecy of Learning Progress, by Beta," by G. T. Buswell and Garry C. Myers respectively.

Some interesting observations on anthropological researches in the San Juan area are made by E. H. Morris in the latest number to hand of the *Proceedings of the National Academy of Sciences of the U.S.A.*

The *Journal de Psychologie* (January, 1921) publishes papers by Delacroix on "L'automatisme dans l'imitation"; by Janet on "Les oscillations de l'activité mentale"; by Paulhan on "Le psychisme inconscient"; and by Gilles on "Le phénomène du déjà-vue."

The *Journal of Comparative Psychology*. The principal paper is one of ninety-four pages on "Integration of Movements in Learning in the Abino Rat," by J. L. Ulrich. A smaller paper by English Bagby deals with "The Psychological Effects of Oxygen Deprivation."

Internationale Zeitschrift für Psychoanalyse, 1921, No. 1.—Prof. Jellgersma of Leiden publishes his address to the 1920 Hague Congress, on the Theory of Feeling. A. Starcke deals with the Castration Complex, and Dr. Ferenczi contributes a psycho-analytic account of Tics. No. 2 contains articles on clinical Psychiatry, Insomnia, and the Psycho-Analysis of Children.

Arbeiten zur Entwicklungspsychologie, 1921. No. 5 is devoted to a treatise by Dr. Freyer on the attitude of nineteenth-century thinkers to economics.

Zeitschrift für Psychologie, 1921, vol. lxxxvi., Nos. 4 and 5, continue the analysis of Space-perception, and A. Hofler gives a useful summary of Meinong's Psychology. Meinong, whose death occurred last November, was one of the editors of the *Zeitschrift*, and a posthumous summary of his general position appeared in a volume published by the firm of Felix Meiner early this year.

Zeitschrift für angewandte Psychologie, *Monograph* 25.—David Katz on the Psychology of Amputated Patients. *Monograph* 26.—Vocational Selection and the School, by Erich Stern.

Psyke (Danish) has for its principal item an article by Professor Alrutz of Upsala, in which the author defends the "effluence" versus the "psychical" theory of "mesmerism."

Psyche's Lamp. By ROBERT BRIFFAULT. (Allen and Unwin, 1921. 12s. (d.)

An author who claims to have proved a theory which "abolishes death, for what does not exist cannot cease to exist" is at least making a claim on the attention of students of psychic research; and Mr. Briffault, whose book is likely to interest a wide public, is particularly worth discussing because he contrives to introduce into his argument so much incidental matter which is valuable on its own account. The reader will be well advised not to be prejudiced by the Introduction, in which amongst other things he is informed that "epistemologically the inner world of mind 'contains' the entire universe," but to consider on their merits such chapters as those on Organic and Inorganic action, and the Organism and consciousness in which an able and lucid attempt is made to interpret modern bio-chemical and histological hypotheses.

Mr. Briffault begins by reducing conscious purpose to mere mechanism in the service of a "primary conative tendency" (p. 185 ff.), apparent equally in all forms of life, and for him the important fissure is between the organic and inorganic rather than between consciousness and matter. The tendency active in one organism is part of the general tendency active in Life as a whole. Thus the disappearance of a single organism is insignificant, and it is our preoccupation with particular organisms, ourselves, which has led to the false concept of personal individuality with its corollary, the problem of death.

All this clearly has affinities with the writings of Bergson and with the recent speculations of Mr. Russell and others, but Mr. Briffault does not offer any detailed analysis of our ordinary modes of behaviour. He adds, however, a final argument, drawn from linguistic considerations and similar to that which has led to the scepticism of Manthuer and other ultra-nominalists. On the one hand our actuating impulses, our feelings, instincts, etc., derive from our organic ancestry; they are currents in the river of life, and subserve the well-being of the organism. On the other our soul, our humanity, our human consciousness "is entirely derived from the collective social environment," not by way of descent but by assimilation: it "enters our being mainly by means of words," and is the product of an "abstraction," since "society" to whom we owe it is made up of souls similarly manufactured. It is a pity that an author who displays such a lively understanding of the nature and dangers of symbolism (pp. 85 and 203) should at so critical a point have lapsed into vagueness and metaphor. Even if "society" is an "abstraction" the members of a society, the aggregate, do not form an abstraction. No doubt the human mind is socially conditioned, but this does not make it a social *creation*, nor if it were a social creation would the question of its existence and survival be ruled out. It only remains to add that Mr. Briffault's style is engaging, and that he is not afraid of linguistic innovations—though *incardinate* (p. 86), *mawl* (p. 84) and *spacial* (p. 13) seem to require attention.

O. R.

An Introduction to the Psychological Problems of Industry. By FRANK WATTS, M.A. (Allen and Unwin, 12s. 6d.)

There is really very little to say about this book except to describe its contents and to add that it is well written, suitably produced, and full of good, sound stuff. Mr. Watts is Lecturer in Psychology in the University of Manchester and in the Department of Industrial Administration of the

College of Technology in that city. He also has a considerable first-hand knowledge of the practical application of his subject.

His book begins with a short survey on the Psychological Point of View in Industry, which forms an admirable introduction to the main part of the work. He then deals in order with Fatigue and Inefficiency, with Motion Study, and with Vocational Selection. This concludes the treatment of what may be termed the more mechanical aspect of the subject.

A chapter on Scientific Management and Labour forms a natural stepping-stone to the last two chapters, which deal with broader issues under the headings of Industrial Unrest and the Creative Impulse in Industry.

The fact that in this last chapter the author discusses such topics as the Decline of Craftsmanship, Recreation, and Ideals in Industry shows that he is alive to issues more vital than mere increase of efficiency as such, and to those all-important factors which cannot be expressed in terms of percentage, gain, or loss.

It is this breadth of view, perhaps, which one especially admires and which makes the book so much more valuable than others which confine themselves to the immediate and practical problems of increasing output.

The book is one which we unhesitatingly recommend to all who are interested in the subject, whether as industrialists or from the psychological point of view. It can be read with equal profit by those who are not specialists in either of these subjects, or directly concerned with them; but who wish to acquaint themselves with what is now being done and may in the future be reasonably expected in a field of vital importance to the nation as a whole and to every individual in it.

W. W. S.

ALSO RECEIVED

[Notice in this column does not necessarily preclude subsequent detailed reviews.]

The Psychology of Day-Dreams. By DR. VARENDONCK. With an Introduction by Prof. Sigmund Freud. (Allen and Unwin, 18s.)

Man's Unconscious Spirit : the Psycho-Analysis of Spiritism: By WILFRED LAY, Ph.D. (Kegan Paul, 10s. 6d.)

Education and World Citizenship. By MAXWELL GARNETT. (Cambridge University Press, 1921, 36s.)

The Mneme. By RICHARD SEMON. (Translated by L. SIMON, 1921. Allen and Unwin, 18s.)

On Nature of Existence. By J. E. McTAGGART. Vol. I. (Cambridge University Press, 1921, 22s. 6d.)

The Analysis of Mind. By BERTRAND RUSSELL. (Allen and Unwin, 1921, 16s.)

- Logic, Part I.** By W. E. JOHNSON. (Cambridge University Press, 16s.)
- Fijian Society.** By the REV. W. DEANE. (Macmillan, 1921, 16s.)
- Divine Imagining, an Essay on the First Principles of Philosophy.** By DOUGLAS FAWCETT. (Macmillan, 15s.)
- Measure Your Mind.** By F. P. STOCKBRIDGE and M. R. TRABUE. (Harrap, 1921, 10s. 6d.)
- Activism.** By H. L. ENO. (Princeton University Press. London, Milford, 1921, 6s. 6d.)
- The Psychology of Everyday Life.** By JAMES DREVER. (Methuen, 1921, 6s.)
- The Psychology of Industry.** By JAMES DREVER. (Methuen, 1921, 5s.)
- The Psychology of Behaviour.** By DR. ELIZABETH SEVERN. (Stanley Paul, 8s. 6d.)
- Neither Dead nor Sleeping.** By MAY WRIGHT SEWALL. (Watkins, 7s. 6d.)
- The Great Demonstration.** By KATHARINE ROOF. (Appleton, 8s. 6d.)
- D. D. Home, His Life and Mission.** By MRS. DOUGLAS HOME. Edited by SIR ARTHUR CONAN DOYLE. (Kegan Paul, 9s.)
- Masonic Legends and Traditions.** By DUDLEY WRIGHT. (William Rider, 5s.)
- True Tales of the Weird.** By SIDNEY DICKINSON. With an Introduction by R. H. STETSON and a Prefatory Note by G. O. TUBBY. (Duffield. No price given.)
- An Amazing Séance and an Exposure.** By SYDNEY A. MOSELEY. (Sampson Low, 3s.)
- Joseph Glanvill,** by H. S. and J. M. L. REDGROVE; **Giordano Bruno,** by EVA MARTIN; **Cornelius Agrippa,** by LEWIS SPENCE. (Rider, 2s. 6d., 2s., and 2s. respectively.)

PSYCHE

VOL. II, No. 2. NEW SERIES: OCTOBER, 1921

EDITORIAL

IN our last issue we spoke of the way in which the "solid and valuable work done by professional investigators" has suffered by being "overshadowed by the more sensational doctrines of facile writers." Nowhere has this been more noticeable, or its results more unfortunate, than with regard to Psycho-analysis, which has aroused a degree of popular interest—we might almost say enthusiasm—almost without parallel in the history of scientific progress, so that most educated people possess, or think they possess, some knowledge of what the term means. Unfortunately the most accessible and popular literature has not, in general, emanated from the best-informed sources, with the result that current ideas on the subject are full of misconceptions and a state of affairs has arisen which cannot fail to produce acute apprehension in instructed observers.

The reasons for this popular vogue are not far to seek. In the first place, the practice of Psycho-analysis developed so rapidly during the war as to produce upon the public all the effect of a new and startling discovery.

Another reason is the emphasis laid by Psycho-analysis on the part played in mental life and in the determination of human conduct by "the unconscious," a view which not only appeals to the popular imagination as containing an attractive element of mystery, but also provides a convenient whipping-boy for those who wish to evade responsibility for their own imperfections.

Finally, it seems fair to say that one of the chief factors is to be found in the insistence of psycho-analysts on the paramount importance of the sex-instinct in mental activity in general and the causation of psychical disorders in particular. This has given people a chance to think and talk about sexual matters, on the pretext of scientific interest, in a way which they could not otherwise have done without gravely

violating their own sense of propriety and the dictates of social convention.

This, together with the remarkable results achieved by experienced practitioners of the technique, has resulted in a great number of unqualified persons setting up as psychoanalysts and in a still greater number of foolish men and women seeking their ministrations in a most ill-advised manner.

The effect has in many cases been most detrimental both to the cause of scientific progress and to the "patients" themselves. This has served to strengthen the hands of those who are hostile to psycho-analytic doctrines, whether from mere ignorance and prejudice or on account of the inimical reaction which their peculiar features are bound to arouse in certain types of mind. The effect of this, again, has been to cause the qualified exponents of the technique to entrench themselves more deeply and to show themselves more intolerant of suggestions and criticisms coming from students outside their immediate circle than they might otherwise have done.

The resulting state of affairs is far from satisfactory, but there is good reason for hoping that it will soon improve. In the first place, the ignorance and misunderstanding which has been responsible for so much evil in this country is likely to be appreciably reduced by the new publications of the International Psycho-analytic Press and by the rendering accessible to English students of such books as Prof. Hitschmann's summary of *Freud's Theories of the Neuroses*. Secondly, there is a growing weight of opinion to the effect that strong measures should be taken to prevent the practice of psycho-analysis by unqualified persons. With this view we are strongly in agreement, though it might be doubtful wisdom to demand a full medical qualification in every case. It seems foolish to insist on a man being able to amputate a leg before he is allowed to analyse a dream, and too rigid an attitude in this respect might easily defeat its own ends. It seems not unreasonable to suggest that a man might be allowed to undertake the actual treatment of cases referred to him by a fully qualified medical practitioner—who would be responsible for the diagnosis and supervision of the case—provided he had proved himself, by examination or otherwise, to be thoroughly qualified in all the matters truly relevant to the application of the treatment.

Something of the kind is already customary in various forms of treatment ancillary to the medical profession—*e.g.*,

special baths, X-ray, massage—and, given proper precautions and a high standard of examination, it is probable that a similar procedure would prove satisfactory in this case, especially now that the “new” doctrines have firmly established themselves in the medical profession itself.

As regards the scientific credentials of psycho-analytic doctrines as such we need only say that from the point of view of general psychology, there seems to be nothing in them which is in any way incompatible with accepted views. On the contrary, we believe that all their more essential features are necessary corollaries of the known laws of mental activity and the known conditions of civilised life. The apparent disparities are, we believe, due rather to ambiguities of language and the different *milieus* in which general and analytical psychology have developed—the one metaphysical, the other medical—than to inherent divergencies of theory. It is true that some of Freud’s followers, as is the custom of disciples, have carried certain of his views further and have stated them more dogmatically than he himself would care to do, and there can be little doubt that he himself has unnecessarily alienated the sympathy of many students by his occasionally unfortunate use of words, notably the term Sexuality, which he uses to include all kinds of things which are only very remotely connected with sex as commonly understood.

That psycho-analytic doctrine in general lays itself open to criticism on certain specific points cannot be denied, and a good example is given in an article by Mr. W. R. Bousfield, K.C., and Dr. Paul Bousfield, published in this issue. It is also probable that psycho-analysts, rightly impressed by the immense importance of sexual factors and justifiably annoyed by the attempts of the prejudiced to deny it, have omitted to do justice to other factors. It might advantageously have been made clearer that the sex-instinct plays so large a part in unconscious mental processes not because it is more fundamental than other instincts or possesses unique properties, but because the exigencies of civilised social life habitually thwart and hold it in subjection in a way which does not apply to other equally powerful instincts.

But these are minor faults which, in common with other technical imperfections, will doubtless be rectified in the course of time. Their temporary presence does not detract from the value of the discoveries made by psycho-analytic methods or from the services which, in qualified and responsible hands, they are capable of rendering to mankind.

THE INSTINCT OF ACQUISITION

By W. H. R. RIVERS, F.R.S.

Author of *Instinct and the Unconscious*

THE concept of acquisition is one which is very prominent in the economic and political discussions of the day. In such works as *The Acquisitive Society*, by R. H. Tawney, we are led to regard acquisition as the distinguishing feature of existing society, and, moreover, one closely connected with certain morbid characters which this society shows, a relation clearly expressed in the title of Tawney's earlier work, "*The Sickness of an Acquisitive Society*."

In connection with the problems raised by such discussions it becomes of great importance to know how far the features of social behaviour connoted by the terms "acquisition" and "acquisitive" are inherent in the character of human beings as members of society; how far they are inborn or instinctive, and how far they are the outcome of social environment and social tradition. In other words, it is necessary to inquire whether Man, in addition to the many other instincts now generally ascribed to him, possesses an instinct of acquisition.

In discussing this question it is necessary to begin by considering the meaning to be given to the two terms "acquisition" and "instinct." Properly speaking, perhaps, acquisition should only apply to the process or act of acquiring, and should be distinguished from the process of holding or keeping objects when they have been acquired. We have to distinguish between gaining and holding.

If acquisition be used in the former sense there can be no question about the instinctive basis of the process. Such acquiring is essential to the satisfaction of most of the basic instincts, such as those of nutrition and sex, but at the same time it is highly doubtful whether there is any need to posit a special instinct. In this sense acquiring food is essential to the satisfaction of the instincts of nutrition; acquiring a mate is essential to the satisfaction of the sexual instinct; and the same holds good of the acquisition of any objects which lead directly or indirectly to the satisfaction of these instincts or to the acquisition of objects, such as weapons, prompted by the danger instincts. It is the aspect of holding or keeping that we must have in mind when we consider whether there is an instinct of acquisition, and

it is with this aspect of the subject that I shall deal in this paper. When Tawney or any other economist deals with acquisition he means the acquisition of wealth, and the idea of holding that which has been acquired is given in the definition of wealth. The practical interest of the problem with which I shall deal in this paper, therefore, is concerned with the concept of property, and the problem involved is whether the concept of property has an instinctive basis.

Whether man possesses an instinct of acquisition in the sense thus laid down, however, will form only a small portion of our subject. It will be necessary to consider the nature of this instinct if it exists, where it stands in a classification of instincts, and how the original instinct has been modified by the action either of other instincts, social tradition, or individual intelligence. As a preliminary it will be necessary to inquire—it must be very briefly—what we mean by instinct, how instincts are classified, and what are the modifications they undergo.

I shall define an instinct summarily as a set of dispositions to behaviour determined by innate conditions. It is now becoming widely recognised that nearly all, if not all, the behaviour of mankind is partly determined by inborn factors, by tendencies which the individual brings into the world with him when he is born. At the same time, it is, I think, equally widely accepted that it is only very rarely that human behaviour is purely instinctive; that every instinct suffers modification through experience, and that in man the most we can expect to be able to do in studying any example of behaviour is to recognise an instinctive component as being present in more or less degree.

I have elsewhere ¹ distinguished two main varieties of instinct. One kind, which acts purely in the interests of the individual or of the preservation of the race, has in its unmodified form a crude character according to which behaviour is not graded in response to the needs to be met, but the instinctive tendencies exert their full effect independently of the nature of the stimulus which sets them in action. The instincts of the other kind, which act mainly in the interests of the group, reveal themselves in behaviour graded, often very delicately, according to the needs to be met. In Man at least this character of grading also forms one of the chief modifications to which the cruder, "all-or-none" instincts become subject as the result of experience. It is often a problem of the utmost difficulty to determine how far the modification of a crude, "all-or-none" instinct in the direction of grading is due to the influence of other instincts of the graded kind or to the action of experience. This difficulty is especially great in the case of human instincts, and we shall find that the instinct of acquisition forms no exception to this rule.

¹ *Instinct and the Unconscious*, Cambridge, 1920, p. 43 et seq.

With this preliminary introduction, I can proceed to my proper subject. I will begin by dealing with a few of the facts which point to the existence of an instinct of acquisition in animals other than Man.

The Instinct of Acquisition in Animals.—The examples of animal behaviour which have especially attracted attention as evidence for an instinct of acquisition are cases of hoarding, and especially such apparently irrational hoarding as is exhibited by the magpie or by the dog who is continually burying bones for future use in spite of the fact that he has never known any interference with his regular supply of food.

An especially striking example of the hoarding instinct is presented by the bee. The behaviour of the domesticated insect suggests that this instinct is ungraded in so far as the size of the hoard is concerned, or, more correctly, that the strength of the impulse to hoard stands in no relation to the size of the hoard already accumulated. Moreover, the enormous accumulations of honey found in the nests of bees in the wild state suggest that this character is not merely a result of the abnormal and artificial circumstances to which the domesticated varieties have been exposed.

Examples of the action of an instinct of acquisition of a very different kind are presented by the behaviour of birds in relation to territory, of which so interesting an account has recently been given by Mr. Eliot Howard.¹ Mr. Howard finds that the earliest phase in the process of mating and breeding in many birds is the assumption of a special attitude on the part of the individual male bird. The male takes up a position from which he adopts an aggressive attitude towards any other male of the species which ventures within a region surrounding this position. The size of the territory over which individual ownership is thus assumed varies with different species and under different conditions, but is usually a half to several acres in extent. When the male bird has become master of his territory he is sought out by the female, and mating and breeding take place. In the case of migrating species this acquisition of what we cannot but regard as rights of individual ownership over a territory takes place immediately after migration, but in the case of resident species the change from the previous communal life to the acquisition of individual rights over territory seems to depend largely on temperature, and with return to a lower temperature male birds which have acquired individual territories may return to communal life. When they so return, no trace can be observed of the aggressive attitude towards other males which accompanies the territorial ownership. Another striking feature of the behaviour of these birds is that the aggressive attitude only shows itself within the individual territory, and disappears as

¹ *Territory in Bird Life*, London, 1920.

soon as a male has been chased out of the territory into which he has intruded.

As Mr. Howard shows, this process of acquiring individual rights over a territory is clearly instinctive. Its special interest is not only that it illustrates very definitely the existence of an instinct of acquisition, but that this instinctive attitude towards ownership only shows itself in connection with the parental function, or as a stage in the chain of proceedings in which the parental instinct finds expression. So far as we can speak of an instinct of acquisition in this case it is not independent, but is closely bound up with the sexual and parental instincts by means of which the race is perpetuated.

I must be content with these examples of the existence of an instinct of acquisition in animals other than Man. In the cases I have considered the instinct acts directly in the interests of the individual, though the acquisition of territory by the individual male bird is ultimately in the interests of the race. I have now to consider how the individual instinct of animals is modified in the interests of the community to which the individual belongs. This is shown in its most complete form in the bee, where the acquisition of honey has become the specialised function of only certain individuals of the community, who perform this function altogether in the interests of the community, and get from it, as individuals, no greater advantage than other members of the community whose instinct of acquisition has become either atrophied or suppressed.

There can be little doubt that at one stage in the racial history of the bee the storing of honey must have depended upon an instinct acting in the interest of the individual, and, if this be so, the bee shows us how the individual instinct of acquisition can be so modified in connection with the gregarious life as to act completely in the interest of the community. It is not unnatural that this modification should appear so clearly in an animal which presents perhaps in a higher degree than any other creature the process of adaptation to the gregarious life. In the bee this process of modification has gone so far that it is not possible to obtain evidence concerning the nature of the process by which the modification has come about. Let us inquire whether it is possible to find such evidence in the other chief case I have cited. One of the main interests of the behaviour of many birds in relation to territory is that the instinctive acquisition of territorial rights by the individual only takes place at one period of the year, and in connection with the sexual and parental functions. During the rest of the year the bird is gregarious and sociable, and the instinct of acquisition, in so far as it reveals itself by the aggressive behaviour of the individual in relation to territory, shows no sign of its presence.

We have here an alternation of behaviour and of what we might call personality of the same order, though less pronounced, as is shown

by the amphibian which takes to the aquatic life as part of the process of breeding. In the case of the newt, the change in passing from one state to another is far greater than in the bird, and it is accompanied by definite physical and physiological changes, but the difference between bird and amphibian is probably only one of degree. In the bird the chief observable change is in behaviour. During the winter it is eminently sociable; it is only in the spring, and as part of the process of mating and breeding, that it shows hostility towards others of its species. As Howard puts it, "Whereas the outstanding feature of bird life in the winter is sociability, that of the spring is hostility."¹ Moreover, the change from one state to the other is directly dependent upon temperature; a male bird which with the onset of spring weather has assumed individual rights over territory, with the accompanying hostility, will again become peaceful and sociable if there is a return of cold weather. Whereas any tendencies to individual acquisition which the bee may once have possessed have been wholly subdued so as to adapt this insect to its gregarious life, the bird, though gregarious through the greater part of the year, shows at one season the presence of an instinct of acquisition which acts immediately in the interest of the race. While the bee, as the most highly socialised of creatures, shows complete socialisation of an instinct which may once have acted solely in the interest of the individual, the bird has its instinct of acquisition less completely socialised, and still exhibits the activity of this instinct at one season of the year and in connection with one of its vital activities.

The annual cycle of the life of these birds suggests that the individual instinct of acquisition with its accompanying aggressive attitude has been suppressed in the interests of communal life, but that the bird differs from the bee in that the suppression is not complete. It is relaxed in the breeding season when the acquisitive attitude again comes to the surface. Its reappearance is definitely connected with the parental instinct, having as its biological motive the needs for the acquisition of a territory upon which sufficient food can be obtained to feed the young.

The Instinct of Acquisition in man.—In dealing with animals other than Man I have first given examples of the crude instinct and then tried to show how in certain cases this crude instinct acting in the interest of the individual has been suppressed or modified in response to needs arising out of the gregarious life. It now remains to attempt a similar task for Man himself.

The most striking evidence in favour of the instinct of acquisition as part of Man's mental endowment is derived from pathology. A leading feature of many psychoses is an impulse to collect, apparently with little, if any, regard for the nature or value of the objects collected,

¹ *Loc. cit.* Page 231.

though it must always be remembered that undiscovered beliefs or sentiments present in the mind of the disordered person may give the collected objects a value as real to him as that of the ordinary possessions of the normal man.

Another pathological state which points in the same direction is the impulse to acquire which is known as kleptomania. This term probably denotes several different states or processes, but there seems to be little doubt that prominent among these is one in which a person has an uncontrollable impulse to acquire anything of value which comes within the purview of his senses. The various social factors through which such impulses are normally controlled are wholly insufficient to prevent these impulses from going on to action. The frequent tendency for persons to become misers as part of the regression of senility is another fact pointing in the same direction.

The validity of this evidence depends on acceptance of the view that the psychoses, psycho-neuroses, and other pathological states are examples of regression or reversion to early stages in the development either of the individual or the race. The strength of the impulse to collect in childhood offers confirmation of a different kind. Not infrequently this impulse to collect with little regard to the value of the objects collected continues into adult life, but in most cases only such collections are continued as stand in a definite relation to other social activities. The boy who collects butterflies, birds' eggs and postage stamps indiscriminately will collect certain kinds of insects if he becomes an entomologist, but will collect books if he devotes his life to historical or literary studies.

There is thus a certain amount of evidence derived, partly from behaviour in youth, partly from the regressions of disease or age, pointing to the existence in Man of a crude indiscriminating instinct of acquisition acting solely in the interests of the individual.

In our own individualistic, or, as it has been called, "acquisitive" society, acquisition in the interest of the individual is a prominent part of the existing social order, but it is a question how far this is due to the action of instinctive tendencies and how far it is the outcome of tradition and example. The fact that such a state as kleptomania and the behaviour of the miser are regarded as pathological or anti-social shows that any crude instinct of acquisition which Man possesses has been brought under control as the result of social influences, and the question before us is how far those cases of acquisition by the individual which are a normal part of our social order can be held to have an instinctive basis.

If we are to use the term instinct in the case of man in the same sense as it is used when dealing with other animals, we shall only be justified in regarding that behaviour as instinctive which is common to mankind in general. It is theoretically possible that different

branches of mankind may have been separated from one another for a sufficiently long period of time, and have in that time undergone development on sufficiently different lines, to have become endowed with different instincts, but it is far more likely that the instinctive equipment of all varieties of the human species is alike, and that any differences they may show in relation to such a process as acquisition are due to different degrees in which a common instinct has suffered modification in the individual as the result of tradition and social environment.

I propose now to examine some examples of behaviour in relation to acquisition from people of a culture widely different from our own in order to obtain some facts bearing on the subject before us. I shall here confine my attention to the region of Melanesia, which has been the seat of my own inquiries.

Throughout Melanesia we find a peculiar blend of individualistic and communistic behaviour in relation to property. In respect of all kinds of property the whole aspect of individual ownership is far less definite than among ourselves. Though certain objects, such as weapons or utensils which a man has himself made, are regarded by general consent as his individual property, there is far more common use of such individually-owned articles than is customary in our own society. With other objects, especially those made by the united efforts of the community, the concept of individual ownership is unknown in many parts of Melanesia. The canoe, for instance, is regarded as the common possession of a social group, it may be a clan or a group of kinsfolk, and there is a striking absence of such disputes concerning the right of use as we might expect from the example of our own individualistic society.

The object in which common ownership is perhaps most universal and most definite is land, and it forms a subject especially suitable for the study of the problem to what extent ownership in human society can be held to have its basis in an instinct of acquisition.

Everywhere in Melanesia, so far as our information goes, the ownership of uncleared land is primarily vested in the tribe. Any member of the tribe has the right to clear a plot for the use of himself, his relatives, and descendants. Land which has been already cleared is held in general to belong to a social group within the tribe. Thus in Eddystone Island, in the Western Solomons, ownership is vested in a group of relatives called *taviti*, and any member of the *taviti* can use the land of the group or take produce from the land cultivated by any other of its members. A similar state of affairs holds good for the group of kin called *vantimbül* in the island of Ambrim, in the New Hebrides. In both places there are rules that certain kin must ask for permission before they can take produce from land cultivated by other members of their group, while in the case of other kin this is not necessary,

the difference depending mainly on the nearness of relationship. In all cases, however, the feature which strikes the European observer is the absence of the disputes which would be inevitable if such a state of affairs existed among ourselves, assuming, of course, that our existing sentiments remained what they now are.

A striking example of the difference of attitude towards common and individual ownership of land was given to me in the island of Mota, in the Banks group.¹ Here it was the custom for a man who had cleared a piece of land to mark out an area for the use of each of his children. I worked out the history of a plot of land which had been divided up in this way several generations ago. After a plot had been assigned to each child, the rest was left for the common use of all. Each of the individual plots had passed from one person to another in course of time and each was still regarded as an individual possession, but I was told that disputes concerning the ownership and right to use the produce of these individually-owned gardens were frequent, while there was never any quarrelling about the use of that part of the original plot which had been left for the common use of the descendants of the original clearer.

I cannot refrain here from pointing out a striking resemblance between this Melanesian example of ownership of land and the nature of the acquisition of territory by birds; of which Howard has given us so striking an account. This observer finds that early in the year a flock of birds may be observed living a common life on an area of land. As spring advances, individual males leave the flock one after another and acquire individual territories, as already described, but after most of the males have thus acquired individual territories, part of the original area still continues to be occupied by the rest of the flock, including those males which for one reason or another have failed to acquire territories. The striking feature of resemblance with the Melanesian example of land-tenure is that the aggressive attitude only arises in connection with the territories which have been acquired by individuals, while there is practically no fighting on that part of the original area which has remained common to the flock. A further point of resemblance may be noted. The individual acquisition of territory in the case of the bird society is definitely connected with the parental function, while in the Banks Islands the original clearer of the land marked out the individual plots for his children. Here also individual ownership, in so far as it exists, seems to be connected with the parental function.

I do not wish to lay too much stress upon these striking resemblances between the social behaviour of man and bird in relation to the individual ownership of land, though I think we ought to ponder the

¹ *The History of Melanesian Society*, Cambridge, 1914, vol. i., p. 55.

kind of conclusions which an avian sociologist would be likely to reach if he were to investigate this aspect of human society. It is impossible, however, to ignore the fact that in this Melanesian case of human behaviour we have just such an example of the association of communal ownership with peace and of individual ownership with strife as is presented by bird society. Moreover, I do not think that in studying the human example we can ignore the principles of inquiry which we follow when considering the social behaviour of other living creatures.

I have suggested that the behaviour of many birds during the breeding season depends on the revival at this period of the year of an instinct of acquisition in the interest of the individual which during the rest of the year has been suppressed or greatly modified by needs arising out of the gregarious life. Except in the breeding season the individual instinct of acquisition does not show itself, but has suffered the inhibition or suppression which instincts acting in the interests of the individual are liable to undergo during the process of adaptation to the gregarious life. The facts of development and regression in Man point to acquisition in the interest of the individual as the primary and more deeply-seated process which in the bird and the Melanesian has undergone partial suppression in the interest of social needs. In the case of the bird we are accustomed to regard the modification in the interest of the community as being also instinctive, as having taken place through the activity of a gregarious or herd instinct. In the case of Man, it would be dangerous at once to draw the same conclusion, especially when we find that, if Man's attitude towards property is determined by an instinct of acquisition, the instinct of different peoples has undergone in such very different degrees the process of modification in response to social needs. If we suppose that the attitude towards property has an instinctive basis, we are driven into the position that the crude individual instinct is far more powerful among ourselves than among the Melanesians, and that it has in far less measure been modified in response to the needs of social life.

At the present time it is the fashion to call upon herd-instinct for the explanation of many manifestations of the social activity of mankind, usually without any clear statement concerning what is meant by instinct. One of the chief problems awaiting the consideration of the sociologist is how far such socialisation of an individual instinct as is shown by the attitude of bird and Melanesian towards territory is to be explained by the action of a gregarious instinct and how far it is due to the influence of social tradition and example. Both Melanesian and bird show that an instinct of acquisition in the interest of the individual can be so greatly modified in response to gregarious needs that it practically disappears or only appears under special circumstances. If this modification or disappearance needs the direct

action of a gregarious instinct, there are no great hopes that the highly individualistic attitude of our own society towards property can suffer speedy modification. If, on the other hand, such modification or suppression can take place through the agency of social tradition and example, those who advocate a change in our social attitude towards property can be much more hopeful. The fact that two creatures so like one another as Melanesian and European differ so greatly in their attitude towards individual ownership suggests that, in so far as they possess in common an individual instinct of acquisition, this has been modified by social traditions rather than by the direct activity of a gregarious instinct, but far more exact thought is needed about the part which instinctive factors take in social development.

The problems suggested by this paper are not going to be settled by the kind of loose thinking and loose writing about the herd-instinct which are now so prevalent. Two lines of inquiry are especially needed. We need in the first place exact thinking about the part taken by instinctive factors in the action of social tradition and, in the second place, we need a vastly larger store of facts concerning the attitude towards acquisition and ownership of different human societies on the one hand, and of different animal societies on the other. It is an easy course to reject the value of such comparative study in its relation to our own social problems by pointing out that the bird has evolved on lines widely different from our own, and that the Melanesian is a palpable failure in the social struggle for existence. Such arguments may have a certain amount of force so long as we treat the problem on purely historical lines and fail to bring psychological considerations to bear on the problem. But the rejection of such evidence is no longer possible when we turn to psychology for guidance, and seek for the general psychological laws which have guided the evolution of societies. Certainly such evidence cannot be rejected when we are dealing with the part which instinct has taken in this guidance.

It is, of course, impossible to attempt the treatment of such problems as I have raised on such an occasion as this. I must be content to suggest certain lines of study in relation to the instinct of acquisition which cannot be ignored if we are to understand the essential nature of some of our most important political and economic problems.

DETERMINISM IN RELATION TO PSYCHO-ANALYSIS

By W. R. BOUSFIELD, K.C., F.R.S.,

AND

PAUL BOUSFIELD, M.R.C.S., L.R.C.P.

THE practice of psycho-analysis in this country has recently increased owing perhaps in some measure to the large number of "shell-shock" cases which have been successfully dealt with in this way, and it is chiefly applied to the study and treatment of a variety of psycho-neuroses—or mental and nervous ailments, as we will call them (with the desire to avoid here, as elsewhere, technical terms not familiar to everyone). Briefly, the method consists in laying bare motives and tendencies which are unknown to the patient and in digging up these hidden springs of action from the unconscious mind by the use of trains of associations which penetrate further and further into the background of the mind until their sources are revealed and suitable methods of dealing with them found. Obviously the character of the patient as well as his mental condition may be greatly modified by the treatment applied, and the effect on character may be as important as the effect on mental equilibrium. Furthermore, the activities of psycho-analysts extend beyond the field of psycho-pathology, and the conclusions at which they have arrived have special importance in the field of education where they deal with the deepest problems of character formation. Since character formation is a subject of the highest import, both for the individual and for the race, it is clearly desirable that the theory and practice of psycho-analysis should be based upon a view of human life and conduct which should be in conformity with the highest standards.

It is not proposed to enter upon a general discussion of the methods of psycho-analysis, and our criticisms will be limited to the school of which Freud is the high priest, which bases its theory on a purely materialistic view of human nature.

It is not a little remarkable that this school should declare itself materialistic when in the realm of physics scientists are finding room for a spiritual as well as a material side to the universe. We use the term "spiritual" in contrast to the word "material" to denote the intelligence and power which in man may survive the dissolution of the material body and in nature may be the moulding agency of matter. Science now reveals to us that the whole material universe is built up from two simple components, protons and electrons, the positive and

negative units of electricity, and we are able to envisage an original nebula at such a high temperature that these two kinds of primary matter had not coalesced into atoms or molecules. The notion that the world and its inhabitants have been evolved from such a nebula without any intelligent moulding agency has become scientifically unthinkable. Furthermore, we now know that atoms and molecules are composed of systems of electrons arranged about a nucleus with spaces between them which are vast compared with the size of the component electrons. The notion of an ethereal or spiritual body which may interpenetrate the material body and survive as the vehicle of memory, intellect, consciousness, and character is no longer unscientific. But the strict ¹ Freudian school, in the exuberance of their psychology, have disposed of spirit and find mind a mere function of matter. According to this school, not only is a Divine will non-existent, but the human will is a figment of the imagination. It teaches that when a man with certain moral ideals struggles against opposing natural instincts, and comes out, as may be, either victor or vanquished, the result is a foregone conclusion. It postulates that in this conflict conduct is governed not by the will of the individual but by a rigid determinism. It alleges that there is no such thing as free will, that the struggle between good and evil of which the conscious mind takes note is a mere delusion, and that the result of such struggle is in reality predetermined before the apparent struggle begins. It professes to account for the "superstitions" of mankind, and Freud in the course of a discussion on paranoia observes: "We venture to explain in this way the myths of . . . God, of good and evil, of immortality and the like, that is to transform metaphysics into meta-psychology. The gap between the paranoiac's displacement and that of superstition is narrower than appears at first sight."

It is all very well for the mere philosopher to hold such views, and they do not worry the mind of the normal man, unless he adopts this attitude as an excuse for vices which he cannot control (as to which more anon). He resolves the question by an appeal to his own consciousness, and when the occasion arises he engages in those mental or spiritual struggles by which character is built up. Nor would the materialism of an engineer or of a lawyer, or even of a surgeon, trouble us. But when the psycho-analyst who is going to treat a diseased mind bases his treatment and his technique upon the theory that the patient has no real power of choice between good and evil, and insists that this is a mere illusion, we are entitled to consider the grounds on which he claims to have arrived at the negation of free will as a scientific fact.

¹ We use the words "*strict* Freudian" because there are many who, while accepting on the whole Freud's observations in regard to psychic evolution and character formation, do not accept his purely material and deterministic ideas.

In this criticism of the Freudian school of psycho-analysts we desire to challenge their insistence upon this doctrine of complete "determinism," without questioning the theory that determinism does play a very large part in conduct, and without touching upon other features of their system of analysis.

There are certain principles of psychology which Freud and his followers have co-ordinated and extended and have made the foundation of their technique which receive general acceptance. These principles are quite independent of the use which the Freudian school has made of them. Let us examine these principles which have received general assent, which we will state in our own way in language as free as may be from technicalities.

Psychologists appear to be agreed that many of our conscious acts and thoughts which are independent of a direct exercise of the will are governed by what may be called determinants, the seat of which is chiefly in the unconscious mind and which operate independently of consciousness. Some of these determinants are positive—that is, they tend directly to induce particular modes of thought or action; others are negative, and tend to inhibit certain modes of thought or action. The psycho-analyst deals largely with the negative class of determinants, the foundation of which is an unconscious impulse to keep back disagreeable or painful ideas and prevent them from rising into the stratum of consciousness. The positive determinants, which include habits and automatic tendencies, do not appear to be so deeply seated in the unconscious mind, and are more readily recognised by the conscious mind. But the inhibitive determinants are more securely hidden, and it is the business of the psycho-analyst to bring these to the surface so that they may be recognised by the physician, and in many cases by the patient, and suitable treatment applied. This is accomplished by a practical technique which is founded on trains of associations by which the unconscious mind of the patient is gradually more deeply penetrated until the hidden determinant is brought to light.

Numerous illustrations of the operation of these principles are given by writers on psycho-analysis, who are chiefly concerned with the inhibitive determinants. Thus the forgetting of a name or a word may often be traced by analysis of a simple kind to the fact that the name or the word, if remembered, would bring into the conscious mind some associated idea of a disagreeable character which the unconscious mind keeps back. The unconscious mind, or some function of it, stands as sentinel or "censor" over this disagreeable idea, and not only keeps it back, but keeps back other associated ideas, which if brought into consciousness would call up the disagreeable idea. Hence the forgetting of the idea for which the conscious mind may be groping, because it is inhibited by the unconscious mind as being associated with disagreeable ideas. The above reasoning is applied not only to *lapses*

memoriae, but also to *lapsus linguae* and *lapsus calami*, to mistakes in reading and writing, and to errors of various kinds which are apparently unintentional but which may be traced to the inhibiting effect of the unconscious mind in keeping back some disagreeable association.

Freud gives many illustrations of the application of various determinants to chance actions and to erroneously-carried-out actions, and a perusal of a number of these illustrations leads to the conclusion that a very large number of our thoughts and actions are in fact determined by impulses which come from the unconscious mind without recognition in consciousness.

So far, so good. But psycho-analysts of the strict Freudian school go further, and insist upon the generalisation that *all* our thoughts and actions are determined in this way, that there is no such thing as free will, that when a man thinks he makes a free choice between good and evil, for instance, his freedom of choice is an illusion, and that his thought or action is really no more than the automatic resultant of impulses some of which are conscious and some unconscious, the action of which is beyond his control. What, then, are the grounds on which they claim to put this forward in the name of science, as a fact scientifically proved?

As Freud is the leader of the school which is being criticised we shall consider the sort of proof on which he bases his views. A perusal of literature relating to the subject indicates that his followers accept his views without much criticism of their own. Freud is hailed by his followers as "the Darwin of the mind," who is said to have given "for the first time a purely naturalistic theory of mental evolution, one free from any admixture of metaphysical, ethical, or supernatural mysticism." Jung, who has ventured to question some of Freud's conclusions, is said to have abandoned *the* principles of psycho-analysis "under the guise of pretended development." Lesser lights who venture into the field are met with such replies as: "This is contrary to Freud, and therefore it must be wrong"; or: "This person cannot know much about the subject, otherwise," etc. That such an attitude is utterly unscientific, and retards the evolution of the science of psychology, is quite obvious to a person who is not overweighted by the Freudian Complex. True science advances by the differences of opinion of its leaders, and when the views of any one of them are regarded as a sort of *ex cathedra* utterance which cannot be questioned the advance of science is retarded. Fortunately in the realm of physical science this is not so. The recent marvellous advances in the science of the molecule, the atom, and the electron have been developed by leaders who have differed very much *inter se*, but their very differences have been aids to progress. No man in his time was more worthy to be looked upon as infallible in his sphere than Lord Kelvin. Yet he regarded the theory of the ionisation of salt solution as being

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impossible. To him it was unthinkable that an atom of sodium (for instance) should exist in water apart from the corresponding atom of chlorine so as to function as two molecules instead of one. Yet fortunately the weight of his opinion did not deter lesser lights from accepting the theory of ionisation as a working hypothesis, until it was finally shown that an atom of sodium in combination with some few water molecules might be under certain circumstances a more stable combination than the combination Na Cl.

Still more should a psycho-analyst be on his guard against a personal bias of this kind, for he is engaged in analysing those very psychic phenomena which should teach him how an unconscious bias may inhibit the outcome of truth.

It is therefore particularly appropriate to criticise the work of Freud himself rather than that of his enthusiastic followers, and for this purpose we may take his *Psycho-Pathology of Every-day Life*, in which everything leads up to the final chapter on Determinism. Freud gives a large number of cases, many of which are undoubted instances of determinism, though some of them are very slender if regarded as more than possible illustrations. But a careful examination of these cases shows that *there is not one of them in which the active will could possibly come in as a determinant*. We may illustrate the matter by Freud's argument based on chance numbers, to which he attaches special importance. He says: "I know of no other individual observation which would so readily demonstrate the existence of highly organised thinking processes of which consciousness has no knowledge." Freud asserts that it is impossible to think of a number of one's own free will, and that what appear to be chance numbers given at random are the resultant of determinants which may be explored by a suitable analysis. He illustrates this by analysing a chance expression of his own to the effect that he would not make any further changes in the proof-sheets of a certain book, "even if it contained 2,467 mistakes." On searching his mind to find whence this number had come, he connects it with a thought of a certain person which brings to his mind that he had celebrated his 24th birthday in the military prison. His age was now 43, and adding 24 to 43 we get 67. In these considerations he finds the unconscious origin of the number 2,467. Other instances of chance numbers unintentionally derived from the unconscious are given.

Let us give another illustration of a chance number from the experience of one of the present writers—the number 4,687. On thinking it over, he finds that the sum of these numbers is 25, which is the age at which he was married. Further, it was at the age of 46 that he fought his sixth Parliamentary election contest. An hour before fixing on this number he had been reading a *Life of Sir W. Crookes*, in which it was stated that he passed away in his 87th year. This is just the kind of causation upon which Freud relies for the unconscious genesis of the

number. But in this instance the chance number was arrived at by taking a circle the size of a shilling with all the various numerals written within it, and blindly pricking at it with the point of a pencil and taking the four numerals which the pencil-point indicated. The author's mentality had not entered into this chance number at all. But how easy to attribute it to the determinism of the unconscious mind!

But we will not comment further on the slenderness of some of Freud's illustrations, except to observe that it is not with such materials that one can hope to establish that a man has no real choice between good and evil. Many of Freud's illustrations do indeed establish that determinism operates in matters where the will is dormant, but in not one of those illustrations could the active will possibly be a factor. They only show that the unconscious mind may catch the will napping, and that in the absence of an active exercise of the will these hidden determinants do determine thought and action.

But let us look at the matter from another angle and apply the very principle upon which our psychologists insist as being so potent a factor. In matters of theory, opinion, and belief they specially insist on the potency of determinism. And it may be conceded that if there is one thing more than another in which determinism has full play it is in matters of opinion and belief which cannot be resolved by experiment or logic. Where we are concerned with voluntary actions there may be a conflict between the conscious will or desire and the determinant hidden in the unconscious mind, which may eventuate in either the unconscious or the conscious motives getting the mastery. But in the case of opinions and beliefs the will is often impotent. We may imagine the case of a Protestant upon the rack who is asked by the inquisitor if he believes in transubstantiation. If he is dishonest he may say, "I do, I do." But if he is honest he may say, "I wish I could, but I can't." The will to believe is often powerless. The actual belief or opinion is most strongly, if not entirely, influenced by numberless determinants in the unconscious mind which are fixed by early training or heredity or prejudices or what not, forming what is called the "mental constellation" of the person. If the matter were one which could be resolved logically or experimentally the conscious mind might negative the unconscious determinants. But in matters which cannot be so resolved the unconscious determinants dictate the outcome.

It is obvious that when we come to opinion or beliefs such as that

Free-will is an illusion ;
There is no real moral responsibility for acts ;
There are no divine rules for conduct ;
There is no God ;
There is no future life ;
Mind is a mere function of matter ;

and such other conclusions as materialism brings in its train, the psychologist must keep his eyes open. But in fact the leaders of the school of psychology which is under criticism have used their principles of psychology to defend the materialistic attitude, without seeing that their arguments are more potent when reversed. Let us turn their arguments round.

Normally in youth and with most people in more mature age there is a conflict between their appetites and desires for pleasure and their notions of right and wrong. It is not material for our purpose to inquire how these notions of right and wrong are impressed, but it is clear that a normal education in this country is calculated to implant ideas of a moral law. Of course the object of education is to enlist the will on the side of right, so that the notion of right may triumph as far as may be over the desire for pleasure and so lead to the development of character. For the sake of argument let us leave out the influence of free will, and consider only the determinants implanted by education, such as :

Fear of consequences.

Desire to please others.

Hopes of reward.

Force of public (or public school) opinion.

Let us now consider the psychical history of a person who pursues the downward path. Vice is at first resisted, though unsuccessfully. There is a feeling of law broken, of possible penalties incurred. There is possibly an ineffectual resolve against repetition. But opportunities recur and the desire is not to be resisted. Each time the struggle is renewed the counter-effort is feebler. The uneasiness, the sense of a broken law becomes feebler, until it disappears from the conscious mind. But it leaves behind it in the unconscious mind a dislike for the idea of a moral law or moral responsibility. Persistence in a course of evil, at first resisted, then condoned, then habitual and without conflict, has made the thought of moral law or moral responsibility so disagreeable and repellent that the unconscious mind sets up a barrier against permitting such thoughts to emerge into consciousness. It should be noted that such an inhibition is recognised by psychologists as being of great potency, and according to them extends not only to the original ideas but to associated ideas. Hence with the repulsive ideas of moral law or moral responsibility there become involved associated ideas such as the existence of God, of any sanctions which may follow moral depravity, or of any future life, and so on, all of which become part of the inhibited group of ideas.

Probably during the history sketched above, ideas as to free will, materialism, etc., have never troubled the mind of the patient. But such an one may be a man of no mean intellect, and may become a

student of philosophy or science, or even of psychology, and may come to tackle from the intellectual standpoint the ideas of free will and determinism, the existence of God and a future life. But in accord with the principles above stated, his intellect is badly handicapped. Experiment and logic cannot resolve such questions. What, then, according to the above described principles of psychology, will be the result? The ideas of moral law and moral responsibility which became disagreeable to him in his early struggles and defeats are inhibited by his unconscious mind, which will not tolerate the emergence of such ideas and their associations into his conscious mind, and his opinions and beliefs are necessarily materialistic.

Of course a man of intellect who is a student of psychology is not content merely to say, "I believe that determinism is all-embracing and there is no such thing as free-will." He will attempt to support his views by evidence, argument and illustration. But the psychologist himself tells us that in such matters determinism is most potent and that it is shown "in the minimum of evidence often necessary to secure the acceptance of an idea that is in harmony with the existing mental constellations or to reject one that is incompatible with these." So that if the "existing mental constellation" of the psychologist is such as to inhibit the group of ideas in question and favour the materialistic view of life, we cannot be surprised at the paucity of the evidence or the feebleness of the logic with which he supports his views.

An illustration of the way in which such a mental constellation leads to the easy rejection of an idea associated with the inhibited group may be found in the slender way in which Freud deals with the subject of telepathy. Here is a subject which has been investigated experimentally by many scientists in such a manner as to afford proof of the phenomenon to anyone who is not afflicted with the materialistic complex. It is surely a subject so closely related to psychology that a psychologist should endeavour to satisfy himself from the experimental standpoint and not be content to let his views be governed by an unconscious bias. But this is how Freud deals parenthetically, in an off-hand way, with the subject. He relates a case in which B., seated with his wife at dinner in a restaurant, remarks, "I wonder how Dr. R. is doing in Pittsburg." B.'s wife said, "Why, that is exactly what I have been thinking for the last few seconds." Here was apparent telepathy. It turned out that a stranger something like Dr. R. had passed through the restaurant without being consciously noticed by either B. or his wife. This then was the probable explanation of the simultaneous thoughts, as to which B. says, "I venture to say that such simple mechanisms are at the bottom of the most complicated telepathy manifestations." Freud approved this and observes that this incident "throws some light on the nature of telepathy"!! Such is, indeed, an illustration of the slender evidence which a person

afflicted with the materialistic complex will accept in the place of enquiry and experiment. The same unconscious bias leads one of Freud's chief exponents in England to the opinion that "a belief in telepathy" is a "psychological derivative of the flatus complex." Thus in the twentieth century we are carried back to the dark ages in which speculations and opinions were accepted instead of experiment and research. May we not rather say that the group of materialistic ideas which are accepted by the strict Freudian school are the psychological derivatives of the Freudian complex?

If Freud possess, as he obviously does, the "materialistic complex," the strict Freudian school in England is probably similarly fettered, for according to them (and other schools of psycho-analysis also) the analyst cannot bring to light in the analysed, complexes which are hidden from himself. These strict followers of Freud have no doubt a definite fixation on him or one of his followers and possess a Freudian complex which is by no means a negligible one.

In conclusion it may be observed that the materialistic views of the Freudian school of psycho-analysts lead to the omission from their treatment of a side which deserves recognition. There is a *vis medicatrix naturæ* upon which the physician relies. But it may be there are in nature spiritual forces as well as material forces. When we are concerned with the healing of the mind, science and religion cannot always be kept in separate water-tight compartments. As an instance, the success of the Salvation Army in dealing with cases of acute dipsomania is well known. A letter to General Booth to ask if he could give any idea of the number of habitual drunkards whom the Salvation Army have permanently reclaimed, brought the reply that they had enquired into this matter some years ago and then estimated that the number was from forty-four to forty-five thousand.

Something in the methods of the Salvation Army has a powerful psycho-therapeutic value. There is a definite psycho-therapeutic success that may perhaps be partly due to two causes. In the first place dipsomania is usually accompanied by, and often induced by, other moral lesions. The Salvation Army attacks the whole group and endeavours to give a completely new spiritual orientation to the patient. Under such circumstances appropriate auto-suggestion will be cheerfully and regularly practised by the patient, and will have greater potency than mere external suggestions, or the resolutions of an enfeebled will. In the second place the methods of the Salvation Army provide a new and invigorating psychic atmosphere. Fresh air and sunshine give new supplies of energy to a debilitated physical constitution. And there is no scientific reason why energy from an unseen psychic source may not be made available to energise an enfeebled will. These psycho-therapeutic effects may depend largely on the new spiritual orientation which is brought about.

It is essential, of course, not to dogmatise on such a subject as this, but it is equally essential that we should keep our minds open to recognise the possibility that the facts we have mentioned above may have explanations not attainable by psycho-analysis pure and simple, for such could not, of course, discover material which lies outside the mind altogether. A materialist psychology denies the possibility of these things. But less dogmatic psychologists may be capable of incorporating into the science and practice of psycho-therapy some of these elements of which experience has shown the potency. We cannot, however, look to the strict Freudian school for this. They shut the door and bar it against any such help by teaching a psychology which explains away "the myths . . . of God, of good and evil, of immortality and the like."

INSTINCT OR REASON ?

The Comparative Method is as valuable in Psychology as in the other biological sciences. Unfortunately, not many psychologists enjoy the opportunity of studying animal life at close quarters or possess the training necessary for doing so successfully. Relevant data are therefore somewhat meagre and the first-hand observations of so experienced a naturalist as Captain Pike are likely to be of great value.—EDITOR.

BY CAPTAIN OLIVER PIKE, F.Z.S., F.R.P.S.

IN a life devoted to the study of Nature I have seen many incidents which have made me ask myself the question : Is it Instinct or Reason ?

Has a caterpillar any intelligence ? It looks to be one of the last creatures that would be capable of thinking out a problem. Yet some caterpillars of the Red Admiral butterfly behave in a very remarkable manner when changing into the chrysalis state.

When the caterpillar has finished feeding, it hangs motionless for about twelve hours, and as it is now helpless, and at the mercy of any birds or other animals, it protects itself in a wonderful way. It crawls up the nettle stem until it reaches to within about four inches of the top. Now it bites through the stem for about two-thirds of the way, so that the top falls over. When this feat has been performed, it crawls underneath the canopy of leaves, fixes itself in a secure position, and is almost invisible. If this is done by instinct, why do not *all* the caterpillars of this species protect themselves in this way ? I have watched a colony of them, and have noticed that it is only the few that behave like this.

The Honey Bee is one of the highest developed of all insects. Is it able to reason ? Is there in that little head, which contains one of the most perfect brains next to that of man, any power of intellect ? Do bees always work like a machine, or can they adapt themselves to any circumstances ? We are told that bees never have progressed. Their combs ten thousand years ago were as perfect as they are to-day. They gathered honey, pollen, propolis and water then. Others ask us to show them a single instance of a bee showing signs of progress, by using clay or mortar, for wax or propolis. This is a little more than we should expect of such workers, for the simple reason that the materials they do work with are the most perfect for their special work that it would be possible to find. But the Italian bee, when it has a large

piece to cement over with propolis or glue, does collect grains of sand, and other minute material, to mix with the resinous substance. Is this progress, or have they always done this ? Give bees artificial pollen in the early spring before the flowers bloom, in the form of pea-flour, and they will soon take to this, and carry in great quantities. Is this progress ? Place on or near a hive a sticky substance, be it paint, glue or other material, and they will take this into their hive and use it instead of propolis.

There are, it seems, some bees either too old or too indolent to gather honey in the ordinary way, and one or two of these will manage somehow to find their way into invitingly luxurious hives, take all the honey they can, and then return to their rightful, but poorer, home. I once witnessed an extremely artful dodge by one of these robber bees. The bee in question tried several times to enter a strange hive, but each time it ventured near the entrance, one or two sentries pounced out and drove it away. Not to be conquered, however, this bee made several more attempts to get in, but on each occasion was driven off. For a short time the would-be intruder rested on the alighting board of the hive, then slowly crawled towards the entrance again, and by degrees it was able to place itself in such a position that a great many of the returning bees, which always hurry fast into the hive, had to settle on its back, or to pass over it. This robber bee was thus mixing with the home-coming bees so that it should receive a certain amount of their scent, for it seems that bees recognise one another by scent. However, whether this was so or not, I cannot tell, but this I do know, that the next time this bee tried to enter the hive, the ever vigilant sentries seemed undecided whether to turn it out or let it pass. One sentry examined the intruder ; another walked round the robber ; while others seemed inclined to handle the stranger roughly. This was the wished-for opportunity. Without a moment's hesitation the robber put out its tongue and offered the sentries a tiny drop of honey. This was eagerly licked up, and immediately put an end to any doubt the sentries had, and while there was honey offered they treated the thief as a friend. However, when it again tried to pass in they still refused to let it do so. The bribe was again offered, and this time successfully, for the little robber now walked quickly forward and soon found out where the best honey was stored. Was this reason or instinct ?

Of all the most remarkable things that I have read of, or witnessed, which go to prove that bees can, in a way, reason, the following is, I venture to think, the most conclusive.

I was standing in a room where I store my honey. There were one or two small crevices through which bees managed to effect an entrance, and there were about twenty flying around or attempting to leave the room with the load of stores they had taken from the open tins of honey.

First I must mention that if a lump of bees-wax was placed in or near a hive, the bees would not touch it. Wax is introduced into the hive by the modern bee-keeper, but in the form of sheets with the base of the cells imprinted on each, and the bees add to this with wax of their own production.

On the window-ledge of my room there were six tablets of bees-wax. A bee laden with honey was vainly trying to beat its way through the glass, and at last it settled on one of the tablets of wax. For a few moments it was motionless, then it slowly walked over what to the little insect must have seemed a hillock of wax, and this was carefully examined. There was nothing strange in this, but what followed certainly showed great powers of reason for so small a creature. Here it found itself in a land of plenty, honey and wax in abundance. It had some moments before taken its fill of honey, and now it was standing on a mound of the precious substance of which it knew its city was built. What did it do ? Without a moment's further hesitation this apparently shrewd little adventurer began to scrape and bite off little flakes of wax. These gathered like a tiny heap of minute white shavings at its feet ; and now it did a still more wonderful thing. How was it to carry this supply of wax back to its hive ? It knew there was only one way. How did it carry home the big balls of bright-coloured pollen it gathered when out in the meadows ? In the flower-covered fields of summer it flew straight to the blossoms and carried back to the hive great bundles of pollen, and so now, for a moment, it was confronted with a difficulty. How could it carry this supply of wax home ? A little white heap stood on the square of wax, and still the bee pegged away, biting shavings off, and made another little heap ; then, to my further astonishment, it picked up these small particles of wax and passed them to its back legs, and in the small hairy pouches in which it stored the pollen grains, it placed these wax shavings. When a big white load was on each leg it attempted to fly through the window, so I opened the door and liberated this remarkable little creature of progress.

If we enter the birds' world, and watch them in their own homes, as I have done, we see many wonderful little incidents which go to prove that they certainly do think out little problems for themselves. Some birds are more intelligent than others. It is not always the largest that show the most pluck. I have been attacked by the diminutive Willow-Warbler when I have been too near its nest, and I have known the great Golden Eagle fly from its nest while it was being robbed. The Wild Goose is certainly one of the most foolish that I have come across, for I have seen it sit by its nest, and make no attempt to guard it, while a Hooded Crow swooped down and carried away the three goslings. On the other hand, the Raven will protect its young, and often viciously attacks anyone who ventures too near.

Last spring I was in a well-built hiding-place close to a Raven's nest, and waited there for eight hours, and during that time witnessed several interesting incidents. It was an exceedingly hot day, and after two o'clock the sun was beating down upon the young. Two or three hours later the young were parched, and when the parents brought food to them they noticed their plight. They then talked for a few moments in raven language, and no doubt the hen was telling her mate that the youngsters needed water, for they then flew to a small stream that was trickling down the rocks, filled their beaks with water and carried it to their young.

A few weeks ago I was watching that small Falcon, the Merlin. It had got one of its legs caught in a string noose, and was struggling violently to free itself. The more it pulled the tighter got the noose, and after a few minutes it sat down, looked at its leg, and tried to see what it could do. It then caught hold of the string inside the knot and pulled, and it found that it became looser. It continued to pull, eventually opened the knot, withdrew its leg and was free. It was a difficult problem for a bird to solve, but it successfully thought it out, and performed the operation.

The Grebes cover their eggs over for protection, for there are many enemies which are fond of them. The Coot is one, and this bird will often rob the nest if the eggs are left unguarded. However, with a thick covering of weeds over them, the nest looks empty when the Coot swims by. But I know one large lake where the Coots have discovered that there are eggs underneath this covering and most nests are robbed. A few years ago about thirty pairs of great-crested Grebes each brought up a family. Although there are still as many Grebes there, this year only three or four pairs succeeded in rearing their young. It will be interesting to find out whether the Grebes will desert their old home or find another method of protecting their eggs from the ravages of the destructive Coots.

Some young birds show fear the instant they leave their shells. Others are not afraid of human beings until their parents have taught them that nearly all other creatures are enemies. The young Ravens in the nest previously mentioned knew exactly what to do when they heard the varied notes of their parents. There was the cry of alarm, and instantly the four young would crouch in the bottom of the nest. There was the note that told them food was coming, and instantly they were excited, sitting up on the nest and calling to their parents as they saw them approaching over the hills. Then there was the signal which meant "all clear," and the youngsters would rise from the bottom of their home, and walk along the ledge on which their nest was built.

I once came upon a nest of young Dabchicks directly after they had left their shells. They had never had the chance of seeing a human being before, but they knew at once that there was danger. The

mother gave a call, and dived, and at once these tiny birds tried to follow her. They could not go far under the surface, in fact they just bobbed under and came up, but they knew that was the correct thing to do, and they tried to get away from the danger that instinct told them was near.

The young Lapwing, as soon as it begins to walk, which may be about a couple of hours after it leaves its shell, will, if the parents give out the loud cry of alarm, hide itself in the grass. Or rather it will push its small head into a grass-tuft, no doubt thinking that if it cannot see it cannot be seen. But directly we discover the small bird, and it knows that it is being observed, it jumps up and takes to its legs, runs off and again hides its head.

Most young birds, if taken from the nest when quite small, will become very tame, and show no signs of fear from the very first. The Jackdaw is a good instance, and after feeding the birds a few times they may be given their liberty ; but they will return to their owners at feeding-time, and remain in the vicinity of the house until the following spring.

The most wonderful instance of instinct guiding a bird is that of the young Cuckoo. The adult Cuckoo makes no nest, it does not rear its own young, leaving this for other birds to do. The eggs are placed in the nests of insect-eating birds, one in each, and if the young Cuckoo, which requires a very large amount of food, allowed the other young in the nest to be reared, it would not receive enough nourishment.

Late on the second day after leaving the shell the young Cuckoo knows that there are rivals for food present, and so it makes an attempt to turn them out. How successful it is, only those who have witnessed the marvellous performance know. The youngster at this stage is less than one inch in length, it is blind, for its eyes are tightly sealed up, it has no feathers upon its body ; in fact, it looks like a small helpless mass of flesh lying at the bottom of the nest.

Suddenly it seems to become possessed of great strength ; it wriggles about in its home until it has one of its rivals upon its back. Now it raises its two small wing-bones, which look like two fleshy arms, to prevent its captive falling off its back, and, using the strong muscles of its legs, raises the small bird slowly but surely towards the edge of the nest, by a series of sharp jerks. If the nest is a deep one, it grips the edge with its beak, and actually walks up the side, balancing its rival upon its back. If it is still unable to get it over the side, it uses its wings as two battering rams, working these backwards and forwards until the bird is flung over the side. As soon as this feat is accomplished, down it goes to the bottom of the nest, and the other bird is treated in the same manner. There are seldom more than two to turn out, for the adult Cuckoo when she places her egg in the nest usually removes two eggs, leaving three in all.

In the case of the young cuckoo, it can be nothing but blind instinct which induces it to remove its nest companions, but with some of the other instances I have mentioned reason seems to play an important part. When a bird like the Merlin is placed in a position it has never been in before, and it is able to free itself from what looks like a secure trap, reason certainly must enter into it. The Raven which carried water to her parched young saw what they wanted, and gave it to them.

Let me give one more instance of a bird doing a most unusual thing to give comfort to her young. Last spring I was hiding near the nest of a Reed Warbler. The young were about half-grown. The nest, built in last year's dead reed-stems, had no shelter from the great heat of the sun. The mother found that by brooding on the nest it only added to the discomfort of the young, for it was an exceedingly hot day. First she stood in the nest, partly opened her wings, and allowed the air to pass under her body, while keeping the young in the shade. Then I noticed that each time the male arrived at the nest with food, she disappeared. A few moments later she was back, and on her feathers there were little drops of water. The feathers under her body were soaked. Every few minutes she was throwing herself into cold water, so that her young should obtain a little benefit, and by doing this she certainly added to their comfort.

How do young birds learn to sing ? In some cases they must learn from their parents, but in others it must come natural to them. Or perhaps, when they open their beaks to sing, the notes peculiar to that bird are the only notes it is able to utter. For instance, if we take a Nightingale from its nest and rear it by hand, it will sing perfectly, although it has never had an opportunity of hearing its parents.

I saw three young foxes brought into a farmyard ; they were only just able to walk, yet they instantly picked up the scent of the fowls and began to track them. They had received no lessons from their parents, yet they seemed to know exactly what to do. If we take birds of prey from their nest when they are quite young, rear them until they are able to fly well, and then liberate them, they will simply starve to death. They have no idea of how to hunt for their food, and no inclination. Here are two instances, showing that in one case the creature knew what to do by instinct, while the young birds, not having had lessons, are helpless.

An interesting experiment may be made in the winter months which goes to prove that the Blue Tit is able to think out and solve a problem. Place a small lump of fat on a string about eight inches in length, and tie this at the extreme end of a twig or branch. The Blue Tit will sometimes swing on the fat as it sways backwards and forwards, but in many instances it will stand on the branch above, then stoop down, take hold of the string in its beak, pull this up, place this

under one foot, again pull at the string, and once more hold this under the claws, until the fat is lifted to the branch. It will now hold the food under its feet, and enjoy its meal in a much more comfortable manner.

An incident which proves that birds learn by experience what to do occurred in this district a few years ago. A pair of Blue Tits nested in a lamp-post, a most unusual place. The following year the young which were reared in this curious nesting-site thought that it was the right and only place in which to build, and several of the lamp-posts were occupied by them.

Wild creatures will quickly adapt themselves to changed conditions. The Moorhen usually builds its nest of grass and reed stems, but on a piece of water where these were absent the birds constructed their home of wood, with just a small lining of grass. A number of Linnets which nested for years in small canopies of fir-branches, which were placed on the ground to attract Wild Ducks, still carried on when these were done away with. There were no small bushes there or anything that such birds usually nest in, so they took to the grass, and built their nests a few inches above the ground.

I once came across a most interesting Kentish Plover. This bird makes no nest, laying its eggs upon the ground, and these are exactly like their surroundings, the stones upon which they are placed. While watching the bird sitting upon two eggs, from my "hide" six feet away, I noticed that she continually left them, then sat on the stones about a yard to the left. On leaving my place of observation in the evening, I tried to find out why she did this, and found that she had another egg laid there. She was not able to move it, and so she took it in turns to sit upon them. Whether she eventually managed to hatch all three I was not able to find out.

In the foregoing incidents, which are all original observations, I have mentioned some which can be put down to instinct, others to experience, and a few which certainly show powers of reasoning. Personally, the more I study wild Nature, the more I am convinced that some creatures are able to think out and solve problems for themselves.

THE MISUSE OF MIND

BY KARIN STEPHEN

[The following article is taken from a study of The Misuse of Mind, shortly to be published in book form, dealing with Bergson's attack on logical thought as a method of metaphysical speculation. If Bergson's criticisms are valid it would appear that logical thought only takes the thinker further and further from reality: the last chapter of the book will be devoted to showing how logic can apply to reality and what place the intellect should occupy in philosophy.]

IN order to understand Bergson it is not necessary to have any previous acquaintance with philosophy; indeed, the less the reader knows of current metaphysical notions the easier it may perhaps be for him to adopt the mental attitude required for understanding Bergson. For Bergson says that the tradition of philosophy is all wrong and must be broken with: according to his view philosophical knowledge can only be obtained by "a reversal of the usual work of the intellect."

The usual work of the intellect consists in analysis and classification: if you have anything presented to you which you do not understand the obvious question to put to yourself is "What is it?" You will not be satisfied, intellectually, till you have succeeded in analysing the unfamiliar thing, that is, discovering in it familiar qualities by means of which it may be classified as "a so-and-so." Now Bergson would not think of denying that this intellectual method, in which facts of acquaintance are used as material for abstraction, is of the utmost practical use for explaining facts and so enabling us to control them. He suggests, however, that our preoccupation with these useful abstractions, classes and their relations, misleads us as to the facts themselves. What actually takes place, he thinks, is a kind of substitution of the explanation for the fact which was to be explained. This may, at first sight, seem unlikely or even out of the question—it is possible to make mistakes as to what the correct explanation of a given fact of acquaintance is, i.e., what class it belongs to, but as to what it is at the moment when we are actually being acquainted with it one would have thought there could be no doubt; it seems impossible that one could make any mistake about that.

No doubt it is impossible to have such a thing as a false experience; an experience is what it is, only judgments can be false. But it is quite

possible to make a false judgment as to what experience we are having, or, still more commonly, simply to take for granted that an experience must be such and such, without ever attending to see whether it is or not. A small child taken to a party and told that parties are great fun, if questioned afterwards, will very likely say it has enjoyed itself, though it may have been quite evident at the time that it was bewildered or bored. Even when we grow up, names still have a tendency to impose upon us and disguise from us the actual nature of our experiences. There are not very many people who, if invited to partake of the last bottle of some famous vintage wine, would have the courage to admit, even to themselves, that it was nasty, even though it was, in fact, considerably past its prime. Cases of this kind, with which we are all familiar, are enough to make us realise that it is actually quite possible to make mistakes even about facts which we know directly, to overlook the actual fact altogether because we have made up our minds in advance as to what it is sure to be.

Now Bergson says that such errors are not confined to stray instances, such as we have noticed, in which the imposition of preconceived ideas can readily be detected by a little closer attention to the actual fact. He believes that a falsification due to the explanations of our experience which we make for ourselves runs right through the whole of our direct experience itself and this, being habitual, is much harder to see through.

Explanation consists in constructing a plan or map in terms of such abstractions as classes and their relations, or sometimes, when the abstraction has been carried a step further, in terms simply of words or symbols, by means of which we represent the causal relations between such of the actual facts which we know directly as can be classified. This plan is more comprehensive and complete than the actual facts which we know directly in the ordinary course of things, for which it stands, and it enables us to explain these facts in terms of the classes of causes from which they follow, and the classes of effects which they produce. No explanation, of course, can actually acquaint us directly with the real antecedent or consequent facts themselves: it can only tell us to what classes these facts must belong. The terms of the plan by which we explain the facts, the classes, for instance, daylight and darkness, and their relation of alternation, or the words or symbols which stand for classes and relations, are not themselves facts but abstractions. We cannot think in terms of actual facts: the intellectual activity by which we formulate general laws can only work among abstractions, and in order to explain a fact we are obliged to substitute for it either a class or word or other symbol. All description and explanation of facts consists in substitutions of this kind. The explanation applies provided the abstraction is based on fact, that is, provided it is possible to fit the fact to which the explanation is

intended to apply into the class employed to explain it: the general law, for instance, about the alternation of the classes daylight and darkness will explain any facts which can be fitted into one or other of these classes. The general law itself, however, does not consist of such facts but of abstractions substituted for the facts themselves. Such substitution is extremely useful and perfectly legitimate so long as we keep firm hold of the fact as well, and are quite clear about what is fact and what only symbol. The danger is, however, that, being pre-occupied with describing and explaining and having used abstractions so successfully for these purposes, we may come to lose our sense of fact altogether and fail to distinguish between actual facts and the symbols which we use to explain them.

This, indeed, is just what Bergson thinks really does happen. No doubt an intelligent physicist is perfectly aware that the vibrations and wave-lengths and electrons and forces by which he explains the changes that take place in the material world are fictions, and does not confuse them with the actual facts in which his actual knowledge of the material world consists. But it is much more doubtful whether he distinguishes between these actual facts and the common-sense material objects, such as lumps of lead, pieces of wood and so on, which he probably believes he knows directly but which are really only abstractions derived from the facts in order to explain them just as much as his own vibrations and wave-lengths. When a scientist frames a hypothesis he employs the intellectual method of substitution with full consciousness of what he is about: he recognises that its terms are abstractions and not facts. But the intellectual method of explaining by substituting general abstractions for particular facts is not confined to science. All description and explanation, from the first uncritical assumption of common sense right up to the latest scientific hypothesis, employs the intellectual method of substituting abstractions for actual facts. The common sense world of things, events, qualities, minds, feelings and so on, in which we all pass our everyday lives, is an early and somewhat crude attempt to describe the continually changing fact which each of us experiences directly, but it is perhaps more misleading than the later elaborate constructions of chemistry, physics, biology or psychology, in that things and qualities are more easily mistaken for facts than more obviously hypothetical assumptions. Bergson points out that the various things of which this common-sense world consists, solid tables, green grass, anger, hope, etc., are not facts: these things, he insists, are only abstractions. They are convenient for enabling us to describe and explain the actual facts which each of us experiences directly, and they are based upon these facts in the sense of being abstracted from them. The objection to them is that we are too much inclined to take it for granted that these things and qualities and events actually are facts

themselves, and in so doing to lose sight of the real facts altogether. In support of his view that things having qualities in successive relations are mere abstractions Bergson points out that whenever we stop to examine what it actually is that we know directly, we can see at once that this fact does not consist of things and qualities at all. Things and qualities are clearly marked off one from another; they change as a series of distinct terms; but in what we know directly there are no clear-cut distinctions and so no series. The assumption which we usually make that the facts must consist of such things as events and qualities and material objects is not based upon the evidence of direct knowledge; we make the assumption that the facts must be of this kind simply because they can be explained in these terms.

It is true that there is some correspondence between the actual facts and the common-sense world of solid tables and so on, and we usually jump to the conclusion that this correspondence would not be possible unless the facts had common qualities. There is no denying that facts can be classified and it seems only natural to take it for granted that whatever can be classified, must share some quality with whatever else belongs to the same class, that, indeed, it is just on account of all sharing the same common quality that facts can be classified as being all of the same kind. Thus common sense takes it for granted that all facts which can be classified as red, and so explained by all the general laws which we know about the relations of red things to other things, must share a common quality of redness. It seems only natural to make this assumption because we are so used to making it, but if we stop to examine the facts which we know directly, we discover that they do not bear it out, and we are gradually driven to the conclusion that it is quite unwarranted. It is only bit by bit, as we gradually accustom ourselves to doubting what we have been accustomed to take for granted, that we realise how ill this assumption fits the facts.

Common sense starts out with the assumption that what we know directly is such things as trees, grass, anger, hope, and the like, and that these things have qualities such as solidity, greenness, unpleasantness, and so on, which are also facts directly known. It is not very difficult to show that, if we examine the facts which we know directly, we cannot find in them any such things as trees, grass or minds, over and above the various qualities which we say belong to them. I see one colour and you see another: both of them are colours belonging to the grass but neither of us can find anything among the facts known to him corresponding to this grass, regarded as something over and above its various qualities, to which those qualities are supposed to belong.

This drives common sense back on to its second line of defence, where it takes up the much stronger position of asserting that, while trees, grass, minds, etc., are not among the facts directly known, their

qualities of solidity, greenness, etc., are. It is usual to add that these qualities are signs of real trees, grass, etc., which exist independently but are only known to us through their qualities. It is much harder to attack this position, but its weakness is best exposed by considering change as we know it directly, and comparing this with change as represented in terms of qualities. Change, when represented in terms of qualities, forms a series in which different qualities are strung together one after the other by the aid of temporal relations of before and after. The change perceived when we look at the spectrum would thus have to be described in terms of a series of colours, red before orange, orange before yellow, yellow before green, and so on. We might certainly go into greater detail than this, distinguishing any number of shades in each of the colours mentioned, but the description would still have to be given in the same form, that of a series of different colours, or shades of colour, strung together by relations of before and after. Now the fact which we know directly does not change so : it forms a continuous becoming which is not made up of any number, however great, of fixed stages. When we want to represent this changing fact in terms of qualities we have to put together a series of qualities, such as red, orange, etc., and then say that "the colour" changes from one of these to another. We pretend that there is "a colour" which is not itself either red or green or orange or blue, which changes into all these different colours one after another. It is not very difficult to see that this abstract colour which is neither red nor orange nor green nor blue is not a fact of acquaintance but only an abstraction which is convenient for purposes of description : it is not quite so easy to see that this criticism applies equally to each of the separate colours, red, orange, etc., and yet a little attention shows that these also are really nothing but abstractions. With reference to the whole changing fact which is known directly through any period, the change in respect to colour is clearly an abstraction. Suppose, for instance, at a ballet you hear the overture, and then the curtain goes up and you see the stage full of people dancing. Taking this whole event you might describe by saying that there was change first in respect of sound and afterwards in respect of colour. This would be to describe the changing fact in terms of two abstractions in temporal relations. Is there really anything to choose between this and the description of the change which is seen in the spectrum as a series of red, orange, green, etc., in temporal relations ? Each of these, the red, the orange, and so on, just like sound and then colour in the illustration of the ballet, is simply a fictitious stage in the process of changing which it is convenient to abstract when we want to describe the process but which does not itself occur as a distinct part in the actual fact. Change, as we know it directly, does not go on between fixed points such as these stages which we abstract ; it goes on impartially, as it were, through

the supposed stages just as much as in between them. But though fixed stages are not needed to enable change to occur, simply as a fact, they are needed if we are to describe change and explain it in terms of general laws. Qualities are assumptions required, not in order that change may take place, but in order that we may describe, explain, and so control it. Such particular qualities as red and green are really no more facts directly known than such still more general, and so more obviously fictitious notions as a colour which is of no particular shade, or a table, or a mind, apart from its qualities or states. All these fixed things are alike abstractions required for explaining facts directly known but not occurring as actual parts of those facts or stages in their change.

Thus it appears that the common sense world of things and qualities and events is in the same position with regard to the actual facts directly known as scientific hypotheses such as forces, electrons, and so on, in their various relations: none of these actually form parts of the fact, all of them are abstractions from the fact itself which are useful for explaining and so controlling it. Common sense stops short at things and qualities and events: science carries the abstraction further, that is all the difference: the aim in both cases is the same, the practical one of explaining and so controlling facts directly known. In both cases the method employed is the intellectual method of abstraction which begins by discriminating within the whole field directly known in favour of just so much as will enable us to classify it, and ignoring the rest, and then proceeds to confuse even this selected amount of the actual fact with the abstract classes or other symbols in terms of which it is explained. We have just seen how the result, the worlds of common sense or sciences differ from the actual facts in the way in which they change: these worlds of abstractions represent change as a series of fixed stages united by temporal relations, while the actual fact forms a continuous process of becoming which does not contain any such fixed points as stages in relations.

The more we shake ourselves free from the common sense and scientific bias towards substituting explanations for actual facts the more clearly we see that this continuous process of changing is the very essence of what we know directly, and the more we realise how unlike such a continuous process is to any series of stages in relations of succession.

The unsatisfactoriness of such descriptions is no new discovery: the logical difficulties connected with the attempt to describe change in terms of series of successive things or events have been familiar since the time when Zeno invented the famous dilemma of Achilles' race with the tortoise. Mathematicians have been in the habit of telling us that these difficulties depend simply on the fact that we imagine the series of positions at which Achilles and the tortoise find

themselves from moment to moment as finite: the device of the infinite series, they say, satisfies all the requirements needed for representing change and solves all the logical difficulties which arise from it. Bergson's difficulties, however, cannot be solved in this way for they are not based upon the discovery of logical absurdities but upon the discrepancy between the description and the fact. What he maintains is that the description of change in terms even of an infinite series of stages leaves out the change altogether. Zeno's difficulty in seeing how Achilles could ever catch up with the tortoise provided the tortoise was given a start, however small, would, he says, be unanswerable if change ever really had to proceed by stages. He solves the problem simply by denying that either Achilles or the tortoise ever is at one particular point at some particular moment. Such a description of change, he says, leaves out the real changing. For the stages do not change, and so, if there is to be any change, it must, presumably, take place in between one stage and the next. But in between any two stages of an infinite series there are supposed to be an infinite number of other stages, so that to any given stage there is no next stage. Change, therefore, cannot take place between one stage and the next one, there being no next one, and since it is equally impossible that it should take place at any one of the stages themselves it follows that an infinite series of stages leaves out change altogether. Similarly a series of instants before and after one another leaves out of time just the element of passage, becoming, which is its essence.

The truth, Bergson says, is that with fixed stages, no matter how many you take, and no matter in what relations you arrange them, you cannot reproduce the change and time which actually occur as facts directly known. Change and time, as represented by abstractions, according to the intellectual method, consist of stages in relations of succession, but the fact does not happen by stages and is not held together by relations: if we compare the representation with the fact we find that they differ profoundly in their form.

According to Bergson, this difference in form is one of the two essential respects in which abstractions misrepresent facts and in which, consequently, we are led into error as to the facts if we fail to distinguish them from the abstractions in terms of which we explain them, or take for granted that they correspond exactly with our explanations.

Bergson gives the name "space" to the form which belongs to abstractions but not to actual facts: abstractions, he says, are "spatial," but facts are not. This use of the word "space" is peculiar and perhaps unfortunate. Even as it is ordinarily used the word "space" is ambiguous, it may mean either the pure space with which higher mathematics is concerned, or the public space, which contains the common-sense things and objects and their qualities which

make up the everyday world, or the private space of sensible perception. When Bergson speaks of "space," however, he does not mean either pure, or public, or private space, he means an *a priori* form imposed by intellectual activity upon its object. This resembles Kant's use of the word, but Bergson's "space" is not, like Kant's, the *a priori* form of sense acquaintance, but of thought, that is, it is logical form. For Bergson "spatial" means "logical," and since so much misunderstanding seems to have been caused by his using the word "space" in this peculiar sense we shall perhaps do better in what follows to use the word "logical" instead.

Now whatever is logical is characterised by consisting of distinct, mutually exclusive terms in external relations: all schemes, for instance, and diagrams, such as a series of dots one above the other, or one below the other, or one behind, or in front of the other, or a series of instants one after the other, or a series of numbers, or again any arrangements of things or qualities according to their relations, such as colours or sounds arranged according to their resemblance or difference: in all these each dot, or instant, or number, or colour-shade, or note, is quite distinct from all the others and the relations which join it to the others and give it its position in the whole series are external to it in the sense that if you changed its position or included it in quite another series it would nevertheless still be just the same dot or instant or number or quality as before.

These two logical characteristics of mutual distinction of terms and externality of relations certainly do belong to the abstractions employed in explanations, and we commonly suppose that they belong to everything else besides. Bergson, however, believes that these logical characteristics really only belong to abstractions and are not discovered in facts but are imposed upon them by our intellectual bias, in the sense that we take it for granted that the facts which we know directly must have the same form as the abstractions which serve to explain them.

This habit of taking it for granted that not only our abstractions but also the actual facts have the logical characteristics of consisting of mutually exclusive terms joined by external relations is, according to Bergson, one of the two serious respects in which our intellectual bias distorts our direct acquaintance with actual fact. He points out, as we saw, that the facts with which we are acquainted are in constant process of changing, and that, when we examine carefully what is actually going on, we discover that this change does not really form a series of distinct qualities or percepts or states, united by external relations of time, resemblance, difference and so on, but a continuous process which has what we might call a qualitative flavour but in which distinct qualities, states, and so on, do not occur. "Considered in themselves," he says, "profound states of consciousness have no

relation to quantity: they are mingled in such a way that it is impossible to say whether they are one or many, or indeed to examine them from that point of view without distorting them." Now, strictly speaking, of course, these "states of consciousness" ought not to be referred to in the plural, it is, in fact, a contradiction to speak of "states of consciousness" having "no relation to quantity": a plurality must always form some quantity. This contradiction is the natural consequence of attempting to put what is non-logical into words. It would have been just as bad to have referred to "the state of consciousness," in the singular, while at the same time insisting that it contained resemblance and difference. The fact is that plurality and unity, like distinct terms and external relations, apply only to whatever has logical form, and Bergson's whole point is to deny that the fact (or facts) directly known has (or have) this form and so that any of these notions apply to it (or them).

This, of course, raises difficulties when we try to describe the facts in words, since words stand for abstractions and carry their logical implications. All descriptions in words of what is non-logical are bound to be a mass of contradictions, for, having applied any word, it is necessary immediately to guard against its logical implications by adding another which contradicts them. Thus we say our experience is of facts, and must then hastily add that nevertheless they are not plural, and we must further qualify this statement by adding that neither are they singular. A description of what is non-logical can only convey its meaning if we discount all the logical implications of the words which, for want of a better medium of expression, we are driven to employ. Our whole intellectual bias urges towards describing everything that comes within our experience, even if the description is only for our own private benefit. Unfortunately the language in which these descriptions have to be expressed is so full of logical implications that, unless we are constantly on our guard, we are liable to be carried away by them, and then, at once, we lose contact with the actual facts. In order to get round this almost universal tendency to confuse abstractions with facts Bergson sometimes tries to get us to see the facts as they actually are by using metaphor instead of description in terms of abstract general notions. He has been much criticised for this, but there is really a good deal to be said for attempting to convey facts by substituting metaphors for them rather than using the ordinary intellectual method of substituting abstractions reached by analysis. Those who have criticised the use of metaphor have for the most part not realised how little removed such description is from the ordinary intellectual method of analysis. They have supposed that in analysis we stick to the fact itself, whereas in using metaphor we substitute for the fact to be described some quite different fact which is only connected with it by a more or less remote analogy. If Bergson's view of

the intellectual method is right, however, when we describe in abstract terms arrived at by analysis we are not sticking to the facts at all, we are substituting something else for them just as much as if we were using an out and out metaphor. Qualities and all abstract general notions are, indeed, nothing but marks of analogies between a given fact and all the other facts belonging to the same class: they may mark rather closer analogies than those brought out by an ordinary metaphor, but on the other hand in a frank metaphor we at least stick to the concrete, we substitute fact for fact and we are in no danger of confusing the fact introduced by the metaphor with the actual fact to which the metaphor applies. In description in terms of abstract general notions such as common qualities we substitute for fact something which is not fact at all—we lose touch with the concrete and, moreover, we are strongly tempted to confuse fact with abstraction and believe that the implications of the abstraction apply to the fact, or even that the abstraction is itself a real part of the fact.

Language plays a most important part in forming our habit of treating all facts as material for generalisation, and it is largely to the influence of the words which we use for describing facts that Bergson attributes our readiness to take it for granted that facts have the same logical form as abstractions. It is language again which makes it so difficult to point out that this assumption is mistaken, because, actually, the form of facts is non-logical, a continuous process and not a series. The only way to point this out is by describing the nature of the non-logical facts as contrasted with a logical series, but the language in which our description of the non-logical facts has to be conveyed is itself full of logical implications which contradict the very point we are trying to bring out. Descriptions of non-logical processes will only be intelligible if we discount the logical implications inherent in the words employed, but in order to be willing to discount these implications it is necessary first to be convinced that there is anything non-logical to which such a description could apply. And yet how can we be convinced without first understanding the description? It appears to be a vicious circle, and so it would be if our knowledge of change as a process really depended upon our understanding anybody's description of it. According to Bergson, however, we all do know such a process directly: in fact, if he is right, we know nothing else directly at all.¹ The use of description is not to give us knowledge of the process that we already have, but only to remind us of what we really knew all

¹ At this point a fundamental difficulty naturally presents itself: if we are never really acquainted with qualities, if qualities are, as Bergson says, mere abstractions, how come we to be able to make these abstractions, and why do they apply to the actual facts of acquaintance? It is not possible to go into this question in the present article but an attempt is made to meet the difficulty in the last chapter of the book from which this article is taken.

along, but had rather lost contact with and misinterpreted because of our preoccupation with describing and explaining it. Bergson's criticism of our intellectual methods turns simply upon a question of fact, to be settled by direct introspection. If, when we have freed ourselves from the preconceptions created by our normal common-sense intellectual point of view we find that what we know directly is a non-logical process of becoming, then we must admit that intellectual thought is altogether inappropriate and even mischievous as a method of speculation.

THE METHOD OF PSYCHIC RESEARCH

BY JAMES H. HYSLOP

WHEN I speak of the "method of psychic research" I do not mean anything new or different from method or manner in the other sciences: for method in its most general aspect is simply observation, classification and explanation of facts. In that respect the method of psychic research is exactly the same as in all sciences, and there is nothing new about it. But there is a difference in some assumptions that have to be made which affect the way we proceed in the work of investigation.

In almost all other scientific fields we are dealing with facts or phenomena whose existence is not in question. We are seeking to explain perfectly familiar phenomena. We admit the facts to start with and it is the explanation that is in question.

But in psychic research it is somewhat different. It is the facts that are in question, and theories, especially new ones, are not justifiable until we have assured ourselves that there are facts to explain.

Psychic research is, therefore, occupied first with the examination of claims for the existence of certain alleged facts. Evidence for facts, not evidence for explanations, is primarily our problem.

Scientific psychic research began in 1882 with the organisation of the English Society for that work. This does not mean that there was no individual scientific interest before that date. There was, and indeed there are, records of good investigations long prior to that time, but they were not made by a body of men organised with a view to making the results comparable with those obtained by all scientific societies on other subjects. They satisfied individual curiosity and stimulated public interest, but obtained few converts, for the reason that there was no continuity of organised effort such as the English Society affords.

The alleged phenomena which gave rise to the investigation were those which claimed to be communications or revelations from the dead. These things, whether genuine or spurious, existed for many ages, extending back even to primitive savages. Taylor's *Primitive Culture*, Frazer's work among savages, the reports of missionaries among them and many works on anthropology are testimony to the age of the alleged facts. A neglected literature of the Middle Ages is full of the miraculous, especially in the form of cures. But it has been the tendency of the last twenty-five years to identify the subject with

what apparently originated with the Fox sisters in their rappings and other phenomena. It was a mistake to allow the impression to rise that the alleged phenomena were recent. Intelligent students of history know better. They have existed from time immemorial, and the widespread theory of *Animism*, or of the phenomena which moderns describe by the term *Animism*, is unimpeachable testimony to the age of the alleged facts. But owing to various circumstances in the growth of materialism and scepticism, with the simultaneous decrease in the tenacity of religious beliefs based upon the immortality of the soul, the excitement aroused by the Fox sisters brought the alleged facts to the attention of intelligent people, and as a consequence the Society for Psychical Research was organised.

Two general types of phenomena had characterised the claims of the Spiritualists: the physical and the mental. The physical usually represented some form of alleged movement of objects without contact. Sometimes independent voices and sometimes so-called materialisations were claimed. The mental phenomena always represented some type of alleged communication from mind to mind independent of normal sense perception, or apparitions of the dead. Both types were more or less easily imitated, whether under the same or different conditions. The consequence was that the magician and the conjurer saw a rich field for the exploitation of illusion among the believers in the marvellous. Unscientific and credulous people rushed into the trap and accepted as inexplicable by ordinary causes all sorts of imitations or pretended miracles. The consequence of this was the acceptance of the magician's point of view and method of approach to the occurrence of the alleged supernormal. The magician did not always claim that his phenomena were inexplicable. Usually he openly avowed that they were illusions or tricks. He made no pretence of the miraculous. But there was a class that had no such scruples in their tricks. They were quite willing to play on the credulity of the ignorant and of those seeking consolation for the loss of their friends; and they succeeded in saturating the public, the intelligent part of it, at any rate, with the preconception that the whole field was that of conjuring. The intelligent classes had no other conception of it to start with and saw only the importance of not being fooled regarding the subject.

It was in the midst of this public opinion that the Society for Psychical Research was formed. The method which it was forced to pursue in the situation described was to suppose that magic was the first explanation of the alleged facts. No matter how well attested any alleged phenomenon might be, the Psychical Researcher had to assume that conjuring was the first possibility to be removed before giving any other hypothesis a hearing. Any attempt to vindicate or assert the existence of the supernormal without removing the

claims of the conjurer only met with ridicule, all the more violent because the conjurer had won the confidence of the public. The layman knew well enough his own limitations and liabilities to illusion, and it was a godsend to him to be able to refer the whole matter to the magician. His imitations had the field of attention, especially because common experience creates a presumption that the unusual is only the familiar in disguise; and the best proof of this claim was the exposition of the conjurer's trick which seemed inexplicable under the circumstances of its performance. Apparently no amount of evidence would suffice to prove the exceptional, especially such a thing as mind-reading or communication with the dead. The former had to do with the living, presumably, and might be more credible, especially if it could be used to discredit the latter. Materialism had so discredited the belief in survival after death that, with most intelligent people, it was regarded either as impossible or as incapable of proof, and so a negligible event. Magic seemed to account for all that was ordinarily inexplicable, and since, consequently, it held the field of interest whenever any claim for the supernormal arose, the psychic researcher had first to show his acquaintance with its potentialities and to eliminate all possible appeals to it.

There was another reason which strengthened the appeal to magic as an explanation. Conjuring is the work of a normal person, and so anything occurring under normal conditions is exposed to the suspicion of trickery, if it appears to be exceptional, just as conjurers' illusions appear to be unusual and miraculous. In the early stages of the work of the Society it was laid down as a condition of accepting accounts of unusual experiences that the informant should be a normal person. Apparitions and certain alleged coincidences of the telepathic type were exposed to the suspicion of being illusions or hallucinations. Unverified apparitions were especially accusable of being hallucinations, and more particularly so if they were supported only by the testimony of the percipient and there were no conditions to show that they were due to an extraneous stimulus. The medical man and psychiatrist were so familiar with visions and similar purely subjective experiences that they easily disposed of such cases by the hypothesis of hallucination.

As a matter of fact it made no difference whether the reporter was normal or abnormal. The evidence for the supernormal was something other than the judgment of the informant. It was the relation of the experience to some external event which could not possibly be caused by any processes of the percipient's own mind. For instance, consider the case of an apparition: A sees an apparition of B, whom he knows to be dead, let us say; whether A is a normal or an abnormal person makes no difference. We may suppose the fact to be due to a casual hallucination. This may not be provable, but it is supposable,

and that suffices for the sceptic and scientific man alike to disqualify the incident as evidence for any other hypothesis. But if we can prove that A did not know that B was dead and that the apparition, in detail, represented some facts about B at the time that the apparition occurred, as well as coinciding with the time of his death, the case is quite different. It will not be the mere apparition that has to be explained, as that may be characterised in any case as we please. It is the relation of it to the external event which it seems to betoken. If such things occur frequently enough they will exclude chance and will demand the hypothesis of some sort of causal nexus between the apparition and the event. Whether the percipient be normal or abnormal has nothing to do with the case.

But the public and the scientific psychiatrist were so infected with the assumption that it is the apparition alone that has to be accounted for that it was important to assume or to prove that the subject of the experience was normal, so as to create a presumption against the hypothesis of hallucination. The great fault of the first assumption of the Society was that it allowed no alternative between fraud and genuine phenomena. This might be true enough when you assumed that you were dealing only with normal people. But while this was necessary in order to eliminate the dogmatism of the psychiatrist, it was not the way to eliminate the conjurer. He had to be shown that the problem was one of abnormal psychology. Having proved, however, in normal people that the supernormal could occur, it was safe to advance to the abnormal type and either to find the same phenomena there or else to show that the simulation of them in such types did not necessarily imply fraud. This was the important step in studying many cases which had passed as fraud but which were in fact nothing but cases of hysteria, with more or less of the supernormal mixed up with the abnormal. The presence of abnormal conditions excluded the right to bring the accusation of fraud, and the presence of supernormal elements excluded the right to appeal to conjuring as an explanation.

It was the prejudice of the world against the facts, and perhaps a good deal of indolence about investigating them, that prevented men from admitting the right way to approach the problem. But it was essential to exclude the magician and his assumptions, if any progress was to be made. Scientific men in some cases knew this well enough, but their interests, legitimate and illegitimate, made it seem prudent to avoid emphasising the psychopathological approach to the problem. Had they taken it up long ago in the light of abnormal psychology they would have made a thousandfold more progress than they did by concessions to the conjurer. But unfortunately there were so many interests involved in defending orthodox science that there was no desire to compromise the issue.

The method in the future for investigating dubious phenomena must

always reckon with the possibility of various hysterical or somnambulic conditions simulating the magician's explanations without involving his conception of the motives or mental states behind the events. When I say "hysterical" I know I am using an ambiguous term. It is not my fault. I should agree with anyone who deplored the change in the scope of that term, as it leads to mixing up the implications of its older usage with a new one which does not imply those associates. But psychiatrists have fixed the term and I can only use it here to denote any subconscious action that manifests a form of mental dissociation. With that conception of it we may safely insist that in some form we must reckon with hysterical and somnambulic states of mind when investigating certain types of phenomena, just for the purpose of getting a really scientific knowledge of very complex facts. Moreover, we must remember that the employment of the term involves no explanation of the facts. The general public supposes that it implies an alternative explanation to that which the spiritualist proposes but the fact is that hysteria offers no explanation whatever of any phenomenon. It is but a name for certain symptoms whose origin is imperfectly understood even by medical men. It follows that the magician is far from competent to investigate it.

Whether we choose to regard our phenomena as telepathic or spiritistic, the intrusion of outside thoughts upon a person's mind involves some sort of displacement or dissociation of the latter's complete control of his organism, and this is true whether the result is a sensory or motor effect. A telepathic phantasm perceived by A and originated by B involves the intrusion on the stream of consciousness in A of the thoughts of B, and similarly the expression in A's motor system of B's thoughts involves the displacement of A's own control for the time, or the subjection of that control to the influence of B through the consciousness of A. The spiritistic hypothesis only substitutes the dead for the living subject in such an influence. We have no right to appeal to it until we have proved survival, but when it is proved, or supposed, the process of communication will not be inherently different from what is assumed in telepathy. The very conception of the supernormal in any sense whatever implies external action on the mind of the percipient of a kind which excludes normal functions in that respect, and when seeking for the supernormal that possibility has to be assumed. It at once excludes the conjurer's methods for anything but the mechanical feature of the phenomena. He may be granted a free hand in that territory, but he cannot infer from them the state of mind which the same acts would indicate in the normal person.

The psychic researcher often finds himself on the horns of a dilemma. The ordinary person who believes himself or herself to be honest and has interesting phenomena to give does not wish to be investigated as a fraud. On the other hand, he or she does not wish to be regarded

as insane or hysterical. In many cases they are neither, save that they might be hysterical without implying what is usually understood by that term. Hence it is important that as investigators we should avoid misunderstanding on both alternatives. It is more important that we escape the suspicion of being fraud-hunters, even when we may happen to be on the alert for it. If we frankly recognise that the phenomena are likely to be mixed and to possess characteristics that ally them with genuinely foreign invasions and at the same time present the appearance of facts that are dubious, we shall be in a position to claim serious attention. There has been too much fraud-hunting and too little search for phenomena that may be perfectly genuine in spite of superficial appearances. Hence the importance of approaching them with the instruments of abnormal psychology. There will be no safety for the work until this position is taken regarding it.

I know no better case illustrating this than the one which I published as the Burton case of hysteria. Here was a modest and sincere young woman who was performing as a medium all sorts of physical phenomena. The credulous thought it all spirits. The sceptics thought it all fraud. Both were wrong. After having two physicians investigate it tactfully for more than a year they reported it as a case of hysterical simulation of mediumship. She was discovered to be doing the things herself, such as singing and whistling through a trumpet, or making a tambourine float in the air. The photographs showed that she threw the tambourine into the air. But she was in a somnambule trance and knew nothing of what she was doing. We could not accuse her of fraud and we had no evidence that spirits were at the bottom of the phenomena. The ordinary observers came away with verdicts according with their prepossessions, some believing that the facts were marvellous and others that they were fraudulent. At this stage of affairs I became interested and the case offered me an opportunity to study it as one of hysteria and to vindicate the position which I took regarding the Palladino case, namely, that it should have been investigated as a case of hysteria. I spent some time on the case and had some forty sittings in all. I was not concerned with any search for the miraculous, but for the nature of the girl's subconscious activities. Before I got through I found four different types of supernormal phenomena and many hysterical simulations. She was not a fraud and the phenomena did not require spirits for their explanation, unless the actually supernormal phenomena which obtained require that hypothesis. But my principal object was to study the subconscious, and it proved to be one of those cases in which the majority of the phenomena had the ordinary mechanical explanation, whatever their near or remote cause, and yet were not fraudulent in any proper sense of the term. It was a lesson for the psychic researcher. He could evade the court of the magician and of the layman at the same time.

The first lesson to learn is perfectly inexhaustible patience with the cases with which you experiment. One or two experiments are worthless for any intelligent purpose, save perhaps to justify further experiment. The majority of people go to a medium, take one sitting and come away with the cry of fraud. They observe some little movement of eyes, hands, or feet, and jump to the conclusion that it is fraud. These same people, as soon as they are convinced that it is not fraud, swallow everything that comes through an honest person as if it were a revelation of infallible truth. But this is no way to decide any scientific issue. If you are even possibly dealing with a psychic you must assume that you are dealing (1) with abnormal psychology in which none of the ordinary criteria of genuineness apply ; (2) with subconscious phenomena which, whatever their ultimate cause, are sure to be interfused with any hypothetical supernormal that you can discover. Unless you experiment on these suppositions your judgment on the case is not worth a penny. Of course fraud is not to be treated with patience, but it is easy to decide the conditions under which your subject is likely to be a fraud. Those who freely surrender themselves to experiment under reasonable conditions, at least to start with, will always have to be dealt with as if honest, no matter what you fear or suspect. Assume that your subject is honest, and let him prove that he is a fraud. Do not assume that he is a fraud and let him prove himself honest. Your own conduct in such situations will quickly reveal your state of mind to the fraud and he or she will take a course that will make it impossible to prove them frauds. But assume that they are honest, keep proper records at the time, and form your opinions afterwards.

In working with mediums our first business is long experiment with accurate records. We may have to wade through oceans of twaddle or search through mountains of chaff, but we shall not be entitled to form any judgment about them until we do this. In the incipient stages of mediumship, whether accompanied by any hysteria or not—and by this I mean various forms of dissociation which are not necessarily manifested in mediumistic capacities—there is sure to be a large intermixture of subconscious material. It may not be subconscious memories reproduced in their exactitude, but rather the influence of subconscious functions on a stimulus which may come from transcendental sources but which may be unable to transmit its contents through the subconscious. There is here an infinite field for disappointment to those who come to the work with expectations of ready material in the way of evidence to be poured into their laps. Hence a man will have to experiment patiently, often for months and years, to reach the point where his material will be impressive or free from subliminal admixture, and it will never wholly escape this interfusion with subconscious products, even although they be nothing

more that the linguistic form in which the information is conveyed. I have worked nine years with Mrs. Chenoweth and changes have been going on during the whole of that time in the nature of the trance and the contents of messages. At first the setting in which the supernormal incidents were buried was very large. That is to say, the chaff occupied a large proportion of the record. But as time and experiment proceeded different methods were adopted by the "controls"—I can speak in this manner on any theory whatever of the phenomena—and the trance was deepened, with the result that the subliminal content was decreased and the messages became purer from subjective influences. Four times in those nine years the nature of the trance was altered, and a considerable time was required to get good results after each change. There was always a period in which some disturbance in getting proper messages was caused by the deepening of the trance. Had I taken but three or four sittings with the lady I should have known nothing of the psychological development involved in all this patient experimentation.

Dr. Hodgson found the same to hold true with Mrs. Piper. The control with whom he started his work called himself, as you know, Dr. Phinuit. When the "Imperator group" appeared it took them four years to eliminate Dr. Phinuit, and in the course of it the work was completely altered in character, as any reader of the records may observe. But the main point is the time, patience and experimentation needed to bring all this about. It was four years. There is not one in a thousand of the experimental psychologists that would have spent six weeks on such work. But any man who goes into this investigation must prepare himself for just such experimenting or he will not get such results as he desires.

I will summarise. In the first stage of our inquiries it was necessary to direct the work in such a way as to satisfy the scruples of the conjurer and the student of normal psychology and to turn it over to the student of abnormal psychology. Here began the need of patience and perseverance in cases where the conjurer might demand the immediate production of phenomena. The student of abnormal psychology finds that he cannot exact results as he pleases, even when it is not a question of the supernormal, and hence his methods become the norm of investigation. There the problem rests to-day, and the investigator must learn that the qualities of patience and perseverance are the only key for unlocking the mysteries which would not yield to the confidence and arrogance of the conjurer. Years of time and thousands of experiments are necessary to decide even small questions or to make a very few steps in the progress of the work. The student that cannot face this fact may as well leave the subject alone. The discoverer of the future will be a man of infinite patience, and with this must have the character of a moralist in order to achieve his ends.

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RELIGION AND THE SEX-INSTINCT

BY ROBERT H. THOULESS, M.A.

IN the *American Journal of Religious Psychology*, before its disappearance during the war, certain articles appeared written by Mr. Theodore Schroeder, on the Erotogenetic Theory of Religion. As the connection between sex and religion is a subject which is attracting an increasing amount of attention amongst those who are interested in the critical study of the psychological roots of religion, a discussion of a theory which asserts this connection in an extreme form may be found to be not without interest.

Mr. Schroeder states his conclusions with a dogmatic certainty which strikes on modern ears like an echo of ecclesiastical anathemas in the Middle Ages. He accuses those who disagree with him of a strong will-not-to-believe and a sex-phobia. Now this is hardly fair. Any person convinced of the truth of his own opinions is inclined to credit his opponents with an irrational prejudice, but to state this conviction is no argument for the truth of his own view. A psychologist would rather suspect it as a possible sign of a repressed doubt of the stability of his own exposition. It is no argument for the erotogenists' theory to say that its opponents must have a sex-phobia. It is no better than would be the possible retort of its opponents that its upholders suffer from a sex-obsession. Such abusive language on both sides can only serve to obscure the truth, wherever it may lie. We must protest that it is possible to doubt Mr. Schroeder's theory without having a sex-phobia. It must stand or fall, like any other theory, by its scientific sufficiency.

It would indeed be neither a sufficient nor a helpful argument to say that the theory was disgusting. The business of science is to inquire whether it is true. To the religious man any account of religion which is completely naturalistic must be revolting. But if the naturalistic theory of religion is the true one, then the sex-instinct is as respectable an origin as any other. Nothing but our conventional repression of sexual matters makes us suppose that it is not.

No one will deny a certain relationship between the phenomena of sex and those of religion. The dispute is about the significance of this relation, and also about its closeness.

On the first point, it must be noted that anthropological evidence brought forward by the erotogenists cannot be taken as proving their position or even of rendering it probable, unless it is not only consistent

with the erotogenetic theory, but also inconsistent with any other theory of this relationship. Mere weight of more or less relevant instances is of no value unless it fulfils the conditions of logically valid proof. This is obvious. It is mentioned here only because it is a point which Mr. Schroeder appears to neglect. He brings forward a mass of anthropological evidence, which is of no value as proof of his position, because it is not inconsistent with views on the relationship between religion and sexuality, different from his own. Nor does he try to show that his facts are consistent only with his own theory. Apart from his deductive reasoning, which will be discussed later, his method appears to be to hurl facts at his readers, mingled with dogmatic statements of his own opinions, trusting that the mass of his facts will blind them to their irrelevance to the point at issue.

The closeness of the relationship between sex and religion is a question needing further careful and unprejudiced research. We may agree with Mr. Schroeder that it has often in the past been minimised by an unscientific prejudice against sexuality. On the other hand, it is possible that the tendency of certain modern psychologists to reduce everything to terms of sex may be a symptom of a prejudice no less unscientific than the sex-phobia they so loudly deplore in their predecessors.

We will divide the possible theories on the problem of the relationship between religion and sexuality into three classes :

1. That religion is conscious sexuality.

That this is true universally has never been asserted, so we need not discuss it.

2. That all religion is in its origin, sexuality. It is not so consciously in most cases, but it started in the past as conscious sexuality in the phallic religions. This is Mr. Schroeder's view.

A few quotations may be given to make his conclusions clear :

“ All religion in its beginning is a mere misinterpretation of sex-ecstasy, and the religion of to-day is only the essentially unchanged evolutionary product of psycho-sexual perversion.” (“ Adolescence and Religion,” *Journal of Religious Psychology*, Vol. vi.)

“ The differential essence of religion is always reducible to a sex-ecstasy. When frankly avowed as such, then the apotheosis of sex results in some form of phallic worship. When not recognised as a sex-ecstasy, or not frankly avowed as such, the erotic origin of religion is revealed by an extravagant over-valuation of the sacredness or sinfulness of some sex manifestations. In this form the sex-ecstasy becomes religious ‘ experience ’ by being misinterpreted as the direct and immediate perception of the mysterious-super-physical—‘ transcendental.’ ” (*Journal of Religious Psychology*, Vol. vii., p. 23.)

3. The commoner view, held by all psychologists who do not agree with the erotogenists, is that there is no identity between religion and sexuality, though there is a certain connection between some phases of the religious life and the sex-instinct.

Quotations might be multiplied, but one from *Psycho-analysis*, by Ernest Jones, will illustrate what is meant :

“The commoner opinion is that the instinct merely adds some of its own peculiar feelings and impulses to religious and artistic tendencies that are already present in the mind and which originate in other sources.”

It has already been pointed out how useless is a great volume of evidence quoted in favour of the erotogenetic theory, while no attempt is made to show that it excludes any such view of the connection between religion and sex as that quoted above. His neglect of this fact is a fatal defect from which the whole of the empirical part of Schroeder's argument suffers.

Three points may be considered as examples of phases of the religious life showing a connection with the sexual life :

- (1) The frequency of language drawn from the sexual life in the writings of the mystics.
- (2) The close contiguity in time ordinarily observed between conversion and adolescence.
- (3) The high value placed on chastity by many religions.

These, indeed, show a connection between religion and sex which no student of the psychology of religion can afford to neglect. But when we go further and try to use such facts as these to support a theory of the identity of sexuality and religion, we find them totally unable to bear such a burden. A closer examination serves only to make the facts less impressive than they appeared at first.

The mystic finds that language is powerless to describe his experiences, so he uses symbolism drawn from all parts of life. It is true that he may speak of the search for a divine lover, of the betrothal and of the spiritual marriage ; but he may also speak of listening to celestial music, of returning to a divine Father, of tasting or of smelling.

Rolle, who says that Love “suffers not a loving soul to bide in itself, but ravishes it out to the Lover, that the soul is more there where it loves, than where the body is that lives and feels it,” says also : “Thou art a savour well tasting, sweetness well smelling, a pleasing odour, a cleansing heat, a comfort endlessly lasting.” Elsewhere he says : “Song I call, when in a plenteous soul the sweetness of eternal love with burning is taken, and thought into song is turned, and the mind into full sweet sound is changed.” Similar extracts from other mystics could be given showing the same bewildering richness and

variety of metaphor, which breaks through the rigid limitations of our theoretical systems and shows its origin to be rather in the multiplicity of the experience of ordinary life than in any single dominant idea.

The close connection in time between conversion and puberty has been worked out by Starbuck. He shows that conversion takes place, almost exclusively, in the years between ten and twenty-five. The law he formulates is that "conversion and puberty tend to supplement each other in time rather than to coincide; but they may, nevertheless, be mutually conditioned." But the age of puberty is much more than the beginning of self-conscious sex life. It is also the time of assuming new responsibilities, of increased physical vigour, and of a distinct change in intellectual processes. For the first time the mind questions what has been received on authority, and prefers to feel itself more independent. All these changes, social, physical, and mental, which accompany a adolescence may well make us pause before asserting that the known facts are sufficient to justify us in connecting puberty and conversion in such a manner as to make the latter merely a crisis in the sex life.

It is true also that most of the higher religions value chastity highly. From the onlooker's point of view this valuation seems to be extravagantly high, as the sexual act is normal and necessary to the continuance of the race, so that it cannot reasonably be regarded as sinful in itself. But this fact becomes of less importance to the subject in hand when we realise that in this respect the sexual instinct does not stand alone. The repression of other instincts is also regarded as of high religious value. Meekness and fasting are considered signs of the highest life as well as chastity. But meekness is the repression of the instinct of aggression, and fasting is the repression of the instinct of nutrition. The freeing of the self from all desire, not merely from sexual desire, is a factor in Christianity, Buddhism, and many other religions.

It is, however, not necessary to labour the inadequacy of such facts as these to bear the weight of the erotogenetic theory, as they are not the supports on which Mr. Schroeder mainly relies. His main support (and one which he himself seems to consider quite satisfactory) is drawn from two deductive arguments. His anthropological evidence is rather of the nature of a subsidiary prop. It will be shown later that the evidence adduced is not able to serve a useful function, even in this humble capacity. The deductive proofs of the theory will be discussed first.

First he "proves" that the phallic religions were, in time, prior to any other form of religion. This follows from Spencer's formula of evolution, which asserts a progression "from an indefinite incoherent homogeneity to a definite coherent heterogeneity."

If we admit that phallic religions are earliest in point of time, he

further proves his hypothesis "that all religion in its beginning is a mere misinterpretation of sex-ecstasy" from a generalisation which is the psychological analogue of a well-known embryological formula. This generalisation is that "psychic ontogenesis is but a recapitulation of phyletic psychogeny."¹

Even if both these formulæ were true, so far as was known, there would appear to be a fallacy in their use for deducing the facts which Mr. Schroeder wishes to deduce from them. Being mere empirical formulæ, and not laws founded on direct evidence of causation, what reason have we for supposing that they hold good except within the limits of the observations on which they were founded? Can they be used for the deduction of new facts which must necessarily be outside those limits?

It is true that valid inferences may be made from certain general laws to certain facts beyond those on which the general law was based. The general law must, however, be causal and not merely an empirical law. We must, moreover, be able to see why the particular case in question should fall under that law. The further removed in kind the inferred fact is from the facts on which the law is based the less convincing is the inference. Thus we may apply a law deduced from observations on substances in the gaseous condition to substances in dilute solution, as they have a property in common—that the interaction of the molecules of the gas and solute respectively may be neglected. Our deductions will be valid only so far as the facts deduced depend on this common property. Such a law would, however, be certainly invalid if it were applied to a substance in the solid state, while no sane person would dream of trying to apply it to anything so totally different as, let us say, a mental condition.

If we try to apply these criteria to Mr. Schroeder's two generalisations, we see how hopelessly his inferences fail to conform to the conditions of validity. Let us consider the use he makes of Spencer's homogeneity formula.

First we must ask on what kind of evidence it can rest. It is obviously not an axiom because it can be doubted. Nor is it a causal law, because Spencer considers that it is true only for the period of

¹ In his article entitled "Adolescence and Religion" (*Journal of Religious Psychology*, Vol. vi.), Mr. Schroeder uses this argument in the opposite direction, i.e., to prove from the sexual origin of existing religion the chronological priority of the phallic religions. In a later article, however, in Vol. vii., called "The Erotogenetic Interpretation of Religion: its Opponents Reviewed," he uses it in the way here discussed. In his criticism of the Rev. G. B. Cutten, he says: "... The Rev. Mr. Cutten does not see that, 'if religion and sex in evolutionary development have had a direct and intimate relation,' and, as Haeckel has shown, the life of the individual is a 'compressed reproduction' of the life of the race, then it must be that, as in the immaturity of the race, so now and forever in the immaturity of the individual, religion must bear to sex 'a direct and intimate relation'" (p. 32).

Evolution, which is followed by a period of Dissolution during which the contrary law is true, and the progression is from heterogeneity to homogeneity. It must, therefore, at best be merely an empirical formula. If we further ask on what facts it is based we find that they are drawn from physical and physiological phenomena. Spencer's application of it to mental facts is little more than a pious hope that it may be found to apply there. Yet Mr. Schroeder unhesitatingly uses it to deduce facts in that most obscure of all sciences—social psychology. Could we have a more flagrant outrage on the requirements of logic?

So far we have assumed that the generalisations are themselves rigidly true. That is not, however, the case. It will be remembered that Spencer's formula states that in evolution a progression takes place "from an indefinite, incoherent homogeneity to a definite coherent heterogeneity." It would waste time to expose again the hollowness which lies behind this pretentious formula, as that has already been done by Professor Ward in his *Naturalism and Agnosticism*, Lecture VIII. Professor Ward shows that there is no such law as Spencer's law of the instability of the homogeneous—"the absolutely homogeneous must lose its equilibrium, and the relatively homogeneous must lapse into the relatively less homogeneous." ("First Principles," Sec. 155.) Spencer can indeed point to plenty of examples of systems becoming less homogeneous, but he could equally well have found examples of the opposite change taking place. "Homogeneity is not necessarily instability. Quite otherwise. If the homogeneity were absolute . . . then the stability would be absolute too." (*Naturalism and Agnosticism*, p. 217.) It is astonishing to find this outworn formula turning up again as a dogma to save the erotogenists the necessity of proving their theories by a scientific method.

Naecke states that phallic religions are degenerations of the love of God and not part of the original foundation of religion. Because he also admits that it is impossible to prove the late origin of phallic religion, he is accused by Mr. Schroeder of "mere dogmatism." But this is absurd. The question of what was the earliest form of religion is one which cannot be answered. It is unlikely that it will ever be answered. We can no more prove that the earliest religion was not phallic worship than we can prove that it was not a pure Monotheism. We are not, for that reason, compelled to believe either of these propositions until some much more cogent evidence is brought forward.

If the first generalisation is insecure, the second one—that "psychic ontogenesis is but a recapitulation of phyletic psychogeny"—is not less so. Our knowledge of phyletic psychogeny is so fragmentary and speculative that no serious anthropologist would suppose that it is sufficient to base such a statement upon. Any force it possesses it therefore derives from the fact that it is analogous to the embryological

formula that the development of the individual is but a recapitulation of the development of the race.

Even if this were rigidly true, an analogy which would apply the same law to psychical development would be unsound, because we would be applying a principle derived from the study of one class of facts to facts of a totally different kind.

It cannot be argued that the principles of psychical development can be inferred directly from the principles of physiological development because psychical and physiological events are parallel. This argument ignores the fact that we are talking about physiological development in the embryonic stage and about psychical development when the organism is nearly full grown.

Actually, the embryological formula is a mere approximation. More detailed study of the development of the embryo shows that there is no exact recapitulation of racial development.

Mr. Schroeder's statement that "psychic ontogenesis is but a recapitulation of phyletic psychogeny" is, therefore, no more than an analogy invalidly drawn from an inaccurate formula. It is not a law and cannot be used as the basis of a deduction.

We now turn to his observed "psychogenetic facts of religious ontogeny." These are prefaced by the remark that if "there exist special ceremonies of religious import, which in past ages have been the accompaniment of adolescence, this would suggest that the beginning of *self-conscious* sex life marked the beginning of the religious life."

We may here observe that facts which merely "suggest" that the religious life and the self-conscious sex life start at the same time do not carry us very far towards the erotogenetic theory.

But does the fact that there exist special ceremonies of religious import at the period of adolescence suggest even this? Religious ceremonies accompany all the important points in the individual's life, so it is not surprising to find them at the time of adolescence. There are religious ceremonies at birth and at death, but this does not suggest that the religious life starts at these times. Actually one is struck by the smallness of the religious element in the initiation ceremonies quoted.

In favour of his contention Mr. Schroeder quotes several initiation ceremonies of females with little religious significance, and also cases of premarital connection with idols amongst Roman women and promiscuous connection in temples amongst worshippers of Venus and the Hebrew worshippers of Baal-Peor. After one of these he makes the characteristic remark: "This adolescent rite was, no doubt, the origin of sacred prostitution, vestal virgins and nunneries." This is an example of the way in which he allows imaginative and dogmatic statements to take the place of scientific proof. The origin of nunneries

in these sexual practices of Baal-Peor or Priapus is too absurd to be accepted on no better evidence than Mr. Schroeder's confident "no doubt."

It is not quite clear, even if it could be shown that the religious life and the sex life start at the same time, how that would be of value to Mr. Schroeder's theory. That two things start at the same time does not prove their fundamental identity. In itself, however, the statement that the religious life begins at adolescence does not appear very probable. When we try to apply it to the religious life of the present day it is in manifest contradiction with the facts. In Starbuck's records there is abundant evidence that the religious life may precede adolescence.

In an earlier essay (*American Journal of Religious Psychology*, Vol. iii.), Mr. Schroeder makes a distinction between religion based upon personal religious (subjective) experiences and mere sympathetic imitation, and refuses the name of religion to the latter. Presumably Mr. Schroeder would say that the religion of childhood is mere sympathetic imitation. Now there is a very distinct difference between the religion of childhood and the religion of adolescence. The intellectual, critical attitude towards dogma is absent in the former, and the emotional content of adolescent religion is greater than it is in childhood. But, on the other hand, we do not find that the religion of childhood is invariably a mere acceptance of formulæ on authority, without emotional value, as it would be if it were mere sympathetic imitation. It is true that a large number of the accounts of childhood religion appear to be of this description, as does the religion of many adults. At the same time, in many cases the religion of a child has all the marks by which we would judge that an adult's religion was founded on personal experience. We must notice, too, that this is in spite of the fact that most of Starbuck's subjects were of a Protestant type, which attaches a high value to conversion and would, therefore, tend to minimise the worth of preconversion experience.

The following examples are from Starbuck's *Psychology of Religion* :

"F.—'I do not remember the time when I wasn't vitally concerned in religion.' F.—'I think religion began with my birth.' M.—'I always felt myself a child of God.'"

"M.—'I loved Jesus with all the fervour of a child's heart.' F.—'I had implicit confidence in God's love for me.' F.—'I always asked God to do things for me, and promised Him things if He would answer my prayer.'"

"'My parents' instruction took root early. I was a religious child; religious ideas were from the first interesting and attractive to me. I was spontaneously grateful to God, and really loved Him.'"

"F.—'Up to fourteen, I believed that a real live person, God, hovered over me constantly, and was conscious of my every act.'"

Empirical evidence does not bear out the contention that there is no real personal religion before adolescence. Although the absence of personal religion in childhood would be no proof of the erotogenetic theory, its presence would seem to be absolutely fatal to that theory. An equally damaging fact is that the theory requires that in old age real religion should be absent. This is entirely contradicted by the facts. W. James says in *The Varieties of Religious Experience*: "The religious age par excellence would seem to be old age, when the uproar of the sexual life is past."

The evidence drawn from the phallic religions is of great interest in any discussion of the origins of religion. It is, however, irrelevant to the theory in question, unless it is certain that the phallic religions were themselves expressions of the sexual instinct of the worshippers. This appears to be assumed without proof by Mr. Schroeder. There is, however, another and a much more probable explanation. The religious rites of a people dependent on agriculture are mainly connected with the needs of their herds or crops. What more natural symbol of the fertility on which their prosperity depends could be chosen than the generative organ of their domestic animals?

This may or may not be the true explanation of the phallic religions; but it is certainly a possible one, and it appears to be more probable than Mr. Schroeder's. However, while it remains possible it makes any appeal to the phallic religions as proofs of the erotogenetic theory completely useless, since such appeals could only be of value if the reference of phallic religions to the human sexual instinct were beyond doubt.

The examination of Mr. Schroeder's articles leaves us impressed with the weakness of the argument for the identity of sexuality and religion. His deductive arguments are logically unsound. The anthropological evidence is mostly irrelevant and quite incapable of bearing the burden which he places upon it. Nor does the argument seem capable of much improvement. A sounder naturalistic view of the origin of religion would surely derive its experience from all the repressed instincts, of which the sexual instinct is only one.

There is a possibility, however, that there is an inherent unsoundness in the naturalistic method of explaining the phenomena of the religious consciousness. Possibly its communion with God is an action between the mind and something objective outside it. If that were the case, the repression of the sexual and other instincts might still determine the form and colour of many of the phenomena of religious experience, but it could not explain them.

THE PRESENT CONDITION OF INDUSTRIAL PSYCHOLOGY¹

BY FRANK WATTS

§ 1

THE NECESSITY FOR SOUND METHODS OF DEVELOPMENT

IT may be argued that the attempt of the psychologist to apply his special method to the elucidation of the problems which concern the human element in industry has been productive so far of greater good to psychology than to industry. There are several reasons why this should be so, not the least being that here the psychologist has been at work in a somewhat alien field, though he has been one of the last to realise it. The tendency to mistake his trim and tidy laboratory for the tangled world at large has influenced him more often than he has suspected. It is a great gain, however, to have become conscious of this defect. Obviously, little headway will be made by industrial psychology as an applied science unless its disciples understand not only the methods of their particular science, but something also both of the every-day difficulties of management and of the healthy aspirations of labour. If, therefore, the industrial psychologist is to come to real grips with those industrial problems which his method alone will permanently solve he must lose touch with neither of these parties, whose estrangement is a root cause of our social unrest.

Forgetful of this precaution, many of the pioneer workers in industrial psychology have mapped out for themselves a greatly oversimplified programme of experiment, and in the first flush of enthusiasm have promised much more on behalf of our subject than they may ever be able to perform. Expectation in some quarters has consequently been fanned into premature excitement. But real advance will only be possible when it is understood that the psychologist aspires to play neither the combined part of tipster, trainer, and jockey for those who wish to get ahead in the race for wealth, nor that of patent medicine vendor to those who want quick remedies against ca'canny and discontent.

For the present the industrial psychologist asks for nothing more than to be left alone to work at his problems uninterruptedly and in his own way. He fully realises that his initial efforts to apply his particular method have raised as many problems as he has solved, and his mood is one of optimism, well-chastened.

¹ A paper read before the Psychology Section of the *British Association for the Advancement of Science* (Edinburgh, 1921).

§ 2

THE SCOPE OF INDUSTRIAL PSYCHOLOGY

It will probably be agreed that it is the function of an applied science to explore the conditions of efficiency in the sphere proper to its application. Pure science may be perfectly disinterested, but applied science seeks to be useful. Industrial psychology will attempt, therefore, to show how the laws underlying the behaviour of living creatures, which pure psychology may establish, can be exploited in industry to human advantage. In other words, it is the aim of the industrial psychologist to seek to improve production through every possible increase in the physical and mental efficiency of those engaged in it. His subject is the economy of the human element in industry, and it will be his endeavour to render every advance in the use of machinery consistent with the permanent well-being of those by whom it is operated.

Now the task of the industrial psychologist would be immensely simplified if it were possible for us to analyse satisfactorily and measure separately all the factors which are at work in the simplest human reaction, but at present we know too little about human behaviour to permit this. As it is, many of the attempts to introduce psychological improvements into industry have issued from an altogether inadequate understanding of the broad facts of human nature. Too frequently, of course, the aim has been to increase production without taking into account at all the point of view of the workers, with the result that every reform initiated to-day from within the ranks of management finds itself obliged to face and overcome the prejudice engendered by at least a hundred and fifty years of class antagonism which might have remained sleeping.

But merely to recognise the existence of the human element in industry is not enough; the difficulty is to take full cognisance of all its possible manifestations. Even to speak of our subject, as is commonly done, as the study of the human machine in industry leads us frequently to neglect those aspects of it which cannot yet be brought within the category of the mechanical. Man is a machine, but in the present state of our knowledge we should do well to consider him as something more. For just as the psycho-analysts have shown that our memories do not fade uniformly in accordance with the simple mechanical laws popularised by Ebbinghaus (which would permit us to plot smooth curves of forgetting from the details furnished by statistics of the recency, frequency, vividness, and primacy of the original sense impressions), so further research will, I believe, show conclusively that the reactions of the average worker in industry are much more subtle than is assumed by the industrial psychologists of the American behaviourist school.

Happily we are now more or less aware that when we are dealing

with such mental functions as attention, memory, intelligence, and skill there is always present an incalculable something which is likely, unless we are careful, to make sport of the most cautious of our generalisations. In other words, there are moods and motives active in every psychological experiment which it is extraordinarily difficult to isolate and control. We may attempt, for example, to measure a person's acuity of sight or hearing, but, unless he is "at home" to us all the time we are doing so, our results will be unreliable. We may proceed to estimate his intelligence, but, unless our test material interests him to the full, again we shall be in danger of drawing wrong conclusions about him. Yet it is safe to say that a great deal of the experimental work in the sphere of industrial psychology done previously to the last four or five years has been carried out on the assumption that such singularly elusive mental factors as we are only just beginning to understand scientifically have been either constant or else negligible quantities. No more fertile source of error could have been left unexamined. What I shall say will, I hope, amply illustrate this.

§ 3

THE POSSIBLE DIVISIONS OF OUR SUBJECT

The efficiency of the human element in industry may be studied from four different points of view, as it is affected by (1) conditions of work, (2) methods of work, (3) suitability of work, both individually and generally, and (4) incentives to work. While, however, each of these divisions may be studied separately, it should be understood that industrial efficiency is an all-round efficiency, and that to hope for efficiency in any one direction while neglecting others is to court disappointment. Nevertheless, but for the purposes of this paper only, I propose to deal briefly with each of these divisions in turn.

§ 4

THE INFLUENCE OF WORKING CONDITIONS ON EFFICIENCY

It is possible to say to-day that considerable advance has been made in the study of the influence of environment on working capacity. In the past it was considered enough to condemn only such working conditions as were responsible for gross bodily discomfort and obvious fatigue, and to dismiss the psychological factor as negligible. Thus, the physiologist, when called in to investigate the extent to which working conditions were harmful, thought at first to base his conclusions wholly upon evidences of fatigue which might be derived from physical tests. Fatigue, if present, would show itself, he argued, in muscular changes, in variations of blood-pressure and pulse-rate, in

diminished acuity of hearing and vision, and so on. To the astonishment of most persons, however, the work of a number of trained investigators proved that it is difficult to estimate the degree of anyone's fatigue from an examination of his bodily condition. One physiologist, for example, who conducted a lengthy research into this problem, though beginning his reports with an elaborate description of the apparatus and tests which he intended to employ for the discovery and measurement of industrial fatigue, based his main conclusions upon the statistics of output of individual workers—an eloquent testimony to the value of his instruments!

As soon, in fact, as we attempt to define and measure fatigue it turns out to be the most slippery of subjects. There is no bodily condition which varies constantly with it. Not that psychological tests for it are any better. The truth is that there is nothing in the nature of a fatigue test that is at all satisfactory; the very knowledge that tests are being employed for its discovery is sufficient to produce in the persons tested an attitude of mind and a consequent reaction which are different from their normal attitude and reaction towards their work.

This being so, it has been suggested that the output figures of workers may be used as fatigue-indicators. These figures, of course, are very useful in many cases, but where the worker is a machine-operative they reveal not only something of the efficiency of the worker but also that of the machine. In most cases, moreover, where comparisons are made between one set of figures and another, there are always variations in the physical environment—in the heat, the humidity and movement of the atmosphere, in the intensity and quality of the illumination, in the volume of noise, and so on—which need to be taken into account. Independent of these, again, there are variations not less important in the social environment which play their part too in influencing effort by inducing anxiety or hope, rivalry or despair. In the present state of our knowledge it is manifestly impossible to calculate the effect of these factors on working efficiency.

But though the notion is now thoroughly exploded that we may get reliable measures of working capacity by means of physiological or psychological tests, much may be done in the way of investigating separately the part played by the various factors which contribute to it.

Thus it is now being shown by the Industrial Fatigue Research Board in this country and by the Public Health Service in America that the effect of physical working conditions in factories is considerable. Thus, artificial light has been shown experimentally to be less favourable to output than sunlight, confined and dry still air less stimulating than the moving air of well-ventilated workshops, noisy surroundings more tiring than quiet ones, and labour without cessation less productive than the same amount of effort interspersed with short rests. A few figures may emphasise some of these points.

A gradual increase in the output of silk-weavers occurs between December to March, when the days are lengthening out and the necessity for artificial light begins to disappear. "Under artificial illumination production falls, even if electric light of sufficient intensity is provided. The magnitude of this fall is of the order of 10 per cent. of the daylight value of the rate of output."¹

A New York Commission on Ventilation found that out of 215 records of temperature in workshops 73 per cent. were above 73° F. and 29 per cent. above 80° F., and yet experiments with voluntary workers paid on a piece-rate scheme have shown that 63 per cent. more typewriting can be done at 68° F. than at 75° F., 15 per cent. more physical work of a heavy kind at 68° F. than at 75° F., and 37 per cent. more than at 86° F.²

"In a tin-plate factory the introduction of a six-hour shift increased the hourly output by 8·3 per cent., and the introduction of a four-hour shift increased it by 11·5 per cent., as compared with the hourly output of an eight-hour shift."³

But illustrations might be multiplied indefinitely if time permitted. The point is that it is being shown beyond all possibility of dispute that, other things being equal, as factory work is made more and more to resemble the open-air work of the fields the greater becomes the efficiency and contentment of the workers.

§5

THE ECONOMICAL APPLICATION OF ENERGY DURING LABOUR

There can be little doubt that the attempts to secure greater industrial efficiency by improving working conditions have benefited, and must continue to benefit, everyone concerned. This is mainly because the increased quantity and better quality of work have followed naturally as a consequence of the greater well-being of the workers. Indeed, in this connection the golden rule would seem to be that the best way to improve work is to improve the worker.

Everything that is implied, however, in such a rule as this has not always been thoroughly grasped by those who have taken up the highly important task of eliminating the unnecessary fatigue which is due to faulty methods of work. In recent years increasing attention has been devoted to refining and, where necessary, remodelling the working methods of the manual labourers, skilled and unskilled. The amount of energy wasted in clumsy or useless bodily movements is

¹ Report No. 9 of the *Industrial Fatigue Research Board* (His Majesty's Stationery Office), 1921, p. 55.

² *Atmospheric Conditions and Efficiency*, by Prof. L. Hill (Manchester University Press), 1920, p. 12.

³ *Mind and Work*, by Dr. C. S. Myers (University of London Press), 1921, p. 73.

often amazing. Notoriously, the movements of the expert worker are clean and graceful.

The recognition of such facts as these has led to the detailed study of bodily movement during labour. As is now well known, special apparatus has been devised for timing, photographing, and reproducing—at a slower rate if required—movements which would be the better for closer examination. By this method it can easily be demonstrated that much of the activity of inexperienced workers is wasteful. Where it is wasteful is also made patent. The consequence of this new method of study is that the industrial psychologists have witnessed the rise to power of an anti-waste party in their midst pledged to the ruthless elimination of every form of superfluous energy. Every movement made during work which is in excess of bare necessity is being challenged. Encouraged by Mr. F. B. Gilbreth's demonstration of the utter uselessness, as far as the visible product is concerned, of thirteen out of every eighteen of the bricklayer's ordinary movements while he is at work, the apostles of motion-study have declared war upon every extravagance and luxury of movement.

Elsewhere in a recently published book ¹ I have paid tribute to the incomparable pioneer experimental work of Mr. Gilbreth in this connection. But because Mr. Gilbreth has perfected a really beautiful technique of motion-study this does not oblige the industrial psychologist to accept without question his views *in toto* as to what constitutes extravagance in movement. There may conceivably exist two different policies as to what ought to be our procedure in the attempt to economise here. We may aim at cutting down the time period of every complex action through the elimination of all but the obviously indispensable part-movements of which it is composed, the result of which in the long run must be to turn the worker into a joyless automaton, or we may concentrate upon the discovery of the movements and rhythms which are both pleasurable and essential to efficiency, and teach them to those who are eager to learn them.

To adopt the former policy would be like concentrating on nutrition as the sole factor worthy of consideration in feeding, and to recommend predigested tabloid nourishment universally because of the enormous amount of time wasted in eating. But eating to satisfy appetite is, after all, a pleasurable occupation, even when what we eat is largely innutritious. Certain of the movements which are made during labour may also be pleasurable, though really useful in spite of their apparent futility. Suppose, however, that among the food experts there arose a Gilbreth to declare that there was only one right way of moving the jaws in taking tabloid nourishment, and that all other ways involved a ridiculous waste of energy, we should have a state of

¹ See *An Introduction to the Psychological Problems of Industry*, London, 1921.

things roughly analogous to that which exists to-day in the sphere of motion-study. To say that there is only one right way of making a set of human movements is to assume that all individual differences of temperament, ability, or physique are entirely negligible factors. If this is really the view of Gilbreth it is a mistaken one.

It is certainly to be feared that the Gilbreth method, in the hands of unsympathetic experts who are destitute of psychological training, will lead to a cheeseparing economy of movement instead of to that policy of inspiration which alone will produce the best results in the long run. Let us hope, therefore, that, so far as motion-study is concerned, the policy of discovering how movements may best be grouped together so that the worker's efforts will produce the maximum of work and of pleasure at the minimum cost in bodily exertion will be given a good trial in the near future.

§ 6

VOCATIONAL GUIDANCE AND SELECTION

I have already suggested that the efficiency of the human element in industry depends as much upon the healthy mind as upon the healthy body. For some time now it has been clear to many persons that the frequent incompatibility of aptitude and occupation is responsible for a great deal of our industrial discontent and inefficiency. It is, indeed, a commonplace to say that all adolescents would be happier if enabled to discover early those forms of work which are best suited to their capacities. In many a case the stock phrase, "a square peg in a round hole," expresses only too adequately the present situation.

The common assumption which lies behind this well-worn figure, however, that there is awaiting each and all of us, if we have not already found it, an occupation into which we may fit ourselves perfectly without further occasion for worry is misconceived. It is doubtful whether there will ever be found an unlimited supply of perfectly square holes predestined for occupation by perfectly square pegs. What is probable, rather, is that since the industrial revolution began we have all remained more or less square while the holes which we are intended to fit have become more and more round. Some of the holes, in fact, have become unfit for human beings altogether.

The practice of scientific vocational guidance and selection, once it is begun on a big scale, will soon show, I believe, the necessity of suiting the job to the worker as well as the worker to the job. The vocational psychologist, therefore, will not always be expected to achieve the impossible task of finding workers for those more mechanical occupations of industry in which their aptitudes may be exploited indefinitely without detriment to their humanity. Nevertheless, this has been the work in the past for which many employers have valued

him. If to-day he is asked to assist in this work we must be under no misapprehension as to what is the chief qualification for this kind of occupation ; it is not so much the possession of some special aptitude as it is the general lack of intelligence, for here, at any rate, intelligence usually makes for discontent and inefficiency.

It is clear, of course, that in occupations which are not entirely of a routine nature the more intelligence one possesses the greater the probability of one's success. Already the first approximations have been made towards a satisfactory method of measuring intelligence, though, in the opinion of some, little beyond a beginning has been made in this highly important work. Greater progress will probably be registered when it is recognised that the intelligence test as at present constituted measures but one type of capacity (though this type is not without considerable importance). Our great difficulty is to construct tests which make due allowance for the variable factors of education and experience.

The method most popular at present among mental testers is to estimate intelligence by the speed and accuracy with which one can tackle problems based solely on what may be legitimately considered common knowledge. This was the method adopted by the American psychologists for the mental examination of army recruits during the recent world war. Undeniably, great success attended their use of the method. Nevertheless, the usual form of examination employed does not allow persons of widely different types of training to adapt themselves to the tests with equal success. The artisan and the general labourer cannot be expected to compete on even terms with the bank clerk and the typist in a written examination where speed of response is essential. Moreover, it is probably unsafe to assume that the best intelligence is that which works most rapidly in arriving at its conclusions. Furthermore, frequent disagreement will often arise when it comes to deciding what is and what is not common knowledge.

All this means that we are coming to the conclusion that the forms which intelligence takes in such a complex civilisation as ours are too many to be adequately measured by any one sort of test.

This is not to say that we may dismiss the question as to what constitutes specific aptitude as irrelevant. It means that aptitude and intelligence in non-routine work form an inseparable unity which we should do well to measure together. I am aware that here I am not expressing the more general belief, which is that we ought first to seek to analyse aptitudes into what may be taken as their psychological elements, and then measure them separately. My own experience has led me to the view that this sort of analysis is usually unsatisfactory. There is reason to suspect that each aptitude is energised by a specific interest which eludes present analysis. After all, the occupation for which we are best fitted is the one which makes a definitely concrete

appeal to us. We are not so much made for it by reason of our excellence in certain sense departments, or in memory, attention, or reasoning power conceived abstractly. We are suited to it because it stimulates our intelligence and interest in a way no other occupation can. The test, therefore, which is intended to gauge our powers in this province must make the same sort of appeal as the occupation if it is to be successful. Industrial psychology has no use whatever for the type of test which aims at providing us with measures of memory by means of test-scores with nonsense syllables, of concentration by means of our results in adding up or crossing out figures, and so on. Aptitude in such tests may have very little relation to aptitude in a concrete occupation.

It is because intelligence becomes less and less a general power and more and more specialised as we grow older, and the pressure of our experiences and interests exerts a moulding influence upon it, that the problem of constructing an increasing variety of intelligence tests of a definitely specific nature is urgent.

What we seem, then, to be moving towards in the sphere of vocational psychology is the construction of two types of test, one synthetic for the diagnosis of those higher forms of aptitude which are saturated through and through with intelligence, and the other analytic for the diagnosis of routine aptitude of a non-intellectual kind. It is to be feared, however, that until we understand thoroughly the nature of interest, or the dynamics, as we may say, of aptitude, progress in the construction of the former kind of test will be slow.

§ 7

THE PROBLEM OF ENERGISING LABOUR

It may safely be said that most of the problems which we have so far been discussing could be left to solve themselves if only we could solve once and for all the master problem of providing men and women incentives to work which would permanently be both health-giving and productive.

Experiments that are genuinely psychological in nature are continually taking place with this object in view in the world of industry, but on so large a scale, and with so many factors influencing the results still unrecognised and, therefore, uncontrolled, that there is room for considerable difference of opinion as to the extent and significance of their success or failure. Experiments with different methods of wage payment, systems of management, co-partnership schemes, municipal enterprises, communistic ventures, nationalised undertakings, and so on, have produced a huge mass of evidence which, in the absence of clear principles of interpretation, is usually evaluated according to prejudice.

Some have doubted whether the psychologist can hope to do any

good by venturing into so controversial a field. But the growing realisation of the fundamental importance for the understanding of human behaviour of that branch of his subject which deals with instinct has suggested to many students that here we may find a criterion by which to estimate the comparative value of the methods relied upon to-day to secure the willing service of labour. If it is true, as more and more are inclined to believe it is, that man remains most healthy and vigorous when his behaviour is in harmony with the well-ordered promptings of his instinctive nature, and that mental unrest springs from thwarted instinct, then we have a clue with which to approach the study of the different types of incentive which have been employed from time to time. Thus we shall understand why the small shopkeeper and the peasant proprietor work harder than the day labourer, knowing as we do that his well-exercised instincts of ownership and self-assertion are the mainsprings of the energy and ambition which the other lacks. We shall expect to find the craftsman happier and producing better work than the repetition worker, because the fount of interest, the constructive instinct, is in his case a continually welling stream, while in the other it is in process of drying up altogether. We shall be able to say why lonely farm-colony life ceases to hold the unemployed of our big cities. We shall expect that the good nurse and the average parent will strain every nerve when those dependent upon them are in danger, because we know the strength of the instinctive power that motives their deep solicitude.

So, too, when we pass to consider questions of works organisation, we shall understand why wage systems which depend for their success upon an appeal to the impulse to rivalry will temporarily prove superior to those which do not, but expect that, unless they can win the support of other instinctive tendencies, they will gradually lose their appeal. Again, we shall not be surprised that co-partnership schemes which do not allow sufficient scope for personal ownership usually cease to attract when their novelty wears off.

But at this point we have hardly reached the cock-crow of an interesting day's work. Still, the recognition of these facts and others like them will lead eventually to a concerted attempt to remould the social and industrial system, not so much in accordance with the *a priori* systems of philosophers and politicians as with the desire that no healthy human tendency shall be wholly thwarted and no useful human energy allowed to run idle. The physicists have promised us great things as soon as they can release the energy which at present lies locked up in the atom. If it is more than an illusion that happiness and creative activity are superior to physical force, then we may hope for greater things still if we can learn how to set free for social as well as individual use the incalculable stores of psychic energy which are fastened up in baulked and misdirected instinct.

PSYCHOLOGY AT THE BRITISH ASSOCIATION

THERE was a record attendance at the meetings of the Psychology Section of the British Association at Edinburgh this year. On several occasions all the available seating accommodation was taken up. For the first time the section was fully independent and responsible for its own organisation and programme. The first president under the new conditions was Prof. C. Lloyd Morgan, and it may be said without exaggeration that he has established a precedent in his conduct of the meetings and his attention to the business side of the arrangements entailed that few of his successors are likely to improve upon. We give below a short abstract of the papers read.

1. CONSCIOUSNESS AND THE UNCONSCIOUS : C. Lloyd Morgan, F.R.S.

(Presidential Address.)

The presidential address dealt with the place of mind and consciousness in "emergent" evolution. Adopting the scheme of treatment employed by Prof. S. Alexander in *Space, Time and Deity*, which emphasises four evolutionary stages in the history of the world, (1) the physical, (2) the chemical, (3) the vital, and (4) the conscious, Prof. Lloyd Morgan attempted to show that with each stage of evolution a factor or quality appears which can hardly be identified with any of those from which it has "emerged." When oxygen combines with hydrogen to form water the weight of the compound is a resultant which can be calculated in advance, but the "aquosity" is something which could not be predicted prior to one's experience of it. Such a quality is an *emergent* and not merely a *resultant*. At higher levels, life, and then consciousness, emerge. This view of evolution differs from that of Bergson, who emphasises *creative* rather than *emergent* development. For Bergson the new is but the old in a riper form; for Lloyd Morgan the new is indeed novel.

What distinguishes the emergent called consciousness from the lower forms of life is that the conscious is "enjoyed," to make use of another idea from Prof. Alexander. In the development of consciousness two levels may be recognised: (1) the unreflective stage of naïve perceptual cognition, and (2) the reflective stage of judgment in which truth, beauty and goodness "emerge."

One of the most interesting portions of the address dealt with unconscious images and ideas. "Does that which we call the unconscious depend on the presence of images and ideas," asked the president, "or are images and ideas the cognitive raiment which the unconscious puts on at the emergent levels of reflective and perceptive consciousness?" Lloyd Morgan's view is different from that of Jung. Using the analogy of the plant which blossoms each spring, the president said that he inclined to the opinion that just as the conditions for the reappearance of the blossoms in due season and not the blossoms themselves are retained, so are retained the conditions for the revival of memories rather than the memories themselves.

The address was an excellent example of the scientific as opposed to the metaphysical method of interpreting the facts of existence. Science interprets the emergent factors which it finds as dependent upon, though more than, those which exist at lower levels. Metaphysics sees the highest qualities of life and consciousness already stirring in the lowliest forms of being.

2. VOCATIONAL TRAINING AND TESTS

A joint meeting was held with the sections of economics and education for the discussion of vocational training and tests. Six principal speakers took part, each contributing a ten minutes' speech, Dr. C. W. Kimmins and Mr. D. Kennedy Fraser for education, Dr. C. S. Myers and Mr. Frank Watts for psychology, and Sir William Beveridge and Miss L. Grier for economics.

The greatest interest was aroused, but the time-limit to speeches did not allow of the subject being treated in any great detail. Dr. Kimmins urged the importance of the subject, and Mr. Kennedy Fraser showed the necessity for objective measurements of ability. Dr. C. S. Myers pointed out the value of the National Institute of Industrial Psychology and Physiology for the study of this subject. Mr. Watts suggested that psychological tests could not be expected to cure the unrest due to repressive discipline and lack of opportunity for promotion.

3. THE STUDY OF PERSONALITY: Dr. H. S. Langfeld

Laboratory experiments, whether positive or negative in their principal results, usually reveal individual differences of performance which in themselves may have considerable value both for the solution of theoretical problems and for applied psychology. An attempt is being made at present to correlate the individual differences which occur in the various researches of the psychological laboratory with the results of vocational and so-called intelligence tests.

It is hoped in this way to discover the fundamental characteristics which constitute personality and to devise accurate methods of measuring such characteristics. The results so far obtained give promise of our being able to secure what have been called "profiles" of the intellectual and emotional life of individuals. The work of Miss June Downey in the interpretation of handwriting under experimental conditions (described in the current volume of the *Journal of Experimental Psychology*) has shown that the problems which are being attacked are not altogether insoluble.

4. SEX DIFFERENCES IN TESTS OF CONSTRUCTIVE ABILITY: Miss M. McFarlane

An investigation into the nature of "practical" ability showed that in a construction test used, viz, fitting together a sectional wheelbarrow, boys scored much better than girls. A further series of tests was planned to determine whether this superiority should be accounted for by (1) the relation of the constructed object to existing interests, or (2) familiarity with the kind of material employed. The new tests involved the making of a cradle and a dress. The conclusion reached as a study of the experimental results was that familiarity with the material played a considerable part in the tests, but it was plain that, in addition, boys on the whole excel above girls in the ability investigated.

5. THE EVOLUTION OF FEELING: Dr. C. S. Myers, F.R.S.

(1) Four varieties of affective tone are distinguishable, characterised by (a) strain and (b) relaxation in response to a favourable situation, and by (c) strain and (d) relaxation in response to one unfavourable. Exhilaration, gladness and interest arise from (a); ease, bliss and contentment from (b); uneasiness, distress and repugnance from (c); depression, sadness and apathy from (d).

(2) Affective tone is due to (i.) the organic harmony or discord induced by the environment; this evokes (ii.) innately purposive patterns of out-going locomotor and organic activity, partly self-controlled and producing organic sensations; the latter in turn induce (iii.) organic harmony or discord. Self-activity is "affected" by (i), (ii.) and (iii.). An innate basis is afforded by (i.) and (ii.) for affective tone which is completely developed by (iii.) derived from actual expression.

(3) Instincts are integrated from different higher and lower reflexes, emotions from different instincts, sentiments from different emotions, organised within higher systems and subjected to control and inhibition which are important determinants of the accompanying feeling. In the lowest reflexes the self is

affected only by (iii.). The higher reflexes are accompanied by affective tone evoked as described above (in 2). Instincts, emotions and sentiments are accompanied by their special feelings depending on the integration of dispositions to lower feelings and on (ii.) and (iii.).

6. PSYCHO-ANALYSIS AND SUGGESTION: Dr W. Brown

The nature of the psycho-analytic treatment and cure of psycho-neurosis follows from the analytic conception of its genesis. This calls for the emotional re-education of the patient. What is becoming more and more important as a further factor in treatment and cure is "transference." In the process of re-education the symptom of dependence upon the physician appears. This dependence must be resolved. The various forms of suggestion treatment will not avail here. The only method which goes to the root of the difficulty is the analyst's method. But although the analyst's method is most essential, at the same time the effects of bad auto-suggestion must be neutralised by means of healing suggestion. The two methods may therefore be employed as the occasion demands.

7. SOME SUGGESTIONS AS TO A COMMON GROUND BETWEEN FREUDIAN AND BEHAVIOURISTIC PSYCHOLOGY: Dr. R. G. Gordon

An attempt to indicate the tendencies which Freudian and Behaviouristic psychology both represent

A NEGLECTED ASPECT OF FORGETTING: Prof. T. H. Pear

While it may ultimately be possible to assign the explanation of one kind of forgetting exclusively to the physiologist, it is more profitable at present to attempt to differentiate between the various phenomena of forgetting from the purely psychological standpoint.

Forgotten experiences may be divided into what may be conveniently termed, (1) Embodied types of experience or memory which are further divisible into, (a) the apparently insignificant, and (b) those completely congruous with the personality; (2) Superseded or "retired" memories; and (3) Exiled or repressed memories. The superseded type of memory has hitherto received but little attention from the psychologist.

Type 1 (a) may be explained as due to physiological decay, or to repression, or to both together. Type 1 (b), though distinguishable from type 1 (a) on account of significance for the personality, rarely re-occurs, because there is no occasion for its independent functioning. Type 3 has received full treatment from the psycho-analysts. Type 2 represents the sort of forgotten experience which is referred to by Tennyson in his lines about the "dead selves" which serve as stepping-stones on our life's progress. It is the "dead selves" of the normal healthy person which offer a fascinating challenge to psychological interpretation to-day. There are factors in one's retained past which play an important role in the development of personality, factors as nearly dead as anything experienced can be.

A complete account of forgetting cannot be hoped for, however, till the relations are made clear which exist between those two most important forms of our mental organisation, the "sentiments" and the "complexes."

9. APPETITION AND REACTION: Dr. J. Drever

Freud's distinction between the Pleasure Principle and the Reality Principle appears to be psychologically to all intents and purposes identical with the distinction the speaker has drawn between Appetitive and Reactive Tendencies. An earlier psychologist had found the fundamental psychical phenomena in Belief and Desire. This is apparently the same distinction. Freud's distinction is so radical for his psychological theory—it is not negligible in the practice based on that theory—that it is imperative for the psychologist, whether Freudian or non-Freudian, to come to some definite conclusion concerning the validity of the

distinction, or at least to examine carefully the phenomena on which the distinction is based, and that in the interest of the science of psychology itself.

In the case of adult human behaviour the facts seem clearly to support the view that some such distinction is valid. Action may be initiated and determined by the agreeable or disagreeable in experience. Agreeable experiences may be sought, disagreeable shunned, with reference to no end beyond the affective. This is appetition. On the other hand, action may be determined with reference to an external object or end independently of any immediate agreeableness or disagreeableness in the experience which the action involves. This is reaction. Further, it seems to be agreed among psychologists that there are tendencies, both native and acquired, which are characteristically appetitive in the sense in which we are understanding appetition. Popular thought and popular speech indicate the same recognition.

The first important question which suggests itself is: Are the two types of behaviour primitive? Three answers are possible. It may be maintained that appetition only is primitive, and reaction secondary. That is apparently Freud's contention. It is a contention which leads to many difficulties, and which it is almost impossible to adhere to. Or we may take the view that reaction is primitive, appetition secondary. If one had to choose between these two answers the writer would at any rate prefer this, which can easily be supported from the general biological, if not from the psychological, point of view. The safest view for the psychologist to take is probably that both are equally primitive.

A second important question is: What is the relation between the two biologically and psychologically? Again Freud has given an answer which is not easily justified on theoretical grounds, but is nevertheless of some practical value and significance. The general answer to this question would appear to follow from the fact that the fundamental psychological function of pleasure and unpleasure in the normal case is not to initiate action, but to guide and regulate, in spite of the apparent contradiction presented by the natural appetites. The possibility of progress and development in the individual seems to be bound up with this function. Or rather the existence of reactive as opposed to appetitive tendencies seems to be a condition essential for human progress and development. In the case of the reactive tendencies pleasure and unpleasure function normally.

10. INSTINCTIVE BEHAVIOUR. *Joint Meeting with the Section of Zoology*

Dr. J. Drever:

The psychologist maintains that no adequate scientific account of instinct is possible without taking into consideration psychological factors. Behaviour implies the total response of an organism to a situation. According to common usage, so far as this response is not determined by what has happened to the organism in its individual past history, it is said to be instinctive. This usage requires some qualification, and also limitation and elucidation, if it is to be adopted for scientific purposes. To take a particular instance, we require to find some way of marking off instinctive behaviour from the unconditioned reflex. It is at some such point that the psychological account would appear to come in. Those responses of the organism which are instinctive involve processes which, regarding them from the inner standpoint we as continuous beings are capable of taking, we denominate "experience." The charge of anthropomorphism urged against this method of interpretation is not so well founded as it appears at first sight. If we adopt a "hylomorphic" method of interpretation, there are certain aspects of what might be called the "experience phase" of behaviour which must be simply ignored by science. Even if McDougall's view be accepted, that the emotion is not a secondary development or a disorder of an instinct, this difficulty still remains.

Prof. E. S. Goodrich, F.R.S.:

No exact distinction can be drawn between the inheritance of instincts and the non-inheritance of intelligence. Both are in a real sense acquired, being the response of internal factors to the stimulation of the environment.

Prof. J. Arthur Thomson : *Different Grades of Instinctive Behaviour ?*

Field naturalists are having their conceptions of nature blurred by confusions introduced into the interpretation of instinct.

(1) Is it possible to distinguish different grades of instinctive behaviour, *e.g.*, from bee to bird ? (2) If instinctive behaviour, physiologically regarded, is made up of a succession of reflex actions, what evidence can be adduced in support of the view that there is sometimes a subjective aspect of appreciative awareness and endeavour ? (3) May one venture to suggest a provisional diagram of the inclined plane of animal behaviour ? (Diagram shown.)

On the one side of the curved axis of the diagram we see mechanical responses culminating in such behaviour as that of the calculating boy, an extreme case of unconscious mechanism. On the other side we see the trial and error experiments of the simplest organisms gradually developing until they pass into the conscious experience of the highest forms of life. In all cases of behaviour there is an admixture of the mechanical or fixed responses and of those due to experience stored in memory.

11. THE SCIENTIFIC DIFFICULTIES OF A NATURALIST : Mr. F. Kirkman

A plea for the psychological study of wild life in its natural environment.

12. THE INSTINCT OF ACQUISITION : Dr. W. H. R. Rivers, F.R.S.

See p. 100 of this journal.

13. SOCIAL PROGRESS AND PSYCHOLOGICAL UNDERSTANDING : Mr. J. C. Flugel

Two types of advance result from the development of psychology, one represented in the growth of detailed knowledge among the experts, the other to be seen in deeper understanding of the problems of life on the part of the general public. A description of what knowledge has already been gathered up by the experts was followed by a survey of the scope of the various branches of individual and social psychology, and of the resultant reactions which are taking place in the minds of men and women as a whole towards questions of politics, society, the family, science and religion.

14. AN INVESTIGATION OF THE SENSE OF HUMOUR IN SCHOOL CHILDREN :

Dr. C. W. Kimmins

From the analyses of a large number of funny stories and jokes recorded by children of different ages much interesting information was obtained with regard to the varying nature of the elements most provocative of laughter and amusement from year to year, and the differences in this respect between boys and girls. The greatest changes are associated with periods of rapid growth.

15. THE INVESTIGATION OF VOCATIONAL FITNESS AMONG MENTAL DEFECTIVES :

Miss E. L. G. Ross

In view of the increasing importance being attached to the provision of industrial colonies for the permanent care of the feeble-minded, an investigation was undertaken to estimate the reliability of various forms of tests which seemed to measure abilities making for efficiency in those occupations usually provided for defectives. About fifty institution cases of various ages and grades were taken as subjects and their standing in the various tests compared with their known industrial ability and learning capacity. Those temperamental factors which go towards social efficiency were studied on the basis of the Porteus Social Ratings Scale. The results showed that we may hope for considerable success in diagnosing forms of capacity from the employment of psychological tests.

16. THE PRESENT CONDITION OF INDUSTRIAL PSYCHOLOGY : Mr. Frank Watts

See p. 156 of this journal.

17. A PLEA FOR THE PSYCHOLOGICAL TREATMENT OF THE DELINQUENT CHILD :
Dr. A. R. Abelson

There is an accumulating amount of reliable evidence that wrong-doing is largely bound up with morbid conditions of health. An important percentage of delinquents are mentally deficient. Insanity and epilepsy are important factors. It is found that a large number of delinquent children possess a "neurotic" constitution, and psychological measures have succeeded in effecting considerable improvement where all other methods of treatment had more or less completely failed. One must also look for physiological irregularities, *e.g.*, adenoids, tonsils, endocrinal insufficiency, but even in these cases psychological treatment should be used in conjunction with the other remedial measures.

By far the best method of treatment is by psychological analysis.

18. COLOURED THINKING : Miss E. M. Bickersteth

Coloured thinking (*psycho-chromæsthesia*) has in the past been considered a somewhat rare and obscure mental tendency belonging to the province of abnormal psychology. An enquiry into the colour associations of over four thousand English, Welsh and Scottish children showed, however, that coloured thinking, at least in childhood, is neither rare nor abnormal, the Highland child, in particular, being distinguished by the wealth and variety of his chromatic conceptions. Psychochromes are not usually talked about by those who possess them, and the greatest individual differences are to be found. The tendency to form colour associations seems to be little influenced by environmental changes. The subject is still in its descriptive stages.

19. THE USE OF "RETINAL RIVALRY" FOR THE MEASUREMENT OF COLOUR FATIGUE : James G. Taylor

The experiments described in this paper were carried out in connection with the study of colour-fatigue in industries such as paper-making, where accurate discrimination of colour-tints and shades may be required. It was known that prolonged stimulation of one retina by any colour affected retinal rivalry by reducing the proportion of that colour to its "rival" in the alternating fields. Preliminary experiments showed that the proportion of red to blue, after stimulation of one retina for three minutes with red, varied in different subjects from .76 to .25 of the "normal" proportion.

In later experiments records of retinal rivalry were taken for thirty periods of one minute, separated by intervals of one minute. The colours used were red and blue, and the records were made by closing a key when red was dominant; except in a series of control experiments, when blue took the place of red in this respect. In the study of the records each half-minute was measured as well as each minute.

The main argument of this paper is that a decrease in the rate of fluctuation may be taken as a measure of fatigue. The rate of fluctuation decreases from the first half of a minute to the second half, from the beginning to the end of an hour, from forenoon to afternoon, and sometimes from day to day. Introspection shows that slower fluctuation is accompanied subjectively by a feeling of fatigue and also by a decrease in the apparent purity of the colours.

While change in the rate of fluctuation seems to be due mainly to fatigue, the total time per minute during which each colour is dominant seems to vary, partly with attention, partly with fatigue. Thus while the rate of fluctuation usually falls steadily towards the end of each hour, the total amount of red per minute rises and falls over periods varying from twenty-five minutes to forty minutes—which may be referred perhaps to the fluctuation of attention. In the control experiments the total amount of red per minute was much lower than in the previous experiments, and was subject to wide fluctuations, until the adaptation of attention, acquired in the previous experiments, was overcome.

Illustrations were given of records, graphs, etc.

NOTES AND NEWS

UNIVERSITIES are usually more or less quiescent during the Summer Vacations, and we have not, therefore, received many reports on the progress of research work. A correspondent in Columbia University, however, informs us that work is being done upon the following problems: The variability of reaction times; The effectiveness of warning signals; The establishment of psychological norms in the behaviour of infants; Certain aspects of reaction-time for visual stimuli; The formulation of a scale for the objective measurement of emotions; A set of psychological tests for the selection of school-teachers; A comparison of dementia præcox and manic-depressive insanity by the free-association method; Factors involved in the forgetting of names; The perception of time; Tests for Suggestibility.

AT the George Combe Psychological Laboratory, Edinburgh, the following work is in progress under the direction of Professor James Drever: Miss Annie Drysdale, M.A., B.Ed., Carnegie Research Scholar, is carrying out a Statistical and Analytical Study of Dreams in the case of the Normal Adult. Miss Mary Collins, M.A., B.Ed., is carrying out an Experimental Study of the Conditions determining Paramnesia in Normal Subjects. Miss Edith Thomson, M.A., B.Ed., is studying Group Tests, Linguistic and Non-Linguistic, for the Qualifying Stage (i.e., the end of Primary School Period). The Rev. R. H. Hingley, B.A., is doing some studies in Psycho-analysis, the Association Method, and Suggestion, from the Religious Point of View. Mr. Kwei Ting Sen, M.A., B.Ed., is engaged on a Psychological and Educational Study of the Different Types of Social Group.

Professor Drever himself is working on the Psycho-galvanic reflex and on variations of grip pressure in writing.

WE have to congratulate Mr. Robert Thouless, M.A., Fellow of Corpus Christi College, Cambridge, on his appointment to the position of Lecturer in Psychology in the University of Manchester. Mr. Thouless, who contributes a critical article on "Religion and the Sex-Instinct" to this number, has made a special study of the Psychology of Religion and has recently delivered a course of lectures on this subject at Cambridge.

We take this opportunity of wishing Mr. Thouless every success in his new post, which, we understand, will involve a considerable amount of experimental work.

THE first International Congress for Psychical Research was held this year at Copenhagen from August 25th to September 2nd (inclusive), under the auspices of the Danish Society for Psychical Research. Owing partly to the fact that the notice given was not very long, and partly to various international difficulties which still exist, such, for instance, as the question of exchange, which makes the expense of foreign travel almost prohibitive in some cases, the attendance was not very large. Nevertheless representatives from a considerable number of countries were present, or sent papers, namely : from England, America, France, Holland, Norway, Denmark, Iceland, Sweden, Germany, Switzerland, Belgium, Russia, India, and Czeko-Slovakia.

In the first seven of the fourteen countries named above definite societies of one kind or another for the study of psychic phenomena already exist, and in some other countries, as, for instance, in Germany, it is hoped that a society may shortly be established.

With regard to the papers read at the Congress, there is one point which would not fail to strike an English observer very clearly, that is to say, the marked division between the line of enquiry pursued in recent years by the majority of the English and American investigators on the one hand, and the majority of the Continental investigators on the other. Whereas the former have for the most part concentrated their attention upon purely psychical and psychological problems, such as telepathy, automatism, and the evidence for communication with the dead, the latter have mainly devoted their energies to the study of "physical phenomena," telekinesis, materialisations, and so forth.

This psycho-physical field of research has been notoriously productive of fraud, and some of the observations which Continental enquirers believe themselves to have made are so entirely outside the frame of generally-accepted scientific fact that it is no matter for surprise if they give pause to the naturally cautious mind of the Anglo-Saxon scientist. Nevertheless, in justice to these Continental enquirers it should be observed that some at least of them are making their observations along lines which have been little attempted in this country, except in the case of Miss Goligher, and which certainly yield the best hope of progress towards a scientific goal ; that is to say, they are registering the effect of the supposed super-normal and unknown forces which they are endeavouring to study by means of precise scientific instruments.

For example, Monsieur Youriévitich, of the *Institut Général Psychologique*, of Paris, gave an account of some experiments he had carried out with two supposed mediums, which consisted in the discharge of an electroscope, ostensibly by means of some super-normal force emanating from the medium, and apparently without any

kind of normal contact which could account for the discharge. Obviously, we are not in a position to pass judgment on Monsieur Youriévitich's experiments, either favourably or unfavourably, upon such a hasty account as it was possible for him to give in an hour's lecture, eked out by a few lantern slides. He is intending to publish his report of these experiments very shortly, and readers will then be able to form their own conclusions. Meantime we may agree that Monsieur Youriévitich's experiments have at least the merit of narrowing the field to a quite definite and limited problem of the kind with which science is accustomed to deal. Assuming the existence of these super-normal emanations, to which Monsieur Youriévitich has given the name of *les rayons Y*, it should be possible by repeated experiments to form some idea of their nature and properties.

An interesting paper was also read by a German engineer, Herr Grunewald, of Berlin, who has been trying telekinetic experiments, in the course of which he has repeated with various modifications, and with apparent success, the spring-balance experiment carried out many years ago by Sir William Crookes with D. D. Home.

One point in connexion with the evidence for physical phenomena brought forward at the Congress is worth noting as an indication of one of the useful functions which an international gathering may perform in correlating results. Both Monsieur Youriévitich and Herr Grunewald included in their contributions references to telekinetic phenomena (quite independently observed in the presence of two different mediums), consisting in the levitation of a table. Both of them had obtained some flashlight photographs of these levitations, and in each case one photograph was shown in which some strips of white material were visible closely resembling the so-called "ectoplasm" seen in Dr. Crawford's photographs of the telekinetic phenomena observed in the presence of Miss Goligher. According to the statements of Monsieur Youriévitich and Herr Grunewald, the appearance of this white material was quite unexpected and also quite unexplained. If it is the case that we have here a real, and not only an apparent analogy between telekinetic phenomena observed in the presence of three different mediums, the point is obviously of much interest and importance.

Amongst other contributions to the Congress the following may be mentioned :

A report by Madame Bison on some recent developments in the case of Eva C.

A report by Dr. von Schrenck Notzing on a recent and unusually well-authenticated case of the "poltergeist" type.

A report by Dr. Geley on some phenomena of materialisation observed in the presence of the medium Franek Kluski (published in the *Revue Internationale Métapsychique*).

A report on some experiments in telepathy, read by a member of the newly-formed Dutch Society for Psychical Research.

An account by Dr. Magnin, of Geneva, of some cases (observed by himself) in which obsessional and hysterical neuroses of long standing had been cured by means of some psychical manifestation of an apparently super-normal character. Dr. Magnin was careful to disclaim any intention of theorising in this matter. He only wished, he said, to urge upon medical men the desirability of keeping an open mind, if only for the sake of their patients.

The contributions made by English members of the Congress included two papers on the Trance-Phenomena of Mrs. Leonard (one of them dealing exclusively with book tests and newspaper tests), and an interesting paper was read by Dr. W. F. Prince, the representative of the American Society for Psychical Research, on "Certain Characteristics of Veridical Mediumistic Phenomena Compared with those of Phenomena Generally Conceded to be Telepathic."

On the last day of the Congress a business meeting was held, at which a resolution was unanimously passed that the next International Congress should be held in 1923, and some provisional machinery was set up to make the necessary arrangements. The exact date of the Congress and the place at which it was to be held were not determined.

The thanks of the Congress were tendered to the Danish Society for Psychical Research for having successfully inaugurated what, it was hoped, might prove a useful and important movement.

AT a General Meeting of the Society for Psychical Research held on July 13, 1921, at the Steinway Hall, a paper was read by the Hon. Mrs. Alfred Lyttelton on "The Work of the Society for Psychical Research." The chair was taken by the Right Hon. G. W. Balfour.

The purpose of Mrs. Lyttelton's paper, which was intended for the public rather than for members of the Society, was to give some idea of the work already accomplished by the Society, and of its present position as viewed by one who was in no way officially connected with it whilst taking a keen interest in psychical research. Much misconception appears to exist concerning the aims and objects of the Society, and it was hoped that a clear, straightforward statement given from an observer's standpoint might help to clear the air.

Mrs. Lyttelton dealt entirely with those sections of the Society's work which relate to telepathy between the living and the question of communication with the dead. She pointed out that the outstanding achievement of the Society up to the present time had been the large amount of careful and exact evidence it had accumulated in favour of telepathy.

THE American Society for Psychical Research has recently been extensively reorganised. The death of Dr. Hyslop left a gap which, it was felt, could not be filled by any one person, and it was decided that an Advisory Research Council should be formed to advise the President (Dr. Wm. McDougall, F.R.S.) and the other officers of the Society "in all questions of policy and methods of research."

This Council is now constituted as under :

William McDougall, D.Sc., M.B., F.R.S., Chairman *ex officio*, Professor of Psychology in Harvard University, formerly of the University of Oxford.

Daniel F. Comstock, S.B., Ph.D., formerly Associate Professor of Physics, Massachusetts Institute of Technology.

John E. Coover, M.A., Ph.D., Professor of Psychology, Leland Stanford Junior University.

Charles L. Dana, M.D., LL.D., Professor of Nervous Diseases, Cornell University Medical College.

Miles M. Dawson, LL.D., lawyer, actuary, and author.

Irving Fisher, Ph.D., Professor of Economics, Yale University.

Lyman J. Gage, LL.D., formerly Secretary of the Treasury.

H. Norman Gardiner, A.M., Professor of Philosophy, Smith College.

Joseph Jastrow, Ph.D., Professor of Psychology, University of Wisconsin.

Henry Holt, LL.D., F.A.A.S., author and editor.

Waldemar Kaempffert, B.S., LL.B., formerly editor of *Popular Science Monthly* and *Scientific American*.

Samuel McComb, D.D., Canon of the Protestant Episcopal Cathedral, Baltimore.

William R. Newbold, Ph.D., Professor of Philosophy, University of Pennsylvania.

Frederick Peterson, M.D., LL.D., formerly Professor of Psychiatry, Columbia University.

Morton Prince, M.D., LL.D., Professor Emeritus of Nervous Diseases, Tufts College, editor of *Journal of Abnormal Psychology*.

Walter F. Prince, Ph.D., Secretary of the Council, Acting Director of Research, A.S.P.R.

Michael I. Pupin, Ph.D., LL.D., Professor of Electro-Mechanics, Columbia University.

Leonard T. Troland, S.B., A.M., Ph.D., Instructor in Psychology, Harvard University.

Robert W. Wood, LL.D., Professor of Physics, Johns Hopkins University.

Elwood Worcester, D.D., Ph.D., Rector of Emmanuel Church, Boston.

The Executive Officers are :

William McDougall, *President*.

John I. D. Bristol, *Vice-President*.

Lawson Purdy, *Treasurer*.

Gertrude O. Tubby, *Secretary*.

Walter F. Prince, *Acting Director of Research, and Editor*.

Eric J. Dingwall, *Director of Department of Physical Phenomena*.

It will be seen that the Society has immensely strengthened its scientific position by this re-organisation, and it is especially to be congratulated on having enlisted the assistance of so many and so eminent psychologists.

All who are anxious to see Psychical Research successfully prosecuted must be gratified to note that professional psychologists are at last beginning to realise how fruitful and appropriate a field its problems provide for their activities. We are confident that the benefit will be mutual, and we hope that English psychologists will soon follow the example thus set in America.

WE have received from Mr. Hereward Carrington, Ph.D., a Prospectus of a new Institute for Psychical Research to be called "The American Psychical Institute and Laboratory." The objects of this Institute are stated to be briefly as follows :

1. The establishment of a scientific Society . . . for the investigation of Psychic Phenomena of all kinds, whose object shall be, not only to determine the credibility of such phenomena in each special case, but, when they are found to exist, to endeavour to discover their *rationale*, thus rendering the laws governing them available for application to daily life.

2. The study of these phenomena in a properly equipped laboratory.

3. The publication of results in a monthly magazine.

4. The opening of a reference library of books.

5. The giving of sound psychological advice to those needing it.

6. The exposure of all fraud in connection with spurious psychic manifestations.

7. The formation of a membership society for fully qualified members.

8. The accumulation and detailed study of "cases," experiences, and psychic phenomena of all kinds—spontaneous or experimental—by properly qualified investigators, either here or abroad.

An appeal for funds accompanies the Prospectus, and all communications should be addressed to Hereward Carrington, Ph.D., 40, West 57th Street, New York City, U.S.A.

SURVEY OF CURRENT LITERATURE

[As previously announced, we have made special arrangements, in response to numerous suggestions, whereby any books recommended or mentioned in our pages, as well as other psychological works, can be obtained with the least possible inconvenience and delay from The Cambridge Magazine Bookshops (Psychological Dept.), 6, Kings Parade, Cambridge. The proprietors have kindly consented to a scheme whereby readers of *Psyche* need not forward a remittance with every order, a system which is calculated to save much correspondence and annoyance at a time when, through abnormal trade conditions, books are so constantly out of print or rebinding.—ED. *Psyche*.]

Insanity and Mental Deficiency in Relation to Legal Responsibility: A Study in Psychological Jurisprudence. By WILLIAM G. H. COOK. xxiv. + 192 pp. (Routledge, 10s. 6d. net.)

The object of this study, which was approved as a thesis for the degree of Doctor of Laws in the University of London, is to examine the ground upon which the law as to the civil responsibility of lunatics and of the mentally defective rests, and to show that however indefinite and contradictory the law may appear to be, the underlying principles thereof are sound and reasonable. In this Dr. Cook has been eminently successful, and in that the subject of civil responsibility is so rarely dealt with as a whole, he has filled a gap which has been too long neglected—neglected, one might say, on account of the many difficulties inherent in the subject. This work therefore cannot fail to be of great value to both physicians and lawyers alike.

He shows that the degree of liability imposed upon the insane in civil cases differs from the responsibility as applicable to crime, and makes it still more obvious that the law relating to civil responsibility of the insane "stands upon a very unsatisfactory footing." It is submitted that the Common Law of England regards a lunatic generally as being incapable of committing a tort, but that where it can be shown to the satisfaction of the Court that the particular nature of the insanity did not preclude him from understanding the nature and probable consequences of the particular act complained of, he will be liable for his torts just as an ordinary person is liable, i.e., on the ground that he intended the natural and probable consequence of his acts. The incapability of the lunatic in regard to some torts on these grounds is open to question, as was pointed out in a recent discussion by Mr. Justice Atkin, who cited the case of libel in which intent to injure need not be proved even in a sane person. As to contracts, Dr. Cook holds that the decision in *The Imperial Loan Company v. Stone*, upon which the present law is based, that lunatics cannot plead *non compos mentis* unless the other party knew of the insanity, is wrong and is inconsistent with the Common Law of England and with the principles of equity, on the grounds that this does not apply in the case of marriage or infants, that in two modern statutes a lunatic is held to be incompetent to enter into contracts, that the Privy Council have twice at least refused to follow this decision, and that the decision relied entirely upon *Molton v. Camroux*, which was itself wrongly decided. In Chapters IV. and V. he

gives an interesting comparison of the laws in different countries regarding marriage and divorce in relation to insanity. In Chapter VI. there is a comprehensive account of the evolution of the law relating to testamentary capacity, and it is held that each case has to be dealt with upon its own merits, a finding which is always being emphasised by the medical profession ; and it is shown that the Courts have not attempted to lay down any general rule to be followed in cases of so-called partial unsoundness of mind.

The whole work shows evidence of most careful research and is well indexed and stocked with references, but it would be an advantage for the general reader if in a future edition the dates of the cases and authorities quoted were included, for even Maudsley is a little out of date, and J. C. Prichard, quoted as "an English authority on lunacy," takes us back to the middle of last century.

Dr. Cook is to be congratulated on his book. It is the only book of its kind and can be strongly recommended to all those who are interested in the welfare of the insane.

E. PRIDEAUX.

The Psychology of Day-Dreams. By DR. VARENDONCK. With an Introduction by Prof. Sigmund Freud. (Allen and Unwin, 18s.)

Investigation of the processes which determine day-dreams is likely to be of considerable value in co-ordinating psychological doctrines. The day-dream in phantasy seems to occupy a midway position between the dreams of full sleep on the one hand and the "realistic" or "directed" thinking characteristic of active waking life on the other. It would not be difficult to construct a graded series of typical day-dreams showing a continuous gradation between these two extremes, and in this way true dreams and waking processes could be exhibited as parts of a coherent continuum.

Dr. Varendonck has made a very interesting contribution to the subject, though the stress laid in his preliminary chapter on "the two ways of thinking" raises doubts as to whether he has fully realised the importance of this continuity.

The book proper begins with an account of the genesis of those chains of thought which the author is discussing, and he examines the causes which lead to attention being switched off, so to speak, from the main line of directed thought on to the side track of more or less phantastic thinking which constitutes the day-dream. In the next chapter, devoted to the Contents of the Chains, he minutely analyses a number of his own day-dreams and shows how various wishes, preoccupations, etc., determined their course. The third chapter deals with the Termination of the Chains and shows what causes are responsible for the breaking off of the phantasy and the return to directed thinking.

Dr. Varendonck concludes that "day-dreams" are thought-structures ("sequences" might have been a better word) which have been elaborated without the intervention of the will, but under the direction of affective elements.

With this we may readily agree, though we do not think that his method of treatment by reducing every stage of the day-dream to the form of a question and rejoinder is the most powerful that could have been devised for the examination of the subject.

The second part of the book is synthetic and starts with a chapter on

Memory and Affect. This is not wholly satisfactory, for the author confuses the issue by recognising a multiplicity of "affects" (p. 188), and even refers to "intuition" as an affect (p. 191), whereas the only valuable distinction when considering memory is between that type of affect (or affective tone) which facilitates memory and that which impedes it. (Cf. the present writer's paper on "Memory and Affective Tone," *British Journal of Psychology*, Jan., 1921, pp. 248 *seq.*) Similar criticisms could be brought against the next chapter on "Apperception and Affect," but Dr. Varendonck is right in insisting on the paramount importance of affective factors in all mental processes.

The remainder of the book deals with Ideation and Affect, The Issues of Affective Thinking, Visualisation and Affect and The Significance of Day-dreams. Space does not permit of a detailed discussion and criticism of those, which, though interesting, appear to the present writer to be of less value than the more positive contributions made in the first part of the book. It is satisfactory, however, to note Dr. Varendonck's final opinion that "the unconscious, pre-conscious, and conscious thought-processes are three manifestations, varying only in degree, of the same function." One wishes that he had been able to give more attention to this aspect of the subject and to show how waking, phantastic and sleeping activities merge into one another and have their characters determined by contemporary conditions. The present writer has recently observed in himself a very good example of smooth transition from phantasy to dream, and it is clear that just the same thing was taking place in the course of the phantasy described on p. 171.

The book is undoubtedly well worth reading by all who are interested in dreams and the psychical accompaniments of hypnoidal and abstracted states. Perhaps the chief objection to it is its length; it would be twice as helpful if half as long.

Dr. Varendonck's command of the English language is wonderful, and the apology on p. 7 is quite unnecessary.

W. WHATELY SMITH.

Man's Unconscious Spirit : the Psycho-Analysis of Spiritism.

By WILFRED LAY, Ph.D. (Kegan Paul, 10s. 6d.)

"The thesis of this book is that all so-called communications, instead of being from a conscious control by another personality, physically separate from the medium, are in reality from an unconscious control by a secondary or subsidiary personality of the medium himself or herself" (p. 86).

This position is possibly correct, but Dr. Lay's exposition of it is quite worthless. He devotes much space to an account of his psycho-analytic views of the same order as those with which readers of his earlier works are doubtless familiar. He lays special stress, of course, on the Will to Believe in Immortality and the "Urges" which occasion it, and rightly concludes that this is responsible for the adherence of many persons to spiritualistic doctrines. But to prove that there is a natural tendency to accept evidence does not prove that there is no evidence to accept, and Dr. Lay quietly ignores all the evidence which is really important.

He satisfactorily demolishes one case of apparently evidential automatic script (pp. 311-315), and this is certainly a very pretty example of cryptomnesia, but no experienced psychical researcher would ever have accorded it a high degree of evidential value. He also maintains, probably quite correctly, that Mrs. Barker's writings are of wholly subjective origin,

but one looks in vain for so much as a mention of cross-correspondences, literary-puzzle cases, book-tests, or those numerous instances in which evidential information is given of a detailed and specific nature clearly unknowable by the medium or any person present.

Into his feeble criticisms of telepathy (misleadingly defined to suit his own argument) we need not enter, for they have been suitably dealt with by Mr. E. J. Dingwall in the *Journal of the American S.P.R.* for May, 1921. The matter may still be *sub judice*, but Dr. Lay is not in a position to pronounce upon it.

We have often wondered why writers should imagine, as so many seem to do, that Psychical Research is alone among all subjects in demanding no technical knowledge for its satisfactory treatment, and it is high time that those who have not studied it should cease to mislead the public by their pseudo-scientific disquisitions. Of this kind of thing Dr. Lay's book is an especially bad example, and is characterised throughout by a cynical disregard of the first duty of an author towards his readers, namely, to acquaint himself with his subject.

W. WHATELY SMITH.

Education and World Citizenship. By MAXWELL GARNETT. (Cambridge University Press, 1921, 36s.)

There are three kinds of books on the principles of Education in which the psychological interest predominates. There is first the account of special methods based upon teaching experience; secondly there is the general text-book on the application of a knowledge of the mind to educational procedure; and thirdly there is the investigation of fundamental problems where discussion involves the whole experience and philosophy of the author. Mr. Garnett's book belongs essentially to the third class, though an immense amount of matter appropriate to the second has been incorporated in it, together with much practical experience as Principal of the Manchester College of Technology. It has all the characteristics of a *magnum opus*, being in fact several books rolled into one and produced with all the advantages which modern printing affords. The second half of the title is explained by the fact that the author is now General Secretary of the League of Nations Union—the attitude so suggested being rather an inspiration for the whole than the subject of any special section.

The bulk of the work is devoted to the general theory of education, and is a most comprehensive attempt to make use of recent neurological hypotheses in the exposition of the growth and development of mental processes. In particular the author builds on the work of James and McDougall, and as a mathematician is able to carry what these writers often put forward as tentative suggestions (*e.g.*, inhibition by drainage, p. 75) to their logical conclusion, thereby exhibiting facts of learning, character, volition, reasoning and so forth as consequences of primary laws of neural activity. It is interesting, however, to note that in Chapter VII. the human Will makes its appearance, in order to reinforce neural excitement, "or what amounts to the same thing, concentration of attention"; the author being an interactionist on ethical grounds (pp. 98 and 108). From which it will be gathered that the extensive use of materialistic formulæ, diagrams, and symbols which are so prominent a feature of the work does not imply a materialistic outlook in the metaphysical sense. Indeed, on p. 305 we read that "the Christian philosophy completes the discovered part of the endarchy of science with a hypothesis concerning

the hitherto undiscovered central essences," though "its *experimental* character must be made clear from the outset" (p. 310).

It would not appear that Mr. Garnett is familiar with the work of Semon, though on p. 42 we find a mention of engrams. He uses throughout Morton Prince's term, "neurogram," originally confined to acquired neural dispositions, giving it Semon's meaning of disposition whether congenital or acquired. For the psychologist his most valuable contribution is in the chapters on Purpose and Reasoning, where much use is made of the experimental investigation of mental tests by Mr. Burt and Dr. Webb, dealing with factors in general ability.

The last 200 pages of the book are devoted to the application of the conclusions reached in this constructive portion to different types of schools, scholarship systems, etc. The total result is one of the most impressive attempts to found a science of Education that has yet been made; for whatever the objections to neurological hypotheses on the ground of our ignorance as to what actually does take place in the brain, it cannot be denied that the nervous system is often an illuminating working model of the mind, i.e., that neurological language provides at times a surprisingly suggestive method of exposition.

The Mneme. By RICHARD SEMON. (Translated by L. SIMON, 1921. Allen and Unwin, 18s.)

It is a great pity that England should so frequently have to wait ten years before the standard authors of the continent are accessible to those of her scholars who are not also linguists. Semon's *Die Mneme* is a case in point, though here the war has been largely to blame, for the translation now offered, which is unusually clear and readable, was completed in 1914. Semon died in 1919, having in the meantime written two other important volumes, the first a continuation of *Die Mneme*, and the second an account of Conscious processes and Brain processes.

The main feature of Semon's method is the application of one and the same principle of explanation to all the phenomena of retention and recall, whether the reappearance in the offspring of parental characteristics, or instinctive tendencies, habits, and conscious memory. To mark the fact of this generalisation he chooses the term *Mneme*, which stands for a very general capacity of irritable substance.

The two mnemonic laws (p. 148) are the law of Engraphy and the law of Ecphory:

Engraphy.—All simultaneous excitations within an organism leave behind a coherent connected engram-complex.

Ecphory.—The partial recurrence of such an excitation acts ecphorically upon this simultaneous engram-complex.

These formulations, according to Semon, replace what have hitherto been called the laws of Association. "Association depends on the conjunction of single engrams. It makes its appearance during their relatively isolated ecphory, and originates simply from the presence of the respective components in the same simultaneous complex. Association therefore is always simultaneous association." The importance or interest and attention in determining the formation of associations is strangely overlooked throughout the analysis.

After establishing and illustrating these laws both biologically and psychologically, and some discussion of the localisation of engrams (whether single engrams are stored up in special regions, or whether the possibility only of the ecphory of an engram is dependent upon such

localisation), Semon proceeds to discuss the mutual influence of mnemonic and new excitations, as when we note the disappearance of this or that tree in a landscape, or the presence of a new house in a street. The term "homophony" is chosen to signify the relation in which such excitations may find themselves. It is obvious that this topic, with its bearing on recognition, discrimination, and learning, merits the further attention both of theorists and experimentalists.

Semon's conclusion is that the repetition of a stimulus does not strengthen some already existing engram, but generates a new one such that subsequent ephory of these engrams leads to excitations which are in homophony. His chief contribution seems to lie in the creation of a convenient terminology, which enables special problems, that of homophony, for instance, to be clearly formulated for the consideration of all who are interested in this very general and important subject.

On the Nature of Existence. By J. E. McTAGGART. Vol. I. (Cambridge University Press, 1921, 22s. 6d.)

Psychology is more concerned with the nature of existence than most sciences, if only because so many of its problems, such as the account of Judgment or the Unconscious, are made unnecessarily difficult by a readiness to accept conclusions from the metaphysician. We therefore turn with interest to Dr. McTaggart's first instalment of the exposition of his metaphysic where the characteristics which belong to all that exists, or which belong to existence as a whole, are as far as possible determined. In a subsequent volume he hopes to consider what consequences of a practical and theoretical nature as regards existence as known to us can be drawn from the conclusions here reached.

The first questions we encounter are : (1) What is meant by existence ? and (2) What methods are available for so ambitious an inquiry ? As regards existence various classes of things have commonly been believed to be real without existing ; in addition to a " world of existence " many philosophers have hypothesised a " world of being." In his second chapter the author discusses three classes of alleged denizens of such a world ; propositions, characteristics, and possibilities. The discussion of propositions is, for the psychologist, clearly the most interesting portion of the book. Dr. McTaggart entirely rejects propositions as in any sense non-existent realities, and frames a novel theory of Truth for which only beliefs (psychological existents) not facts are required—what have often been discussed as propositions being, if anything, contents of beliefs. Such a view makes the problem of truth the concern of psychology.

As regards Method, the author is less likely to appeal to a modern reader, who may remain unconvinced that further light is really being thrown upon anything by the prolonged and subtle argumentation which follows. No difficulty is found indeed in showing that something exists, but later on a surprising lack of actuality, the subject being what it is, is evident. A " quality," for example, is said to be an " existent." " The most virtuous of all dogs ' is a quality which is not infinitely compound or complex, and which obviously cannot apply to more than one substance, though it might apply to more, if dogs should not be susceptible of virtue, or if two equally virtuous dogs should excel all others in that quality " (p. 128).

To the psychologist, who is so often concerned with the removal of entities, such as " novelty," " pleasantness " or " beauty," from the external world, and with deciding what qualities can be intelligibly ascribed, *e.g.*,

to a sensation, such a verbal treatment will hardly commend itself ; while for the metaphysician, any curiosity aroused by the appearance of the name of the Editor of *Mind* in the Preface is likely to be intensified by the discovery in the work itself of so few views with which that critic could be expected to agree.

The Analysis of Mind. By BERTRAND RUSSELL. (Allen and Unwin, 1921, 16s.)

Logic, Part I. By W. E. JOHNSON. (Cambridge University Press, 16s.)

With these long-expected volumes by two of the most distinguished leaders of the Cambridge school of logicians we propose to deal at some length in our next issue. Together they raise in the most acute form the question of the bearing of modern psychology on the traditional problems of the Judgment. Professor Russell, who is expected back in Europe from Peking this autumn, has made some remarkable changes in the doctrines with which his name is associated ; while Mr. Johnson, whose views have influenced a whole generation of his pupils, is well known for his treatment of logical problems in close relation to psychology.

The Psychology of Everyday Life. By JAMES DREVER. (Methuen, 1921, 6s.)

The Psychology of Industry. By JAMES DREVER. (Methuen, 1921, 5s.)

These two popular volumes by the Combe Lecturer on Psychology at Edinburgh are clearly written and attractively presented. The general Introduction deals in 153 pages with most of the topics of Psychology which the public might expect to find discussed in such a compass. The writer is well-informed and up-to-date, though his section on the Unconscious in Chapter XIV. is misleading through its uncritical attitude to the supposed indirect evidence for conscious processes of which we are not aware. The Industrial volume is a useful outline for employers and social workers, and may profitably be read in connection with Mr. Bernard Muscio's *Lectures on Industrial Psychology*, where some of the questions here approached are treated from a different angle.

Studies in Dreams. By MRS. H. O. ARNOLD-FORSTER. (Allen and Unwin, 8s. 6d.)

This is a pleasant change from the ordinary run of books about Dreams of which the great majority contain no more than an exposition of Freudian doctrines at greater or less length. With these doctrines Mrs. Arnold-Forster is well acquainted but she does not consider them competent to account unaided for all dream phenomena. She particularly questions the theory of symbolism and maintains that there are many dreams which may be taken at their face value and which possess no esoteric meaning whatever. In support of this point of view she describes many of her own dreams and relates how she has been able, in some respects, to achieve a considerable measure of control over them, notably in regard to the inhibition of unpleasant dreams.

The author's attractive style and the clear descriptions of her dreams combine to make the book very readable and interesting. It is, moreover, desirable that we should not concentrate attention too exclusively on one particular aspect of dream life ; but although Mrs. Arnold-Forster is right in emphasising this, one does not feel that she has perceptibly shaken the theories at present in vogue. Dreams are determined by the *whole* of

the mental content of the dreamer, and their outward form may easily be influenced by such auto-suggestive methods as the author describes. But although the superficial interpretation of a dream may be and often is perfectly obvious and straightforward, a deeper analysis, which Mrs. Arnold-Forster does not appear ever to have prosecuted, may yet reveal determining factors of the type which she wishes to repudiate. There is also an unfortunate tendency to lapse into vagueness of a somewhat "facultistic" type where the attempt is made to propound an alternative theory to that of Freud.

None the less the book is suggestive and may well be read by all who are interested in dream psychology and wish to avoid settling into too narrow a groove.

Dr. Morton Prince contributes an interesting Foreword.

W. WHATELY SMITH.

The Religious Consciousness: A Psychological Study. By JAMES BISSETT PRATT. (The Macmillan Co., 1921, 16s.)

Professor Pratt's able survey of the psychological phenomena connected with religion is the most readable and comprehensive treatment of the subject since the appearance, nearly twenty years ago, of William James' *Varieties of Religious Experience*. Writers like Cornford and Durkheim have in the meantime succeeded in throwing new light on early modes of thought; Freud, Schroeder and others have concentrated attention on the relations of religion and sex; and a number of special contributions, such as those of Morton Prince and Baron von Hügel have presented the systematiser with a considerable body of new knowledge. The attempts of Leuba and Ames to cover the material thus available were only partially successful, but with Professor Pratt's 500 pages before him, representing some twelve years' work, the reader who wishes to get a general idea of the attitude of modern thinkers may be confident that nothing very essential has been overlooked.

The avowed object of the book is to describe "the religious consciousness" from an impartial standpoint, avoiding provincialism whether geographical or intellectual. Religion is defined at the outset as "the serious and social attitude of individuals or communities toward the power or powers which they conceive as having ultimate control over their interests and destinies." Neither the definition nor the methodological treatment generally is such as to inspire confidence, but at this stage a certain latitude here is probably required if pedantry is to be avoided and the maximum of information conveyed. It is perhaps more surprising to find so lucid an exponent of "Critical Realism" writing sentences like this (p. 55):

"Dr. Bernard Hart suggests that the word 'Unbewusste' as used by both Freud and Jung should be taken *merely as a concept*, a shorthand expression for the manipulation of our experience, rather than as a name for anything thought of as existing."

The division of words into "concepts" and "names standing for existents" surely demands some explanation, while a Critical Realist whose world (p. 198) "is largely one of representation and concepts" might well have had more to say on the psychology of conversion by argument, and particularly concerning the "trained scholastic" (p. 199) whose "entities, *no matter how logical*, will not fit in with *our modern view*, and in spite of logic we can no longer get from them any sense of reality." The italics are ours in both quotations; but we soon pass on, through theories of

the Unconscious, to Childhood, Adolescence, Conversion, Revivals, God and Immortality, The Cult, Prayer, and so forth, until finally we arrive at Mystical Experience, divided into two forms, the Milder and the Ecstatic, and occupying the last five chapters.

America would seem to be an unusually fruitful field for the investigator, for not only can Professor Pratt draw upon the exploits of Billy Sunday and a variety of new cults, but his questionnaires, like those of Starbuck, reveal a continued prevalence of religious belief amongst the younger generation and in Universities (pp. 109, 317); so much so, that "out of 193 respondents to questionnaires, all but eight report that they pray." As regards the public at large, it is recorded at page 322 that a Catholic organ, *The Messenger of the Sacred Heart*, publishes a monthly list of Thanksgivings for favours granted in response to prayer. The list includes marriage, "a successful party," "increase of salary," "cow recovered," "five deals made," "preserved from active duty." *The Messenger* announced for the month of August, 1919: "Total number of Thanksgivings for the month, 4,876,932." Professor Pratt also mentions "the New Thought" prayer groups, and instances the case of "a lady of wealth and culture and of high social standing. She was spending the winter in 1917 in Washington, and had planned to give a large reception, but, when the day arrived, found it almost impossible to carry out her plans because of an extremely bad cold in the head. Fortunately at 11 a.m. she remembered her principles, and telegraphed to the Kansas prayer centre. By two in the afternoon her nose had ceased running and she was able to receive her guests without the aid of endless handkerchiefs."

The author has undertaken a special study of the religions of India in his earlier book, *India and its Faiths*, and he is able to make good use of the knowledge thus obtained. He also acknowledges indebtedness to his wife "for increased insight into the inner nature of Roman Catholicism," and his general attitude is one of unusual tolerance and sympathy. In this connection his remark about Ecstasy (p. 496)—"I can have little doubt that its dangers are greater than its probable rewards, and that it is a form of experience which should be emphatically discouraged"—might perhaps have been left to Aristotle or Macaulay; while only occasionally are there lapses into such laboratorial language as, "In cases of the Bunyan-Brainerd type the James-Starbuck view holds . . ." (p. 154). In future editions reference might profitably be made to Confucius, Mrs. Eddy, Reinach, Mauthner, Shaw, the Y.M.C.A., and Bushido; and a number of misprints should be corrected. Thus Professor W. McDougall's name is spelt wrongly in eight of the nine places where it occurs; Charbonier (pp. 339, 380, 381) is at variance with p. 460 and the Index; and there are unclosed quotation marks at p. 454.

Addresses on Psycho-Analysis. By J. J. PUTNAM. (International Psycho-Analytic Library, No. 1, Allen and Unwin, 12s. 6d.)

The Psycho-analysts are fortunate in the choice of an inaugural volume for their official library, and no more instructive introduction to the Freudian theory could have been provided than these collected papers of Professor Putnam, the eminent Harvard neurologist whose death occurred in 1918. Throughout the essays which cover the period 1909-1918 the impression is maintained of a remarkable personality, singularly open-minded, sensitive, and thorough—an impression which is confirmed by the testimony of all who knew their author in real life. Already in 1906 he had written appreciatively of Freud, and at page 121 (Harvey Lectures

1912) he takes back the date of his first acquaintance with the new views to 1897 :

"I was glancing over a copy of the *Neurologisches Centralblatt* at a friend's house, when my eye was attracted by a bold claim concerning an asserted common origin for all the psychoneuroses. The paragraph stated that these neuroses never arose except on the partial basis of some disturbance of the sexual life, and that the differences in the character of the symptoms, as, for example, between hysteria and neurasthenia, were determined largely by the period of life at which this or that disorder of the sexual life set in. I was impressed by the boldness and confidence of the statements but rashly attributed these qualities to eccentricity and perhaps notoriety-seeking on the part of the writer, and laid the paper down with a distinct feeling of disgust: the reasoning, I thought, could not be correct."

This is a frank statement, and the lecturer went on to say : "How different are my sentiments at present, now that through three years' hard work I have learned what these statements really mean." The conversion was partly due to the fact that Putnam made the personal acquaintance of Freud in 1909, and from that date onwards became an ardent disciple. Almost every aspect of the recognised methods of Psycho-analysis is here considered, though, as might have been expected, divergence of opinion arose as soon as "metaphysical" issues were raised. "Uplift" is not in favour in Vienna—the recognition even of "anagogic" factors being a comparatively recent development!—and it is uplift "If these patients could have it brought home to them in childhood," etc., p. 310) which seems to be the most obvious constituent of the Professor's personal creed deprecated by both Freud and Dr. Jones. The inconclusiveness and obstinacy (p. 464) indicated are perhaps due chiefly to a lack of training in epistemology : "To explain any matter," he writes (p. 299), "is to discover the points of similarity, or virtual identity, between the matter studied and ourselves." Such a definition of "explanation" is not likely to lead to the formulation of a convincing metaphysic.

It remains only to add that the International Psycho-analytic Press has taken advantage of the present state of the exchanges to print in Vienna. The result, in spite of the inevitable minor misprints, is in every way satisfactory from the consumer's standpoint, and suggests that in proportion as their defeat is rendered more complete the Central Empires may tend still further to become the printers of the learned world.

Psycho-Analysis and the War Neuroses. A Symposium, with an Introduction by SIGMUND FREUD. (International Psycho-analytic Library, No. 2, Allen and Unwin, 7s. 6d.)

Those who are surprised at the number of English medical men who have been led by their war experience to look favourably on psycho-analytic methods of treatment will find ample explanatory material in this slender volume, which includes within the compass of sixty pages both the 1918 Symposium at Budapest, held two months before the Armistice, and an address by Dr. Ernest Jones which has already appeared in his *Papers*. In the opinion of psycho-analysts, and in the terminology of Dr. Abraham, one of the contributors to the Symposium, "the ætiology of the traumatic neuroses" tends to be regarded more and more from psychological points of view, but academic neurologists have not yet been persuaded to allow due weight to the "sexual" origin of war

neuroses in general nor to consider, e.g., self-sacrifice as a "renunciation of narcissistic privileges" (p. 24). Some interesting and instructive explanations of "shell-shock" are discussed, and a good deal of information, not otherwise obtainable as to the attitude of continental neurologists is provided. But, as Freud says in his Introduction, "most of the neurotic diseases which had been brought about by the war disappeared on the cessation of the war conditions," and an invaluable opportunity, which it is to be hoped may never occur again, was missed. In view of the fact that relapses are always liable to occur, outbursts both in those who have passed through the hospitals and in others affected by the violent scenes of the past six years may be expected from time to time. It is worth noting (p. 41) that such relapses may occur even owing to "patients getting into the old surroundings through re-employment by the military," and in this connection the significance of anniversaries and celebrations should not be overlooked by alienists.

Trade Tests: The Scientific Measurement of Trade Efficiency.

By J. CROSBY CHAPMAN, D.Sc. (Harrap, 1921, 15s.)

When in 1917 the U.S. Army authorities found that they had to deal in a hurry with a problem for which their organisation was quite unsuited, rough-and-ready methods were devised whereby the wastage of man-power could be minimised. Dr. Chapman, Associate Professor of Educational Psychology at Yale, was one of those who was called in to devise Trade Tests, and the results of his experiences are here collected. Unless, however, with the progressive dehumanisation of industry the hopes of the author are realised, and "the principles of army trade test construction are adapted to the needs of the industrial plant," it is hard to see what part the interviewer without technical knowledge can profitably play in the industrial world of the future. As a record of an ingenious attempt to meet temporary needs this volume has a certain ephemeral interest; where the American technicalities allow, it might occasionally be studied with profit by magistrates and continuation-school teachers; but as an addendum to the Labour Exchange or to the equipment of the efficiency expert it is hard to wish it any lasting influence.

The Essentials of Mental Measurement. By WILLIAM BROWN and GODFREY H. THOMSON. (Cambridge Psychological Library, Cambridge University Press, 21s.)

Dr. Brown's original work with this title was published ten years ago, and in the present volume only three of the original sections survive without considerable alteration. Dr. Thomson, who is Professor of Education at Armstrong College, Newcastle, is responsible for five entirely new mathematical chapters. The result is so inconclusive and controversial in character, that the authors wisely refrain from summarising results and theories in non-mathematical language, and it is perhaps surprising to find such a study included in a series which purports to provide the public with "definitive" studies in the various fields covered. The reader must be warned that he will look in vain for any treatment of fundamental issues in relation, e.g., to the views of Bergson and his followers; the only reference to the bearing of such work as that of Russell on Measurement is *via* a quotation by Dr. Dawes Hicks (p. 11); students of Mental Fatigue, Rate of Forgetting, and a variety of special problems will not find their difficulties mentioned; even studies which have influenced an important group of investigators, like that of Meinong on Weber's

Law (*Abhandlungen* II, 3) is not chronicled. The inquirer who is attracted by the electrical work of Waller and Pridaux, or by Intelligence tests as dealt with in Terman's recent manual, will find little that is of direct assistance, though Binet receives a mention at page 56; and the section on Probability will need overhauling in the light of Mr. Keynes' new *Treatise*.

Specialists, however, will welcome the publication of this contribution, and it is certainly the most important single source of information at present available. Interest in this country is likely to turn chiefly on Dr. Thomson's Criticisms of the "hierarchical order" on which Professor Spearman has written so much in the *British Journal of Psychology*. It is here objected, in Chapters IX. and X., that hierarchical order is the natural order amongst correlation coefficients, and that it only expresses the fact that these coefficients are themselves correlated. Professor Spearman, who, it is gratifying to note, has read these Criticisms in proof, believes that the perfection of hierarchical order among psychological coefficients is extraordinarily high, and not (as his critics contend) a chance occurrence. On this question, as on that of the use of ranks instead of measurements in calculating correlations, there is clearly more to be said, and whether or no what is said will contribute anything to the progress of psychological science, the authors are to be congratulated on a lucid and forcible presentation of their side of the dispute.

The Problem of the Nervous Child. By ELIDA EVANS. With an Introduction by DR. C. G. JUNG. (Kegan Paul, 12s. 6d.)

Mrs. Evans enjoys the advantages of a considerable first-hand experience with nervous children and a certain knowledge of the psycho-analytic doctrines of the Zurich school.

These have enabled her to write a book which is well above the average of those usually published on this subject. In general it may be said that the conclusions reached and the general advice given are sound enough, but it would be possible to point out many imperfections in the technical matter adduced by way of support or illustration.

Thus the suggestion that a permanent feeling of loneliness was due to the patient having been "laid aside for a long time before his first bath (at birth), owing to the critical condition of his mother," will strike most people, including psycho-analysts, as rather preposterous. Similar criticisms would apply to the whole of the chapter on "Muscle Erotism": it is only necessary here to point out that the boy whose case is described on pp. 201-221 would be regarded by most experienced psychiatrists as a typical case of the moral imbecile. If Mrs. Evans could have given us the history of this case up to the age of say twenty-one years, it would have been of very great interest. As it is the patient is left at the age of about fifteen or sixteen, and it is at least questionable whether the alleged "cure" would be permanent.

It would be easy to multiply criticisms of this kind, but although Mrs. Evans' psychological foundations are often faulty, she has none the less produced a book which cannot mislead and may well assist parents who are not easily frightened by imperfectly explained technicalities. The expert can take care of himself.

Freud's Theories of the Neuroses. By DR. H. HITSCHMANN. With an introduction by ERNEST JONES, M.D., M.R.C.P. (Kegan Paul, 10s. 6d.)
Much of the controversy which has raged around Freudian doctrine has

been due to sheer ignorance. This ignorance has not been confined to critics, but has also been only too prevalent among self-styled followers of Freud.

Such small excuse as there may once have been for this state of affairs is now removed by the publication of this English Edition of Dr. Hitschmann's valuable book, which has long been known, in the American edition, as probably the most complete and accurate summary of Freudian views.

Since it is a summary and not an original thesis it is scarcely possible to "review" it in the ordinary sense, for this would involve writing a complete *critique* of Freud's psychology. We can, therefore, do no more than welcome it as a valuable addition to the accessible English literature of the subject, and urge that those who have not the opportunity of studying Freud *in extenso* should read it before avowing themselves as opponents or adherents of his views.

The Psychology of Behaviour. By DR. ELIZABETH SEVERN.
(Stanley Paul, 8s. 6d.)

Dr. Severn has achieved considerable success as a practising psycho-therapist, and it is very likely that her book will be of interest and service to those who have no knowledge of scientific psychology and do not object to such vague admonitions as "*cherish your Imagination.*" The book is not, indeed, a scientific work at all, and certainly adds nothing to our knowledge of the subject. It is far too full of italics and capital letters; and certain "explanations," such as that of Suggestion on pp. 41 *seq.*, are no more than vague analogical descriptions. On the other hand there is little that is actively misleading in the book (except such statements as, for example, that suggestion is the prime mover in psycho-analytic treatment, p. 43), and the authoress's account of Emotions and Motives will doubtless be found interesting by those who dislike a too rigid treatment of the subject.

Her emphasis of the importance of proper sex education and enlightenment from the earliest years is admirable, and indicates a point of view with which we have every sympathy.

Quite a pleasant, popular book, in fact, but of no permanent value. The title, as suggesting a mode of treatment similar to that adopted by Professor Watson, is misleading.

PERIODICALS

Mind (July, 1920) has an interesting article by E. Rignano on "A New Theory of Sleep and Dreams." In this the tendency of current theories to neglect the connection between dreaming and the state of sleep, as such, is criticised and a new theory propounded based on a distinction between affective and intellectual psychic activities, of which the former alone are considered to be abolished by sleep.

Scientia (July, 1921) has two articles of psychological interest. In the first, "La Constitution de L'Individualité" (Part II. "L'Individualité Psychique"), M. Sufier, of the University of Barcelona, continues his study of Individuality. His final conclusion is as follows: "At bottom and in every case it is the chemical correlation which decides individuality regardless of whether the organism possesses a nervous system or not. Secondly . . . as a consequence of this primitive factor . . . there is the nervous integration due to the differentiated elements imposed by the necessities of adaptation. . . . Complex reflexes and the personal reflexes with the feeling of 'self' are the two aspects of one and the same process. The Ego

is the supreme synthesis, the supreme unity perceived by our consciousness; it responds to the highest and most complex reflex which our study of objective psychology shows us. The individual is defined . . . in all its physiological or chemical manifestations by the rigid unity of its whole being, a unity which makes possible the transmission of its characteristics to descendants."

In the second article Dr. C. Baudouin expounds the most recent view of Suggestion as held by the New Nancy School on the same lines as his recent book, *Suggestion and Autosuggestion*. He insists that "the central and truly remarkable idea of Cou  " (the leader of the school) "is that autosuggestion ought to be practised absolutely without voluntary effort" on the ground that effort produces, *ipso facto*, a suggestion of difficulty which acts as a neutralising force.

Quaderni di Psichiatria (Nos. 7-8, 1920) has a paper by W. Mackenzie on "Thinking Animals and the Hypothesis of Concomitant Automatism," in which the author describes the achievements of Lola, daughter of Rolf, the celebrated dog of Mannheim. He dismisses trickery as out of the question, and suggests that the feats are performed by virtue of some kind of telepathic *rapport* between the dog and her trainer.

Rivista de Filosofia (March, 1920). E. Mouchet contributes a paper on "The Perception of Obstacles by the Blind." He concludes that the ability of the blind to "sense" obstacles is due to the reflection and distortion of sound-waves by the latter. (Cf. recent work on the flight of bats, which led to similar conclusions.)

Rivista di Psicologia (April-June, 1920). V. A. Buscaino writes on "The Relation between Subjective States and Somatic Changes with Regard to the Theory of Emotions." He reminds us that the James-Lange theory of the somatic origin of emotional states was anticipated, in some considerable measure, by Bocalossi, Lancisi, and others, and adds Schopenhauer, Hobbes, and Meli to the list. He also cites a variety of data, mainly experimental, which tend to support the view that somatic changes are the cause of emotional states and not *vice versa*.

Studies in Mental Inefficiency (July, 1921). 1. "Glimpses of Canada and the United States," by A. Helen Boyle. 2. "On the Rate of Progress of the Mentally Defective," by W. B. Drummond. 3. "The Younger Generation and the 'Almosts,'" by Dr. Helen MacMurchy.

Revue de Metaphysique (1921). The evolution of contemporary thought in matters of jurisprudence is dealt with in No. 1 by G. Davy in connection with the new edition of G  ny's *M  thode d'interpr  tation*. No. 2 is devoted entirely to current economic problems.

Praktische Psychologie (Leipzig), 1921. No. 4 contains an account of recent work in the measurement of Fatigue by Prof. E. Weber, of Berlin. In No. 5 Dr. E. Stern, of Giessen, advocates the Montessori method, and Dr. Piorkowski, one of the editors, begins a study of Memory-training continued in No. 6. The July number (10) is devoted entirely to a survey of the problem of Trade Tests by Dr. W. Moede. Last March this journal, which was founded in 1920, raised its price ("we hope for the last time") to 50 marks per annum, equivalent at the time of writing to 3s. 6d., so that English readers get remarkable value for money, each monthly part comprising between thirty and forty pages of text.

Revue Philosophique, Nos. 7 and 8, July-August, 1921. V. Basch summarises the results of his reflections on the Psychology of Beauty since 1896 (when he published his *Essay on Kant*), and now allows "an infinitely greater importance to the intellectual function of the aesthetic

act." His solution is, however, merely a restatement of the doctrine of Empathy and adds nothing to the work of Lipps. Paulhan writes on "The Perception of Psychic Synthesis," and there is an able article by H. Piéron on the problems of Aphasia.

Zeitschrift für Psychologie (1921), Vol. lxxxvi., Nos. 1-3, is concerned exclusively with optical problems. No. 4 contains a study of Association Tests with nonsense and significant symbols.

Archiv für Psychiatrie (1921), Vol. lxi., No. 3, and Vol. lxiii., No. 1. Felix Georgi gives an experimental analysis of the physiological conditions of the psycho-galvanic phenomenon, which he studied during hypnosis. F. Kanngiesser on obsessive neuroses; Klieneberger on homosexuality; Galant on wish-fulfilment in dreams.

Monatsschrift für Psychiatrie und Neurologie (1921), Vol. xlv., Nos. 1-6. Otto Sittig on colour sense in Aphasia. T. H. Schultz on self-observation of different layers of consciousness in hypnotic states; Santangelo on stereognostic and symbolic perception of objects; Arnold Pick on the psychology of confabulation.

Zeitschrift für die gesamte Neurologie und Psychiatrie (1921), Vol. lxii.-lxx. T. H. Schultz describes experimental studies of reproduction, memory, learning and sense of rhythm in organic and functional disorders due to the war. Tossman gives a historical survey and psychological analysis of prepotent ideas (Überwertigkeit). Bleuler defends the necessity of the conception of subconsciousness against Bumke; the soul cannot be thought of as an intelligible whole with elements causally related to each other without this conception. S. Fischer analyses modern theories of the differences between sensation and representation (Empfindung and Vorstellung); they are not essentially different but known from each other by experience. Paul Schilder writes about obsessive impulses; R.A.E. Hoffmann seeks to characterise definite psychological types and their relations to pathology and reaction. Marcuse discusses the energy theory of mental disease. H. T. van Hoop deals with the question of whether the sequence of psychical phenomena should be causally interpreted. H. de Tong records the plethysmographic effect of emotions conjointly with the involuntary respiratory movements of the arm in normal and insane persons. Robert Gaupp describes a dramatic poem on delusion by a paranoiac—the patient wrote a play on King Ludwig II. of Bavaria, showing a remarkable insight into his own psychology. Paul Schilder: on the psychology of mania, based on Freudian conceptions, with some new points of view especially on psychic causality. W. Lurge regards the fundamental attitudes and ideas in Buddhism and dementia præcox as identical, both being autistic. Reiss describes formal variations of personality as produced by changes of milieu. Emil Kraepelin writes on the Psychology of work; the continual production of identical volitional acts is studied in stringing pearls, the tension of will by number-addition at maximal and normal speed; he discusses the importance of rest-pauses for efficiency, and the influence of emotional factors.

Archiv für die gesamte Physiologie (1921), Vol. cixxxix., Nos. 1-4. Einthoven and Roos find the causes of the psycho-galvanic reflex phenomenon in variations of the difference of potential between the electrodes and the skin, and distinguish changes both of polarisation and resistance, which may be separately studied. Changes in blood supply are not the direct cause, for the reflex is found also in bloodless limbs. Gellhorn on the physiology and psychology of fatigue and exercise; both show in simple psychic and sensory process typical relations; tired persons show

depression of body-temperature and pulse-rate, the last more markedly after mental work.

Zeitschrift für Biologie (1921), Vol. lxxiii., No. 4. Karl Hansen, on the threshold for the sense of pressure. If only very small areas are excited, Weber's law does not hold true; it depends on the extensity of excitation.

Ergebnisse der Physiologie (1921), Vol. xix. H. Henning on the physiology and psychology of taste, with remarks on threshold, Weber and Fechner's law, reaction time, fatigue, synæsthetic phenomena, hallucinations and illusions.

Die Naturwissenschaften (1921), Vol. ix., No. 21. Fr. Bruno Hoffman, on the physiological basis of consciousness, tries to give the theory of parallelism a concrete foundation by showing analogies between psychic processes and biology of brain-cells.

The Society for Neurology and Psychiatry of Vienna held in June, 1921, a symposium on the new course in Psychopathology, discussing the importance of modern Psychology and Phenomenology for the theory and clinical treatment of mental diseases.

The Society for Applied Psychology and Psychopathology of Vienna (1921). Papers were read by Schilder on the psychology of mania, by Bernfeld on the psychology of group-formation in youth, by Alfred Adler on individual psychology, by Allers on the psychology of modern Art, by Bychowski on regression and autism in modern civilisation, and by Neurath on psychological factors in economical development.

Zeitschrift für Psychologie (1921), Vol. lxxxvii., Nos. 1-5. Erich Becher on W. Köhler's theory of the physiological processes underlying the perception of forms (*Gestaltwahrnehmung*): Georg Margenski on the central transformation of colours. The work of Jaensch on the psychology of youth and the genesis of intellectual life is continued by Édith Gottheil with a study on latent sense-memory, by E. R. and W. Jaensch: on the frequency of eidetic disposition in youth, and by Gösser on the different phases of memory, after images, *Anschauungsbilder*, etc. The series of papers on the psychology of colours, also under the direction of Jaensch, is continued by Bernhard Herwig on the inner colour-sense and its relation to light-sense, and by Herwig and Jaensch, who studied the mixing of objective colours with those of memory-images.

Zeitschrift für angewandte Psychologie (1921), Vol. xviii., Nos. 1-6. A comparative study on the process of work, by T. S. Segmanski; S. Valentin gives a mathematical analysis of the measure of endowment, substituting the formula $\sqrt{\frac{s-1}{2N}}$ for the older $\frac{s}{N}$. W. Heinitz on errors in typewriting. Lindworsky tries to find a method for measuring intelligence in a paper on the solution of thought tasks (*Denkaufgaben*); G. Heymans and H. T. W. Brugmans on the special psychology of dreams; they find a marked parallelism between the behaviour in waking life and the specific characteristics of dreams. F. Plaut on the principles of the psychology of advertising; Johannes Vieweg on psychical development in adults and children studied by means of the Kinematograph (*Aussageversuche*) and the psychology of children as witnesses. D. Katz and G. Révész analyse the memory for sound and melody and the optic control of movements in fowls, in a paper on experimental studies in comparative Psychology.

Allgemeine Zeitschrift für Psychiatrie (1921), Vol. lxxxi., Nos. 1-6. Bleuler on the problem of abreaction; Schilder on the sensation of strangeness and loss of personality.

PSYCHE

VOL. II, No. 3. NEW SERIES: JANUARY, 1922

EDITORIAL

IN this number we publish two articles dealing with the psychology of Æsthetics; one, by Dr. Watt on Music, the other by Mr. C. K. Ogden and Mr. Wood on the analogy between Sound and Colour.

We are sure that both these articles will be appreciated by all who are interested in Æsthetics, especially by those who believe that the artist and the psychologist can make useful contributions to each other's knowledge.

For our own part we are confident that closer co-operation cannot fail to be of the utmost value to both parties, and the subject is one to which we hope to do full justice in future issues.

The relation between Art¹ and Psychology is two-fold. In the first place artistic endeavours or appreciations are an extraordinarily valuable guide to mental character, whether in an individual or a nation;² in the second, no theory of æsthetics and no standards of criticism are of any value unless they are built on a psychological foundation.

There is too great a tendency, especially among devotees of the arts, to imagine that Art is something so mysterious and elusive, so remote from the ordered realm of scientific thought, so essentially pertaining to another world, that it is absurd to reason about it or to seek for the laws which govern it.

The result is the writing and talking of an immense amount of nonsense on the subject, and a tendency to

¹ By this term we intend to refer to all forms of æsthetic activity, whether in literature, music, painting, dancing or otherwise.

² Cp. Professor McDougall's *National Welfare and National Decay* reviewed elsewhere in this issue.

despise as uncomprehending Philistines those who attempt to reason clearly about it.

In order to bring about a more satisfactory state of affairs there is needed a wider realisation of the fact that any artistic production is only of value—and indeed may reasonably be said only to *exist*—in so far as it reacts on and produces some effect in a human mind.

In the absence of this human and essentially psychological context a poem is no more than an assemblage of marks on paper, music is a mere disturbance of the air, painting is only the reflection of light from certain chemicals.

And if enquiry be made as to the essential feature of this reaction between a work of art and the human mind, the answer must be found in a consideration not of the bare sensations, visual or auditory, which that mind receives, but of the emotional states which accompany them.

This we think will be universally conceded, but the more intricate question then arises as to whether these emotional states are identical with some of those aroused by other than æsthetic causes, whether they are—if we may so express it—made up of the same ingredients, but characteristically proportioned, or whether they are of a wholly distinct order.

Of these alternatives we conceive that the third is the least accurate, and the distinction between the first and second is only valuable if the “emotions” are regarded as sharply defined states discontinuous with each other.

Such a view would not be maintained by many modern psychologists: on the contrary there seems to be ample reason for believing that every emotional state is compounded of elements which may be present in infinitely varying proportions according to the precise nature of the total contemporary situation. And since no two such situations can ever be identical it follows that no two emotional experiences are quite the same, although sufficiently strong resemblances may be noted to justify a rough general classification.

If this is so, if the distinction between different “emotions” is one of degrees rather than of kind, it seems illegitimate to make a unique exception in the case of emotional states induced by “æsthetic”

EXISTING

From these premises various conclusions may be deduced.

It is clearly impossible, for example, to draw any sharp dividing line between objects or experiences which are æsthetic and those which are not; it follows also that the emotional effect produced by any given work of art must be at least slightly different in the case of every individual; hence canons of Art and standards of criticism can be formulated only with regard to the known mentality of individuals or the average mental characteristics of groups, and such formulations must differ from time to time and from people to people. Generalisations about Art are valid only in the same degree as the psychological generalisations on which they implicitly depend are themselves valid.

Views based upon the foregoing considerations would seem to allow ample freedom to those who distrust attempts to reduce Art to terms of rigid formulæ. It might even appear that we are confronted with too many variables to admit of bringing any semblance of order into the subject at all. But it must be remembered that although the mentality of individuals varies greatly even within a single nation, it is yet possible to make generalisations of very wide validity. Just as we can generalise with regard to diet or drugs in spite of the infinite variations of physical constitutions, so we can, within similar limits, do the same in the case of psychological activities of which Art is a special example.

And it must always be insisted that *if* we were to have complete knowledge of the psychological make-up of any individual, the precise effect of any æsthetic experience would be rigidly predicable and its value, therefore, capable of assessment.

THE NATURE AND DEVELOPMENT OF THE SENTIMENTS.¹

BY CHARLES S. MYERS, F.R.S.

TO A. F. Shand British psychologists are indebted for the modern use in this country of the term 'sentiment.' He was the first to rescue it from its vague popular significance and to apply it to denote certain large mental systems, particularly those of love and hate, which are characterized by the organization of various lesser emotional systems within them. He freely admits² that his theory of the sentiments "is not chiefly concerned with the meaning to be given to the term 'Sentiment' but essentially concerns the nature of Love and Hate (the main sentiments) and their distinction from the class of Emotions to which they had been hitherto supposed to belong." He points out³ how the greater system of the sentiment controls and modifies the lesser systems of the emotions organized therein, how it attracts within itself all the thoughts, volitional processes, virtues, vices and emotions which can assist in the attainment of its ends, and how it affects and is affected by the whole character of the personality. That is to say, Shand is mainly occupied with the differentiation, position and function of the sentiments, without concerning himself in detail about their psychical origin, or their physiological concomitants.

In an endeavour to fill this gap, McDougall⁴ has defined the sentiment as "an organised system of emotional dispositions about the idea of some object," having for its physiological basis "a system of nerve paths by means of which the disposition of the idea of the object of the sentiment is functionally connected with several emotional dispositions." It will be noted that McDougall uses the term 'emotional disposition' in place of Shand's term 'emotional system.' The sentiment becomes for him an organization of emotional *dispositions*, i.e., of "ten-

¹ Read at the British Psychological Society's General Meeting at Cambridge, 23 July, 1921.

² *Foundations of Character*, 2nd Ed., 1920, p. 50 (footnote).

³ *Ibid.* pp. 62, 106, 110, 121, etc.

⁴ *Introduction to Social Psychology*, 14th Ed., 1919, p. 159.

Ibid. p. 126.

dencies to experience certain emotions''' after some previous experience of those emotions. According to McDougall, not only do the sentiments arise out of the organization of emotional dispositions or tendencies, but (as a natural consequence) the sentiments themselves are also tendencies. A sentiment, he expressly says¹ is "not a fact or a mode of experience." "What is meant by saying that a man loves or hates another is that he is liable to experience any one of a number of emotions or feelings on contemplating that other." In other words McDougall regards the sentiment of love not as involving a specific *feeling*, but as a psycho-physiological *structure*, characterized by the tendency or liability to evoke, under appropriate conditions, a certain series of emotions or feelings, *e.g.*, of joy or wonder when the 'loving' mother sees her young at play, of tenderness when she nourishes or protects them, of distress when they are suffering, of fear when they are in danger, of anger when she is attacking another who would injure them, etc. So, too, McDougall would regard hate as a mere structure or organization, characterized by the liability to experience, say, anger, when one attacks one's enemy, joy when one has worsted him, fear or distress when he seems likely to be successful, etc.

According to McDougall, then (and also according to Drever²), a sentiment—be it of love or hate or of any of the various shades and modifications of these, *e.g.*, like, dislike, regard, affection, devotion, etc.,—does not involve the actual experience of a specific feeling, but is merely the liability to experience a certain gamut of emotional feelings which have come to be systematized about the idea of some object. This view I find it impossible to accept. I cannot admit that such a restricted use of the term 'sentiment' is, as McDougall claims it to be,³ "in fair accordance with its usage in popular speech." In general parlance, 'love' and 'hate'—with their various shades and modifications—indicate definite feelings, and not merely tendencies to the simpler emotional and other feelings organized within the system of either sentiment. All the world over, love and hate are recognised to be distinct feelings, not the mere liability to evoke joy, anger, fear, wonder, etc.

Nor is such a view in accordance with psychological principles. We are not content to describe the percept of an orange in terms of the various sensations of colour, hardness,

¹ *Ibid.* p. 123.

² *Ibid.* p. 122.

³ *Ibid.* p. 123.

⁴ *Instinct in Man*, 2nd Ed., 1921, Ch. ix.

⁵ *Op. cit.* p. 122.

taste, etc., which the object may evoke. We do not regard a percept merely as a 'disposition' or liability to produce certain more elementary effects. We recognise that percepts *are* 'facts or modes of experience,' arising within a unity more complex than that of certain other simpler experiences organized therein.

The sentiments of love and hate, then, are not merely a consciousnessless system of emotional dispositions, but, like the emotions themselves, are characterized by very definite feelings of their own. The adoption of this view is in no way antagonistic to the recognition of the fact that, to use McDougall's words,¹ one may "be said to love or hate a man at the times when he is not present and when one is experiencing no emotion of any kind." For there are two distinct ways in which the term 'sentiment' may be used, the one involving the actual experience, the 'sentiment feeling,' of love or hate when the object of the sentiment is seen or thought of, the other being the sense in which one may, in the presence or absence of that object, be said to love or to hate him without experiencing the sentiment feeling of love or hate. So it is with feelings of quite other kinds, which have become strongly associated with any given object. Thus I may state that I desire something, that I am bashful or hopeful of doing something, or that I am envious of or sympathetic towards, or even angry with someone,—without necessarily experiencing at that moment the feelings of desire, bashfulness, hope, envy, sympathy or anger. When, therefore, I say that I love or hate an object without actually experiencing the corresponding sentiment feeling, I merely imply that I am liable to feel a love or hate of him,—in other words, that I have a 'disposition' to a sentiment feeling. This disposition is based on my past experience of love or hate in relation to that or to some similar object. Such past sentiment feelings help to clothe my idea of an object with 'value'; and it is chiefly in virtue of this establishment of values that I come to hate, to dislike, or to admire a person without at the moment experiencing those sentiment feelings.

Let us now pass on to consider the origin of the sentiments. McDougall (followed by Drever) maintains² that the "rudiment" of a sentiment may be "formed by the association of a single emotional disposition with the idea of some object." For example, he ascribes³ "a rudimentary sentiment that we can only call a sentiment of fear" to a child who has learnt by his

¹ *Ibid.* p. 123.

² *Ibid.* p. 164.

³ *Ibid.* p. 163.

experience of an angry father to dread him, and whose "mere idea" of his father has become associated with a disposition to experience fear. Now this seems to me to be an entirely mistaken use of the term 'sentiment.' If the disposition to an emotion which each transient emotion leaves behind it, after becoming associated with some particular object,¹ becomes or tends to become its own rudimentary sentiment, if we may thus acquire in turn the "rudimentary sentiments" of fear, anger, disgust, etc., and if, as McDougall maintains,² "the emotional dispositions comprised within the system of any sentiment are . . . not directly connected together" but are merely attached to a common idea,—how comes it that those various rudimentary sentiments can give rise to the stable full-blown sentiment feeling of hate, dislike, etc.? The position which McDougall has here assumed is doubtless determined by his conviction³ that the sentiment "is not natively given in the inherited constitution." But surely every mental experience (for we must now admit that the sentiment originally involves a specific mental experience—the sentiment feeling) is natively given in the inherited constitution. Surely the ability to experience the sentiment feelings of love, dislike, hate, etc., under appropriate external and internal conditions is as much inherited as the ability to experience the emotional feelings of fear or anger, the sexual appetite, or indeed any other mode of consciousness which is induced under appropriate conditions.⁴

Stout,⁵ Shand,⁶ and McDougall⁷ lay stress on the first appearance of sentiments at the *ideational* level. But it would be a psychological error to suppose that the sentiments arise as something quite new at a relatively late period of mental development, over-lying and controlling the old, much as the epicritic (discriminative) sensibility of the skin has by some been supposed suddenly to come into existence and to repress (or suppress) the more primitive protopathic (all-or-none) system. Just as elsewhere⁸ I have insisted that there has always been a rudiment of the epicritic system, and that evolution has proceeded on the lines of differentiating and isolating that rudi-

¹ I presume that it is the emotion rather than its disposition which has become associated with the object.

² *Ibid.* p. 126.

³ *Ibid.* p. 159; cf. Drever, *Op. cit.* p. 207.

⁴ Cf. Shand, *Op. cit.* p. 43.

⁵ *Manual of Psychology*, 3rd Ed., 1913, pp. 699 ff. Stout arrives (pp. 699, 700) at so broad a definition of sentiment at the ideational level as to regard it as the consideration of any system of ideas from the conative aspect.

⁶ *Op. cit.* *passim*.

⁷ *Op. cit.* *passim*.

⁸ *Discovery*, November, 1920. p. 340.

mentary epicritic system from the protopathic, of magnifying it and of making the now more purely protopathic system subordinate to it; so too, here I maintain that we are not to look for the beginnings of the sentiments at the ideational level. The rudimentary sentiments of love and hate are not mere *dispositions* to the feelings of joy, distress, anger, fear, etc., centred about an *idea*; they involve specific *sentiment feelings* which are based on certain feelings of 'interest,' which are related to the appetition or aversion of the individual in regard to *objects*. These sentiment feelings and feelings of interest may unquestionably be innate. For example, an animal is innately endowed with a feeling of positive interest in her young as soon as she first perceives them; her very first percept of them attracts and interests her, and prompts her to succour and to protect them. It is this feeling of interest, with its innate tendencies to evoke emotional and other feelings, which constitutes the rudiment of the sentiment feeling of love—which is fed and modified by later experience of the feelings of joy, distress, etc., the dispositions to which are (in the case of maternal love, at least) innately given at the very dawn of the sentiment. The sentiment feeling is not fundamentally changed, although it is much modified and 'brought out,' by the various emotional and other feelings which it may evoke. A mother's first fear for the safety of her young does not specifically alter the love which she has hitherto felt for it. So too we may later—'rudimentarily' it may be admitted—fall in love (or, for the matter of that, even a child may 'fall in hate') with a person, before experiencing all the emotional and other feelings which are naturally organizable within the sentiment, and lead to its full development.¹

A special 'interest' similarly becomes attached to a specific object when a single emotion is repeatedly felt in relation to it. This again is a 'rudimentary sentiment' and within it is innately organized the tendency to certain emotions according to the changing relation of the object to the self. The quality of the sentiment feeling varies, say, from liking to regard, fondness, affection, love, devotion, admiration, or worship, according to the particular emotional or other feelings which are in course of time evoked. Each emotion colours the original interest. Consequently, on the perceptual plane, we come to realise the existence of a rudimentary sentiment, which implies the perception of an object and the awareness of an affective interest

¹ I contend likewise that on the very first occasion when an emotion arises, it is 'rudimentarily' experienced before it achieves the expression which contributes enormously to the emotional feelings.

tending to, and subsequently coloured by, certain affective experience. Of course these emotional and other feelings differ enormously in different individuals. As Shand well says,¹ "The loves of no two men are the same. The one may be suffused with joy and happiness; the other with sorrow and disappointment." But I hold that any particular sentiment is fundamentally the same, though modified profoundly, in different individuals. Otherwise how should the same name have been given to it? When certain primitive peoples give the same name to blue and black, there is some denominator, however low in value, common to both sensations. Some basic factor must, similarly, exist both in inner feeling and in outer behaviour, for the loves or hates of the timid, the bold, the selfish, the altruistic, all to be recognised as love or hate.

Thus an object with which an emotion has (or innately tends to) become associated comes to have a distinct interest of affective origin; and it is this feeling (varying according to the emotion), and not the mere association of the idea of the object with an emotion, which is the psychical basis of the rudimentary sentiment. It is therefore a misnomer to speak of a rudimentary sentiment of fear, anger, wonder, etc. A rudimentary sentiment involves a specific feeling; it is not a mere psycho-physiological structure, it is not a mere disposition to any single emotional feeling, but it includes a specific feeling, more stable and more comprehensive than that of fear, anger, wonder, joy, distress, etc.

From such feelings, then, of affective interest in an object arises our liking or disliking of it. If a child repeatedly pulls the tail of a cat, the cat, as Stout rightly says,² "dislikes the child." But this does not *merely* mean (to use his words) that "it has a permanent tendency to feel emotions of anger whenever it sees the child in its neighbourhood."³ The animal *has acquired a new feeling*, one of *general* dislike towards the object in relation to itself, whereas the passing emotion of anger occurs in relation to some temporary *specific* situation in the relation of the object to the self. Such a sentiment of dislike, say in a dog or elephant, may afford it delight when it sees the object of

¹ *Mind*, 1896, vol. v., p. 226.

² As McDougall does (*loc. cit.*) in regard to fear. I appear to approach Stout's standpoint when he observes: "On the higher levels of mental life . . . emotional dispositions are very complex, and are called *Sentiments* or *Interests*" (*op. cit.* p. 419), were it not that I am trying to trace them to an origin in *lower* mental levels. So too, Drever (*op. cit.* p. 210) differs from me in distinguishing interests, as innate and on the perceptual level, from sentiments, as acquired and on the ideational level.

³ *Op. cit.* p. 419.

⁴ *Ibid.*

its dislike attacked by another, whereas a sentiment of affection may prompt it to aid a human being in distress.

We may rightly term the dislike of a cat for a child, or the like or dislike of any animal or young child for any object, a 'rudimentary' sentiment feeling, recognising that the complete evolution of a sentiment requires the full development of free ideas. If we could suppose that an animal can clearly represent to itself its young when it is absent from them, and the relation of itself to its young, it will have attained a fully developed sentiment. But all grades of sentiment feeling are recognisable; and it seems to me impossible to draw any clear line of separation between man's love of God or of truth, the love of a cow whose calf has just been removed and the (scarcely more than) interest of the bird that has just hatched out its young. For the essential nucleus of the sentiment is an interest in the object, *quâ* object; and its consequence, its very *raison d'être*, is to invoke a variety of simpler emotional and other feelings according to the various situations in which the subject finds itself in relation to that object. The sentiment feeling is there from the start, just as the percept exists from the start. And just as the percept does not arise from the constituent sensations, but is developed *pari passu* with them, becoming fuller as they become clearer,—so the sentiment feeling develops to maturity with the exercise of the emotions belonging to its system, but does not originate merely as a disposition derived from and tending to them. The *raison d'être* of a sentiment is to provoke one or other of a variety of useful emotions, just as the purpose of the emotion, say, fear, is, I believe, to provoke one or other of a variety of useful instinctive reactions. We can no more identify a sentiment feeling with its emotional systems than we can identify an emotional feeling with its varied forms of expression. If the instinctive reaction of flight were to follow *immediately* on a dangerous situation, if before a given situation there were possible no instinctive reactions other than flight, such as clinging to the mother, immobility, defence at bay, etc.,¹ then the emotion would not be experienced. So too the sentiment feeling, beginning, it may be, as little more than a vague interest of the individual felt for a percept and developing into affection, dislike, etc., insures a variety of emotional responses according to the situation. What is constant in the sentiment is the specific, sometimes innate, relation of the self to the object of the sentiment, the *value* (as it later comes to be recognised) of that object to the self. It is this subject-object relation, grounded

¹ Cf. Shand, *Foundations of Character*, pp. 190 ff.

on the interest felt by the self in the object, which, with the higher development of abstract ideas, plays so important a part in the development of the full-blown sentiment.

Drever seems to me wholly mistaken in calling a phobia a 'simple sentiment.'¹ It is just the absence of the feeling of sentiment which makes the phobia a complex and gives it those relatively uncontrolled—not, I think, necessarily ungraded or protopathic—characteristics which are the distinguishing marks of a complex. Hart,² following Freud and others, terms the complex an emotionally toned system of ideas. But if my scheme of the mode of evolution of the sentiment is correct, there seems no reason to make any distinction between the organization of ideas about an emotion and the organization of emotions about an idea. I agree, therefore, with Rivers' that the complex differs from the sentiment in being essentially, as he calls it, a "suppressed body of experience."

The conclusion to which we have arrived is that the sentiment is not the mere outcome of the successive experience of a number of different emotional or other feelings as they come to be organized as different affective dispositions about the idea of the object of the sentiment. It also involves an affective experience, a feeling *sui generis*, attached even in its rudimentary form to the object perceived. This specific feeling corresponds to the neurological condition which controls and evokes the different emotional and other feelings in the subject according to the varying situation of the subject-object relation. In other words, the rudiment of the sentiment is to be found not, as McDougall and Drever suppose, simply in the dispositions to fear, pugnacity, curiosity, self-subjection, self-assertion, parental instinct, repulsion (I use McDougall's terminology), organized by growing experience about the idea of the object. It is not merely built up from below as a 'mental compound' of affective dispositions at the ideational level. These enter into its above-ground structure, but its foundations are to be sought in the form of the affective appeal made by the object to the subject's attention—in the kind of interest, related primitively to the impulses of appetite and aversion, to which the object gives rise. With the clearer conception of subject and object and of concrete and abstract ideas, this feeling, qualified by later affective expression, is largely responsible for the experience of

¹ He even agrees (*Op. cit.* p. 209) with Morton Prince (*The Unconscious*, p. 452) that a sentiment is merely "an idea linked with an instinct."

² *Psychology of Insanity*, 1912, p. 61.

³ *Instinct and the Unconscious*, 1920, pp. 86, 163, 233.

⁴ *Op. cit.* p. 125.

values. At the same time, by its increasing and systematic control of various emotional and other feelings, it develops an ever-growing strength, stability and complexity of form and organization, and it gains fuller expression by the aid of such feelings. It may, as Shand has so well illustrated,¹ develop new feelings within its system, *e.g.*, jealousy, envy, revenge, sorrow, pride, ambition, avarice, remorse, shame; and it tends to develop special qualities of behaviour, *e.g.*, sincerity, gentleness, loyalty, forgiveness, deception or meanness; it also tends to be modified by the emotions coming within its sphere, absorbing their specific qualities within its own as a sentiment.

Those who hold that the sentiment is dependent merely on its organized emotions may be compared with those who maintain that the emotion is dependent merely on its expression,—that we are sorry because we cry, or are angry because we fight. Just as a new affective element, in addition to the organic and other sensations concerned in emotional expression, enters with the development of the emotion, so a new affective element, the rudimentary sentiment feeling, enters with the ability to ‘appreciate’ an object *quâ* object, *i.e.*, to like or to dislike it. It is as true to say that it is the rudimentary sentiment feeling that determines our emotions as to say that it is the emotions that determine our rudimentary sentiment feeling. The capacity to experience a sentiment is innate; the opportunity is acquired. The sentiment has been elaborated to prevent the disorderly action of the emotions, just as, I believe, the emotion prevents the disorderly appearance of instinctive activities. When, through disorganization, the sentiment feeling is no longer possible as a conscious experience, the emotions take on that independence, that disorderly and uncontrolled character which they assume in what are called ‘complexes,’ warring against the conscious personality of the subject. So they do when an intense but transient, emotional situation is dissociated from the personal consciousness before a fully developed sentiment has been formed.

¹ *Ibid.* *passim*.

MUSIC AS PURE PSYCHICS.

BY HENRY J. WATT, M.A., PH.D., D.PHIL.

MUSIC is commonly said to be the purest of the arts, so detached from the material suggestions of every day life as to draw upon itself the attribute of divinity. Poets and essayists, scientists and philosophers vie with one another in praise of it. It is a separate world, a fit home for the soul, a realm of pure spirit. It appeals more directly to our emotions than any other art. Nothing stands between us and the simple beauty of its parts. No fog of matter pervades its ethereal substance. The mind of the hearer is not misled by the clouds of barren facts that enwrap our world of sight and prevent us seeing the beauty of vision in purity. So even the simplest of us are caught up by the beauty of music and are thrilled with the joy of its mere existence. We learn to love the world for the music it gives us more easily than we love it for its other gifts. For we feel that the giving is more complete. Rather than a gift it seems to be the revelation of another world, the promise of many more, the earnest of the truth of being, its divinity. We feel we know by its pattern what a world purified of all dross, structured in perfect beauty would be. Then we can be sure that other worlds might well be perfect in the harmony of goodness or firm in the certainty of truth. We finally arrive at the hope that all these schemes might in some time of perfection be wrought together into an enduring whole of the essence and type of music. Our souls would yield themselves as gladly to it as they do to music, and we should pursue its promptings with a manifold eagerness. In such a world of phantasy we feel that there is no room for the detached evil and misery that stalks distressfully through our present life. Discord is there not separate and dichotomic. However unwelcome it may be when thrust upon us unguardedly, in music it is as much the fundament of beauty as the sweetest fragments of sound. In the perfected art we lose all consciousness of what in its isolation might be sweet or sour. Such beauty has no need for a background of self-centred fragments of distress. And by these signs we learn that in a divine life no part would be found without importance for the whole. Each

noticeable fragment would be equally servant to the perfection of all. There would be no lower world, no evil cast forth, no horror wandering round to urge us to greater zeal for the best. And so music is to us the pattern of the divine, the innermost type of the deepest realities.

And we may be sure that music will always have this action in the mind of man. Mathematics has always been the type of perfect knowledge, the paragon of reason. However much the rationalistic instinct to which it for long gave such power may now stand in disfavour, no age perhaps has felt the compelling sway of the ideals of mathematics more than the present. Every fresh conquest of mathematical genius renews the conviction that there is no science except in so far as there is mathematics in it. And the achievements of research into positions and quantities have passed in these recent generations into such crescendo that conviction seems utterly compelled. We do but hope that the structure of this perfect scheme of quantities and positions may be suffused with the more elusive spirits that show themselves to us in the colours, smells, and other qualities of sense, the synthetic unities of thought and reason, and the essences of our feelings and emotions. These things speak to us of other bonds and fibres in the world. And music seems to bear out this idea. We live in the world of music without a thought or sense for position and measured quantity. Music is nowhere: it is a land of itself. The tones and melodies we hear cannot be measured, however it may be with their physical basis. Music consists of pure sense and feeling, a wondrous range of "qualities" moulded by indefinable forms and linked to the soul by ineluctable bonds. Therefore music is divine, a refuge from the crudities and cruelties of this world of matter as we find it and from its unyielding steel of quantity and movement that chills the soul when we contemplate it.

All our instincts and interests urge us then to set the ways of music before our reason and observation that we may gain from it the real lessons it has in store for us.

The scientific study of music may follow three different lines. (1) It may confine itself to the analysis and description of the actual structure of music as we find it now or at any other time. The historical sequence of its development is quite another problem. For history we need a description of the sequence of changes that has brought music to its present conditions and a record or theory of the cause that led to each particular change. The tracing of these causes necessarily implies a knowledge of the general science of music sufficient to guarantee their truth.

For causes are not mere moments or accidents of time. They are for all time. Each of them still guards the structure of music as it now is, whether it maintains some element that now lies within the usage of music or whether it protects the sphere of music from its rude intrusion. No mere history can provide for the full understanding of a present living structure. For that we need a knowledge of the forces that now maintain it in life. And these can be adequately gauged only if we know clearly what the structure is that we are to explain.

And the descriptive analysis of music itself greatly reduces the range of items for which we have to find remoter cause. For, as music is made by cultured men of trained observation and memory, it must needs be that the works they create are built by them out of simpler parts whose functions within their surroundings they have learned to appreciate by observation. But mere appreciation of effects does not imply the ability to describe these effects or to arrange them in a systematic manner so that they can be easily held before the understanding. And so one of the great explanatory tasks that logically follows the work of descriptive analysis is the classification of the properties and functions of the simplest parts or elements of music. These parts are familiarly the tones, intervals, sequences, chords, keys, phrases, and forms, and all their differences and changes in different settings. This knowledge constitutes the science upon which the art rests.

(2) Behind the mind that includes all these things lies the body upon which it is dependent. And the same methods of study apply to it as to the mind. A history of the organism is not a sufficient explanation of its present functions. It merely traces the course by which the organism has attained these functions and the conditions that determined each change. What we still need is a knowledge of the conditions that now produce and maintain them. These conditions form a closed system of factors of a completely sufficient kind. For of course the past as mere past has no determining effect upon the present organism. Here we have an exact parallel to the direct study of music as experience. The mere history of music is a purely antiquarian interest except in so far as it portrays a special group of those factors describable by science of which another larger, smaller, or different group maintains the music of any other period. A complete science of music would of course be able to account for all forms of music, and at the same time for their historical sequence, just as a complete physiology will take into its range the functions of all kinds of living organisms, past as well as present.

(3) Besides the science of living mind and the living organism, there is the science of the relations between different living organisms or biology. By it we seek to explain how the structure and functions of one organism are passed on to another, how differences arise in the new generation or disappear again, and how the functions of organisms generally are related to the nature of their physical environment.

Psychology, physiology and biology therefore embrace the whole range of knowledge required for a full study of the natural basis of music. These sciences are concerned respectively (1) with the mind in which music lives, sounds, and is enjoyed at any moment whether in passive reception or in active reproduction or creation, (2) with the body that takes up the music from its physical source and passes it to the mind, and (3) with the history and evolution by which the body-mind has arrived at the powers required for the appreciation of music.

There are many to-day who object strongly to the very thought of a science of art. Art seems to them to be beyond the mere possibility of scientific elucidation. It is "a flash of the will that can," an inspiration that outruns all rules, a structure at every moment far too individual to be reducible to any general terms. Of course this is perfectly true for the instant and time of creation. Art, like life, must be far on its journey and at good speed before ever its science has roused itself to the slightest movement. Life is the basis of all knowledge, and how can there be knowledge of a thing till that thing at least as a certain type has been long in existence? But it cannot ever be so. The science of art, we will readily admit, is still in its infancy. But it will grow in time to its full stature and nobility. And just as the science of the living organism is now full of plans for the experimental moulding of life's forms and for its rapid improvement and development, so one day the science of art will be able to show the creative artist fields for his genius to explore, effects that may form the stuff of his structures and combinations that he has never dreamt of. Science is systematic exploration, and unless in his preparatory toil the artist be himself a thorough explorer, he must learn to use the systematic knowledge of the scientist. His functions as artist will never cease, of course. His mind will always be the finest touch-stone of beauty, and the loom that weaves the wonderful patterns from the material passed on to him by his generation. But he will no longer, even in his giant personalities, be able to nurse the illusion that he is above all tuition, absolutely free of education, a flower that owes nothing to the sunlight of his times. The

very slowness with which art advances into new regions should show us clearly how much each artist is dependent on his own time and how he can create only on the basis of what he has learnt from it. To be an artist you must be intelligible and valuable to your fellow-men, and that can only be by the fact that your own song has almost sprung to the lips of your fellow-men. It was struggling in their hearts for utterance, and lo! it is given to them for their ease and joy.

At the present time the science of art is feeble because it is necessarily long before knowledge of the elements of art grows to the subtlety required. Some of the hardest problems of mind and life have to be solved ere the way is cleared for sure progress. But there seems to be no reason other than the distractions of different interests, especially those of a physical and biological nature, why in time these problems should not be solved. Of all the arts, literature, probably, has received the most intense study and record. The knowledge of it is far more vigorously cultivated in our universities than that of any other art. But its basis is not only difficult to explain in general scientific terms, it is even difficult to discover and describe. Musicians know precisely what it is they put together to form melodies, chords and progressions, and they have always been able to extract from their works various general rules that express the conditions under which specific effects are produced. It is unnecessary to refer to the study of the larger forms that are the frames into which all these smaller details are filled. The study of these is comparatively easy, for they are not only large and obvious, but they are often clearly before the mind of the artist during his creative work. In the study of poetry they are usually well formulated very soon after they become typical. But what is the minute basis of beauty of poetry and prose? In what does the music of speech consist? So little is known of it that the very effort to attain its knowledge seems repugnant by its very improbability. Prof. Saintsbury is an impassioned and most erudite student of the arts of speech. But even he seems to be enraged to the point of contempt by the thought of a science of beautiful language. His vast history of criticism, as he must surely be aware, has only value in the fact that it spreads the basis upon which the more concentrated and potent force of a definite science of beauty may be raised. How can we ascribe value to the judgments of practised critics unless we suppose that their insight is keener and truer than that of the rest of us, and that common to them all is some power of light that will show up the enduring beauties of literature? No doubt this power is extremely rare and difficult to attain, simply because

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no instruction for its attainment can yet be given. A teacher or a critic can only point to what he considers beautiful. He is unable to state their general character; he can only mass them so as to say: "In this author is the greatest quantity of them." Only the finest natural endowment of sensitivity, fostered by great practice, can ensure a keen sense for these beauties. But nowadays we demand more than this from those who profess any science. They must not only themselves be expert palates, they must be able rapidly to instruct and refine the taste of the student. And this can only be done by instruction in general scientific terms. Such science, however, is still to be made.

It has often been claimed that art is a by-product which nature never could have *intended* or *needed* to produce. Want of *intention* probably every biological theory would admit. But *need* has been made plausible for the purposes of sympathy between individuals. The attraction of opposite sexes to one another, where there is some delay of response or "choice" of a mate, presupposes stimuli singly and co-operatively of the strongest kind. As wooing animals frequently sing in some manner or other, it was only natural that we should see in their utterances a kind of music, whose sole function was to please, attract and fascinate until they had served their turn. Then other bonds would take their place, or the lapse of need for cohabitation would make them superfluous. Whatever validity these ideas may nowadays have, there is no doubt that their exponents saw in these vocal functions no disinterested art. Nor was there supposed to be art in the cries and croonings of the young, and still less in the calls and noises made by animals under the stress of emotional excitement, whether for social purposes or merely as threats or exclamations. All of these functions were severely practical. It has been made abundantly clear by now that the animal mind is incapable of that detachment from practical ends that is implied in the notion of art. Its scope is far too narrow for any sense of art to be possible. In fact, the whole mechanism of utterance is in them almost entirely reflex in its motor aspect, while in its sensory aspect it is either likewise reflex or it is only brought into connexion with the animal's individual "experience" by the accidents of association.

In recent biology, the attitude towards these racial differences between animals has altered so much that it seems absurd even to suggest that the needs of life could have produced new variants. A power there undoubtedly is that produces them, but it seems to be entirely withdrawn from any contact with the actual circumstances of life of the animal as an individual.

The chromosomes of the germ cell, whether they are souls are not, have certainly no windows that look out upon the circumambient universe of the soma. The view most acceptable at present looks upon variations of the somatic powers as entirely accidental as far as the circumstances of an animal are concerned. They arise: that is all we need to say: and if they happen to be useful so much the better for the creature concerned; if not, it will have the many disadvantages of a useless burden in life and it will doubtless quickly succumb. As far as active life is concerned of course, the results of this latter origin are much the same as those of the former. They both rule out art from these lowly origins. Vocal music was at first purely practical. It only survived because it was useful.

This being so, it may seem puzzling to explain why it ever appeared at all, and why, if it appeared, it survived. Surely the chances of function offered by the ears could have been moulded to better use. Why did nature so lavishly spend the resources of the organs of hearing upon the "musical" functions of the ears and so niggardly upon that highly practical function of localisation that is so prominent in our sense of vision? Vision is by far the best and most comprehensive of our senses. Why then was not hearing moulded on somewhat the same plan as vision? Simple experiments show that our power of localising sounds in space is comparatively very poor. We make the grossest errors, and we can only do the most of what we do by virtue of the fact that vision is always near at hand to support the defective identifications of the ear. And many of the acts by which we place sounds in space around us are not really localisations in any true or primary sense of the term. They are merely inferred from slight differences in the musical aspects of sounds that we learn to connect with places which are given to us otherwise, especially by vision. The power we have of distinguishing places by hearing without any outside aid and without inference is very slight indeed. But vision gives us differences of position in the greatest detail imaginable. Surely then it would have been better if nature had devoted the organ of hearing to the sense of the places of sounds as much as possible, and had left the pitches and quality-blends of sounds aside. Our world would surely have been the poorer for this, but we cannot suppose that nature had our pleasures in mind when she planned the ear. Besides—who knows?—these sound-places might have themselves built up the basis for an art of position and of form similar to those that we find in vision when differences of colour are entirely neglected.

Now it is evident that a question of this kind reduces itself

ultimately in scientific thought to the question why the organ of hearing displays the functions we actually find in it. And for the elucidation of this deep question we must follow two lines of enquiry. In the first place we may consider what range of variation is found amongst different animals in the matter of localisation of sound. Then we can see how our own powers compare with those of our fellow creatures. Does any animal possess a sense of hearing made up of a large number of organs of hearing, each one capable of giving a place to a point of sound as the sensory elements of probably all forms of compound eye do? It has been thought that the elastic fibres of the antennae of mosquitoes form a very primitive sort of ear. But the theory of their action that is most probable in no way claims that they form a field of hearing in which each fibril acts as a point and is separately capable of placing a single sound without serious detriment to the powers of its neighbours to do likewise. The dominant theory considers these rudimentary auditory functions from the point of view of their bilateral symmetry. The insect does not locate a sound by the use of a single sensitive terminal. Rather is it probable that when a sound produces a more intense effect on one side of the line of the animal's symmetry a turning process is initiated which leads to the other side being stimulated more intensely, and that rest only comes when both sides are equally stimulated. In this way the animal takes up a definite orientation to a source of sound that must in the end lead it rapidly to that object if it puts itself into motion long enough and is not diverted from the influence of the sound by more powerful forces. So a mosquito may be thought to reach a sounding body by merely mechanical processes quite similar to these that force a plant to grow upwards or to turn its leaves or its flowers to the sun. Of course the presence of a mechanism of this kind says nothing one way or another as to whether the mosquito hears the sound and its place. In fact the mechanism might well have the unpleasant effect of forcing the sound willy nilly upon the mosquito's "mind" (if it has one) whenever it occurs. The question of consciousness or more strictly of the presence of sensation in the insect has to be discussed on other grounds. All our actions probably come under the sway of the law of the conservation of energy—a purely mechanical "law." And yet we certainly are extensively conscious.

So then the mosquito has really only two ears, one on each side of its body, however many sensitive terminals it may have each side. And this seems to be true of every animal. No animal apparently exists that has more than two ears in any manner comparable to that frequently found in vision. Most

animals have only two eyes, one on each side. But animals have probably existed with three good eyes, one being on the top of the head. The rudiment of such an eye is still found in some reptiles. And many insects possess numerous single eyes—spots sensitive to light—over and above these two compound eyes. Of course symmetrical balance must be an active process in vision in so far as it is practically tolerable, which seems to be extensively the case. But it is not inevitable or exclusively necessary. In hearing there seems always to be only one ear—single or compound—on either side. And we must now enquire further why this is apparently inevitable.

An answer to this question seems to offer itself when we ask whether it would be possible for a sound to reach only one spot in a field of sensitive organs exclusively or in preponderance. This of course only repeats the previous enquiry regarding the two sides of the body, and brings us back again to the principle of symmetry. The hairs all round a leg for instance might be differently excited according as they lie in the one or other orientation to the source of sound. But pairs on opposite sides would receive equal stimulation. Thus it is clear that without some special apparatus attached to the sense-organ and helpful in the better reception of the sound-stimulus, a sound would not reach a single sensory terminal to the exclusion of the rest. And thus we come up against the question of the comparative powers of the adjuvant receptive organs of vision and hearing, namely, the lens and its adjuncts and the ossicles.

Now it is a familiar fact that Helmholtz, whose theory of the physiological process of hearing is still universally the favourite, was of the opinion that a sound reached a single (or nearly single) fibre and sensory terminal in the ear, just as the blow struck by a pianist's finger on the keyboard of a piano or, better still, the physical vibrations of a loud pure-toned whistle or pipe reach and make vibrate a single string of that instrument. The string it reaches depends upon the pitch of the sound. But this gives us a peculiar case for comparison between vision and hearing. For every colour—and colours here seem to be analogous to pitches—may reach any part of the eye's field of sensitivity, and it is by this circumstance that the eye is enabled to locate sights so finely. Thus the very feature of Helmholtz's theory that seemed so promising turns out to be against us. What we should have liked is that every sound, no matter what its pitch, should reach any part of the ear's field of sensitivity and so enable us to place sounds finely. But that it evidently does not do. So it seems that, as far as localisation of sounds is concerned, we are not much better off than the mosquito with

its organs that at first seem to us so ridiculously inadequate for the proper localisation of sounds. When we examine the facts closely we find that in this respect we cannot do much more than it can.

But if sounds of different pitch reach different points of the ear's field of sensitivity, why do not pitches seem to be the places of sounds rather than the qualities of them? This question, strange as it may seem at first, thrust itself upon several of the more notable thinkers on hearing, *e.g.*, Mach, James, and Stumpf. But the demands it made upon their reconstructive thoughts were too great to be accepted. Such a radical change of attitude towards the facts of hearing was required that they were felt to be no better than speculative suggestions, which must really be repressed by the weight of such counter-speculations as with them would give us the view of the facts of hearing that we actually have. So Mach suggests that pitches really are places, but that they are all the same, and therefore no place. A futile counter-speculation, since the demand made by the different places of the sensory nerve elements excited by different pitches just is that pitches shall be different sound-places. William James boldly declared himself ready to reject Helmholtz's theory *in toto* if the demand made by it for differences of sound-place in pitches were left unsatisfied by the facts of our experience. But in spite of these efforts to think a way through the entanglements of the physiological and psychological nature of hearing, no progress was made. And in spite of the accumulations of fine and experimental observations on all aspects of hearing and in spite of various efforts to find a new theoretical point of view without giving way to these apparently absurd demands that flow from the principle of psychophysical parallelism, no progress in the theory of hearing has been made. That is a conclusion that most experts would finally admit, however reluctantly.

The principle of psychophysical parallelism is out of favour in many circles at present. It has too materialistic a flavour for many palates. And however much the mind may be dependent on the body, we can hardly err in shunning the materialistic fog and darkness of recent generations. Besides, the principle seems to share the common vice of unreliable service, most lamentable in such a vehicle. How can it be a principle, if it refuses to carry us through the difficulties of our own problems of hearing? If it did, we should think much better of it as a principle, and we should readily waive any doubts about it that its materialistic connexions might imply. In fact, the dignity the principle would gain by really working would be quite

powerful enough to bring these connexions out of the shade altogether.

So our only course is just to adopt it; give it office and see what it will do; let pitches be sound-places and try to adjust our minds to this view of them.

And there can be no doubt that this point of view gives us a clear and coherent survey of very many of the difficulties of hearing. But we need not enter into a detailed account of them here. We can perhaps make the change of view in bulk without any detailed examination of the scene. The important point to notice is that when we admit that pitches are sound-places, we must not go so far as to compare these places with the places in space to which we ascribe colours, touches, tastes, and other sensations. This may sound rather like the counter speculations we met with in Mach,—an attempt to take back with one hand of thought what we gave with the other, and so keep our account of ideas just as it was. But it is not so. The places of colour are spatial places, whereas the places of pitches must be places without being spatial. Such places are known already. Numbers, for example, occupy places in their series, but these are not spatial places; the numbers do not lie in a row out there before or around us. Pitch-places and number-places are not, therefore, the same. For numbers are not the same sort of things as sensations at all. If the two are connected, it can only be distantly. And so we may now drop them as an illustration that has done its duty. Colour-places and pitch-places are very closely connected. And their true relation seems to be that both of them are places in the sense that a pitch is a place, but that a colour acquires a further character as a place that makes it a spatial place. The colours or points or lines that appear in a picture are of course marks on a surface and so spatial places. But when we treat the picture as a thing of beauty, we neglect this fact altogether. The colours and lines then for us are merely parts of a visual whole that is before our mind, but that could not be said to be in space at all. The distance you see in a landscape is not out on the canvas or behind it or through it. Nor is it helpful to say it is “illusory,” as it psychologically is, of course. Within the æsthetic attitude it is a (space-)distance, just as the real line or distance (perpendicular to the line of sight and lying on the canvas, so to speak) of the picture is a line or distance too. Only it is not spatial because, as a mere part of natural space outside us or as merely representing such a part, it does not enter into the work of art as it stands before our mind at all. The real line or colour on the picture is only the physical means whereby a

corresponding part of the work of art as apprehended is ensured. The print on a page of poetry plays the same functions for the sounds that form the sensory basis of the poetical thing we call beautiful. We do not call the printed page either beautiful or (except by way of shorthand) poetry.

So we see that the absence of practical relation to space that prevented us seeing that pitches are places because they are not spatial places, shows us that all the spatial places that are so familiar in colours and touches and other sensations really rest upon such non-spatial places, and that in works of art the spatial colouring that these places acquire in every day life of observation is entirely dropped.

Now when this change of point of view is thoroughly carried out, we come to the conviction that the sense of hearing has all the parts and powers that the other senses have—apart from the range of colours in vision and of smells and tastes. Apart from differences of quality, that is, hearing is organised like any other sense in so far as its distinctive powers are concerned. Only, these powers do not apply to space, as do those of the other senses. The other senses give us not only places, but lengths, distances, forms, intervals, proportions, patterns, motions, etc. And these are the powers that the arts use and build upon. So we learn to see that hearing also gives us lengths in the volumes of tones. Low tones are long lengths—not lengths in space of course, but nevertheless lengths. You may be inclined to think this is all pure imagination, because you want to span your hand and measure the length of the tone. You can span the measure of the piano or violin string, if you like, just as you can span the length of the book that you see is red. Piano string, or book and hand are things that can be juxtaposed in this way. But you cannot juxtapose your hand and the tone you hear any more than you can really span your hand over the surface that you see is coloured. You can only span the hand you see over the surface you see; but not over the tone you hear any more than over the thought you think or the emotion you feel or over your hunger or your pain.

So, too, what we call interval in sound is the equivalent of proportion between lines or distances in vision; in short, it is the most elementary form of "figure" in hearing. And when an interval rises higher in pitch, its proportions remain constant, though the tones that compose it grow smaller in volume, just as a visual figure grows smaller at increasingly far distances.

And when we pass from tone to tone, *i.e.*, from pitch to pitch, which is really from sound-place to sound-place, we can have the same kind of connexion between them that the parallel change

in vision would give, namely, emotion. This sound-motion is the primary element in melody. And so on. We can draw out the parallels extensively in a very satisfactory way. But it would take too long to do it now.¹

Hearing thus possesses all the typical powers of even such a powerful sense as vision (except, of course, its third dimension), but these powers are hidden away from all practical contact with the space of our natural environment. Hearing has developed these powers because the organism could not make the sounds of nature act differently upon different parts of the body without some special receiving mechanism. Each sound could produce differences of effect only in bulk in the different halves of the body's symmetry. But that little was a precious effect to be carefully nurtured into use for localising sounds in space around us. This nurture has given us an ear on each side of the head. The special receiving mechanism could not be made to throw any one sound upon different nerve terminals on one side of the body according to the position of the source of sound in space around us, as was possible with the receiving mechanism (the lens) of the eye. It could only throw one sound at one fixed place. But because the sounds of nature are themselves functional periods or waves spread out in space, each sound within the ear becomes a wave or length of excitation spread out in a line of its own that in no way affects the function that was established in the two-ness of the ears. This now appears automatically in the fact that the musical or pitch functions of sounds are all procured by differences of action along the long aspect of the system of neural terminals in the ear, *i.e.*, along the length of the cochlea, whereas the spatial functions of sounds are based upon the two ears and primarily upon the very short aspect of the neural terminals, *i.e.*, at any cross section of the cochlear tube. So nature has made the fullest use of the material and differences at her disposal. And out of it have come not only the sounds of nature, but the world of music, so fascinating and so divine, because so divorced from the common places and forms of space. Music reveals to us another world of forms and motions, one that physically runs through the spatial world in a peculiar though very real way.

But, one may be inclined to urge, the sounds of the natural world are not musical at all. They are dull, rough, noisy and uninteresting. How can all the beauties of music have issued from such a basis? Surely music is the invention of man and

¹ Cf. *The Psychology of Sound*, Cambridge, 1917, and *The Foundations of Music*, Cambridge, 1919.

the product of all his instruments. Quite true indeed, but without the ear for the noises of nature, man's instruments would have been useless. The instrument beyond all other instruments is nature's wonderful ear. And merely by enabling us to hear her noises, she has provided us with the means for music. To catch a rough and irregular process perfectly, no rough and irregular instrument will suffice. It must be as fine and delicate and pliant as is possible, the more so because an irregular process requires a very pliant instrument to follow it and take it up. An instrument fit for this work will find it perfectly safe and easy to record forces that vary smoothly, lightly and regularly. We need only invent the instruments for producing these smooth forces. And these are the musical instruments and the artists who play them. Nature's rough school has trained our organs to a fine capacity, and our minds to the subtle powers that between them enable us to create all the perfections of art and to enjoy them.

So music is not the child of nature as the older evolutionary theorists were inclined to think. Music does not really begin in natural life. The first traces of it in nature are surely only accidents. Music is rather the grandchild of nature sprung from two of its children, the forceful and imaginative mind of man and the delicate receptive sense of hearing. The marriage of these two has filled a new home with radiant faces, that nevertheless bear in themselves the features of their grandparents, freed of the marks of daily toil and drudgery and grown for the attainment of all the excellence inherent in them. But not only music, all arts share in the benefits of nature's toil for their provision. All art is a new life, a world in which mind and sense combine to bring themselves into fullest realisation of all their powers. It is a world of pure psychics, one might say, the child and offspring of the world of pure physics. It is all as divine as music so clearly seems to be. It all, in a sense, stands clear of nature, even when it is nature herself that fills it out and appears beautiful. In art we play with the powers and instruments nature has procured for us, and in this play we learn that the divinity of music belongs equally to all art, and that it is the gift of nature herself.

THE ANALOGY OF SOUND AND COLOUR.

BY C. K. OGDEN, M.A., AND JAMES WOOD, M.A.

THE analogy of sound and colour has been chiefly contested on the ground that their physical bases are not identical. This, however, is irrelevant for the present enquiry, since the analogy here considered may be established by methods which do not require a similarity in the physical basis—much less in the mode of physiological perception. But it should be added that though the physical basis of sound is assumed to be experimentally established, that of colour still has to be demonstrated; while in both cases our knowledge of their mode of perception, and the exact relation between subjective reaction and objective stimulus, is as yet largely a matter of conjecture.

It is therefore all the more remarkable that so many writers have summarily rejected the analogy on the strength of the statements of others, without testing for themselves the relevance of these statements. Partly, no doubt, the rejection has been due to difficulties in terminology, especially where the qualitative and emotional value of sounds and colours is concerned; and a few words on certain deviations from the current classification, which are implied by the Tudor-Hart system here described, are desirable. In particular it will assist the musical reader if we make clear in what way the view of pitch, timbre, and tone here adopted differs from that accepted by many musicians. Let us distinguish the qualities of sounds numerically in order as far as possible to avoid misconception. Those under discussion are:—

(i.) The quality in respect of which notes at the interval of an octave sound the same and notes at smaller intervals different, when sounded not simultaneously nor individually, but at an interval of time such that the first is clear in the memory when the second is sounded.

(ii.) The quality in respect of which sounds of notes at the interval of an octave differ.

(iii.) The quality in respect of which the same note played on different instruments (or on the same instrument in different ways, if it is possible, as on the violin) differ.

(iv.) The quality in respect of which notes at a smaller interval than an octave sound different, when sounded so far apart in time that the memory of the actual sound of the first is quite indistinct when the second is sounded; just as red can be distinguished as red without comparing it with any other colour.

In musical literature (i.) and (ii.) are usually taken together as a single property and called "pitch," and the quality (iii.) is called "timbre"; but in what follows (ii.) alone is called "pitch," while (i.) and (iii.), are taken together and called "tone."

The quality (iv.) is by many people not consciously recognized, but they are disposed to admit that it may be the basis of a sense of "absolute pitch." We can only note here that others are conscious of the difference, which is accentuated by recourse to different instruments. Thus, *e.g.*, the cornet, flute, and French horn are found best to give the sensation of Red, Orange and Yellow, the violins Yellow-Green or Green, the oboe Blue and Blue-Green, and the contra-bass Purple.

The divergence of opinion as to the importance of (iii.) may be illustrated by the following passage from Delacroix' Journal:—¹

"Chopin inveighed loudly against the school which
 "derives part of the charm of music from sonority. He
 "spoke as a pianist. Voltaire defined the beautiful as what
 "would charm the mind and the senses. A musical motif
 "can appeal to the imagination on an instrument which
 "affects the senses in only one way, but the union of
 "different instruments with different sonorities will give
 "more force to the sensation. Otherwise why should one
 "use sometimes a flute and sometimes a trumpet? The
 "first will be associated with a rendezvous of two lovers,

¹ Vol. III., p. 273. "Mon cher petit Chopin s'élevait beaucoup contre l'école qui fait dériver une partie du charme de la musique de la sonorité. Il parlait en pianiste. Voltaire définit le beau ce qui doit charmer l'esprit et le sens. Un motif musical peut parler à l'imagination sur un instrument qui n'a qu'une manière de plaire aux sens, mais la réunion de divers instruments ayant une sonorité différente donnera plus de force à la sensation. A quoi servirait d'employer tantôt la flûte tantôt la trompette? La première s'associera à une rendez-vous de deux amants, la seconde au triomphe d'un guerrier; ainsi de suite. Dans le piano même, pourquoi employer tour à tour à les sons étouffés ou les sons éclatants si ce n'est pour renforcer l'idée exprimée? Il faut blâmer la sonorité mise à la place de l'idée et encore faut-il avouer qu'il y a dans certaines sonorités indépendamment de l'expression même un plaisir pour les sens. Il en est de même pour la peinture: un simple trait exprime moins et plaît moins qu'un dessin qui rend les ombres et les lumières. Ce dernier exprimera moins qu'un tableau. Je suppose toujours le tableau amené au degré d'harmonie au le dessin et la couleur se réunissant dans un effet unique. Il faut se rappeler ce peintre ancien qui, ayant exposé une peinture représentant un guerrier, faisant entendre en même temps derrière une tapisserie la fanfare d'une trompette."

“the second with a warrior’s triumph, and so on. Even
 “on the piano, why employ in turn muffled and clear
 “(*éclatants*), sounds, if not to enforce the idea expressed?
 “We must object to sonority if substituted for idea, and we
 “must also at the same time admit that there is in certain
 “sonorities, independent of the expression itself, a pleasure
 “for the senses. It is the same in painting: a simple line
 “expresses less and pleases less than a design which gives
 “the shadows and the lights, though the latter will express
 “less than a picture. I suppose always the picture brought
 “to that degree of harmony in which design and colour
 “unite in a unique effect. We may recall the story of the
 “ancient painter who, when showing a picture of a soldier,
 “had a trumpet blown at the same time behind a curtain.”

Three years later¹ Delacroix elaborated his view of the emotional qualities of different instruments as distinguished from their differences of range or texture.

“A musical motif can appeal to the imagination on an
 “instrument limited to its own special sounds, as, for
 “example, the piano, which has consequently only one
 “manner of affecting the senses, but it cannot be denied that
 “the union of different instruments, each with a different
 “sonority, gives more force and more charm to the sensation. Otherwise why use sometimes a flute and sometimes
 “a trumpet, the one to announce a warrior, the other to
 “dispose the mind to tender and idyllic emotions. . . .
 “Moreover, we must admit that there is in certain
 “sonorities, independent of the expression for the soul, a
 “pleasure for the senses. I recall that the voice of ———,
 “a cold singer without much expression, had by the mere
 “emission of the sounds an unbelievable charm.”

The case of assigning definite emotional characters to different keys—though even this, strange to say, is denied by many—finds more adherents, and is indeed sufficiently obvious. In the Sonata Pathétique of Beethoven if for violin and piano

¹ *Ibid.* p. 395. “Un motif musical peut parler à l’imagination sur un instrument borné à ses sons propres comme le piano par exemple, et qui n’a par conséquent qu’une manière d’émouvoir les sens; mais on ne peut nier cependant que la réunion de divers instruments ayant chacun une sonorité différente ne donne plus de force et plus de charme à la sensation. A quoi servirait d’employer tantôt la flûte, tantôt la trompette, l’une pour annoncer un guerrier, l’autre pour disposer l’âme à des émotions tendres et bocagères? . . . Encore faut il avouer qu’il y a dans certaines sonorités indépendamment de l’expression pour l’âme, un plaisir pour le sens. Je me rappelle que la voix de ——— chanteur froid et sans beaucoup d’expression, avait par la seule émission du son une charme incroyable.”

By inadvertence, or by a misprint, his back reference is to notes made in 1855, which his editors remark have not been found: but the passage quoted above is clearly intended.

were substituted a 'cello and piano, half its beauty would be lost, if it were transposed even half a tone.

A few of the more obvious parallels between sound and colour may now be given:—

SOUND.

Noise may be defined as toneless sound, which in all its manifestations from low to high pitch, shows an absence of any defined musical note.

Sound at the extreme limits of its perception, at high and low pitch, merges into noise.

Sound, in middle pitch is most varied, and difference of tone more pronounced and easily recognised. Discrimination at its maximum.

We may describe sounds in terms of three variables:

Pitch, or high and low degrees in serial order.

Tone designating quality of sounds (qualitative characteristic).

Intensity designating strength or weakness of sounds (quantitative characteristic).

A tone of high pitch gives a thin, shallow, piercing and flat sensation.

A low pitched tone appears rich, massive, and deep.

A flat, A, B flat, B, in low pitch, convey the emotion of melancholy and sadness, especially in string instruments and lower register of the organ.

D sharp, E, and F, in a medium high pitch convey an emotion of brightness and cheerfulness especially in the brass instruments of the orchestra.

A low and high octave of the same tone when sounded together, are more difficult to locate than octaves of the same sound lying near each other in the middle pitch.

COLOUR.

White light may be defined as hueless (colourless) light, which in all its manifestations from darkness to full luminosity, shows an absence of any defined spectrum colour.

Colour at its limits of perception, darkness and full luminosity, merges into the colourless.

Colour, in middle luminosity, is most varied, and difference of hue more pronounced and easily recognised. Discrimination at its maximum.

We may describe colours in terms of three variables:

Luminosity, or degrees of light and darkness in serial order.

Hue designating quality of colours (qualitative characteristic).

Saturation designating strength of colours (quantitative characteristic).

A hue of high luminosity gives a shallow, hard, flat sensation.

A low luminosity hue appears rich, massive, and deep.

Blues and violets, especially in low luminosity, convey the emotion of melancholy and sadness.

Yellow-Orange, Yellow, and Yellow-Green, in a medium high luminosity convey an emotion of brightness and cheerfulness.

A high and low luminosity of the same hue are more difficult to locate than tones of the same colour lying near each other in the middle pitch.

A chromatic scale gives an a rhythmic progression.

A sudden change of key, without mutation, in the execution of a musical theme is disconcerting and strange.

The sensation of a series of notes rising in pitch with increasing intensity appears like a telescoping of the tones; the notes seem to diminish in interval.

The interval between the fifth and the lower tonic seems greater than that between the third and the upper tonic, in a single octave.

If sounds be reduced in intensity until they are only just audible, their tone-quality can no longer be distinguished, although their difference of pitch is still perceptible.

High sounds as they descend in pitch become more sonorous.

Certain tones have greater emotional effect in low pitch than in high, and *vice-versa*.

A luminous series of hues in spectrum order gives an a rhythmic progression.

A sudden change of colour scheme without mutation, in the execution of a decorative or pictorial design, is disconcerting and strange.

The sensation of a series of colours rising in luminosity with increasing saturation appears like a telescoping of the hues; the colours seem to diminish in interval.

The interval between a dominant colour and its lower tonic seems greater than that between a mediant colour and its upper tonic, in a single octave, if the luminosities are kept correct.

If colours are dissaturated with neutral tint until they are only just visible, their hue can no longer be distinguished, although their differences of luminosity remains apparent.

Light colours as they descend in luminosity gain in richness.

Certain hues have greater emotional effect in low luminosity than in high, and *vice-versa*.

It should be noted that Tone, Pitch, and Intensity (fulness) and their equivalents are only *independent* variables at the middle of the scale; for in extreme cases

Variation in *Pitch* alters the *Tone*.

Variation in *Fulness* alters the *Tone*.

Variation in *Luminosity* alters the *Hue*.

Variation in *Saturation* alters the *Hue*.

There are many features of the Analogy which cannot be treated in this summary manner, and certain problems such as those of texture and hardness, as commonly understood, involve a more detailed examination of accepted views. What is known to artists as *texture*¹ has very little to do with colour as such, and is rather a question of the kind of form which receives the colour and the kind of light which reveals it to the eye.

¹ A *sense* of texture as shewn in a painting is found where the artist has suggested textural qualities of the objects he has represented (the picture may have a textural quality of its own at the same time); this is often called "quality of paint" or in sculpture "patine."

The form may be a surface rough or smooth, soft or polished, still or moving, opaque, transparent or absorbent, and the light may be direct, refracted or reflected. When the local colour of any object reflects into itself, the light is *refracted*; this is the case with sateens, velvets, etc. The dissaturated light shining from a surface is scattered daylight, partly tinted with local colour and is *reflected*. Opacity shows reflection, transparency shows refraction, and saturation shows absorption (*e.g.*, transparent brown absorbs a lot, refracts a little and reflects very little).

In reflected light Red becomes bluer in the lighter tones and yellow in the darker. Yellow and Blue become greener in the lighter tones and redder in the darker. If the light is refracted from these colours an opposite effect will be observed.

All of this is of the greatest value in questions of glazing, laying in colour grounds, mixing colours with white, etc., but is not a quality of the colour itself. Thus the difference between red Velvet and red Linen is not one of colour. The colour on the linen could be made similar, by saturating and lowering in pitch the red of the velvet. Where there is a surface refraction (high luminosity), much reflection and little absorption, the colour appears varied in hue; and though the *total* colour effect is definitely judged to be the same as that of the non-refracting surface, the *parts* appear different in hue and give the whole its characteristic difference. For example, in the case of dyed wool and satin the similarity will be increased if the satin be crinkled, and in some cases the difficulty of distinguishing two materials by the form and the action of light due to that form, will be considerable.

The musical equivalent for this textural difference is of course to be found in the different instruments by which a note is sounded. There are the same characteristics of roughness, smoothness, woodenness, brassiness, etc., of sounds that are muffled and sounds that are clear. A flute is reflective, a piano absorbent, a violin or bugle transparent. These characteristics of instruments are different from the qualities which ally them to certain notes or colours, and though important are not primary questions of sound.

No works of art or music of the first class can exist without an exploitation of textural qualities, and though these qualities, when so exploited may seem equal in importance to the emotional characteristics of the colours or forms of the medium, their appeal is in reality a secondary matter.

It is perhaps worth while to point out here a fact that is of considerable importance for the discussion of such systems as

those of Ostwald, namely, that what is known as the "normal" eye of science is not adequate to deal with these qualitative distinctions. "Le premier mérite d'un tableau," as Delacroix puts it, "est d'être un fête pour l'oeil. Ce n'est pas à dire qu'il n'y faut pas de la raison : c'est comme les beaux vers, . . . toute la raison du monde ne les empêche pas d'être mauvais, s'ils choquent l'oreille. On dit : *avoir l'oreille*; tous les yeux ne sont pas propres à goûter les délicatesses de la peinture. Beaucoup ont l'oeil faux ou inerte; ils voient littéralement les objets, mais l'exquis, non."¹

THE ANALOGUE OF PITCH.

One main current of opposition to the analogy as above outlined comes from a demand that Hue (whose psychical equivalent is Tone) shall be equated with Pitch (its *physical* equivalent on the wave theory). From this it is argued that there is only *one* octave in colour; or, on the other hand, a complicated system of hypotheses is devised to render the breakdown of the physical parallelism less disconcerting.

Physically, of course, the octaves of sound rise in pitch from base to treble, in a geometrical progression by a power of two, *i.e.*, each octave has double the number of vibrations of the preceding one. With this rise in pitch, a note and its successive octaves appear to the senses as equal intervals. The vibrations of these intervals increase in a geometrical progression. Similarly as light increases from darkness, the "notes" and their luminosity octaves appear to the senses as equal intervals; and though these intervals are constructed by increments of luminosity in a geometrical progression, it is on the psychological equivalence for sensation of the two series that the analogy is here based.

THE ANALOGUE OF TIMBRE.

If the orchestration of musical sounds be considered in regard to timbre, which, it must be remembered, is to sound what hue is to colour, it will be found that the full qualitative value of a note can only be obtained in one definite pitch, different for each note.²

It is this difference of quality in different notes of the same pitch that determines the different classes of human voices—bass,

¹ Delacroix *Journal*, Vol. III., p. 438.

² The term note is here used in the sense of an individual sound, of which its octaves are its manifestations in higher pitches. Similarly we have occasionally used the term "note" in light as referring to an individual colour at a given degree of luminosity.

baritone, tenor, contralto, alto, soprano; and it also determines the functions of the various instruments such as 'double-bass, 'cello, viola, violin, etc. A single instrument taken up the scale passes through all the tones, but these are tinged with the characteristic tone of the instrument. We may express the analogy thus:—

A colour of definite hue can only reach its full saturation at a definite degree of luminosity. No two hues have their full saturation at the same degree of luminosity.

Similarly a note of definite quality can only reach fullness or purity at a definite pitch; no two notes can develop their full purity at the same pitch.

It will, perhaps, make matters clearer if we repeat our table of terms.

A. Pitch.	a. Luminosity.
B. Timbre' or Tone.	b. Hue or Colour.
C. Intensity.	c. Saturation or Purity.

These are psychological equivalents, and the reader must not read into them physical meaning from the association of the terms with wave-theory equivalents. It is because this has been done in the past that the analogy between (B) and (b)—which is meaningless on the wave-theory—has been overlooked; in addition it has caused much confusion between (a) and (c). Luminosity (a), is photometric intensity. Saturation (c), is quite a different thing, as psychologists have long recognised. The saturation of a red is "redness of a red in the black-red-pink-white series." If the saturation series, for a particular luminosity, is thought of as a horizontal band, we can imagine another series of such bands, each one for a particular luminosity, arranged parallel to the first. In other words, the luminosity series may be imagined to run in a vertical direction, the saturation series being horizontal. If such a chart were constructed for different hues it would seem that each hue had its maximum saturation at some particular level, the level (luminosity) for maximum saturation being different for different hues. The actual construction of such charts is, however, complicated by the fact that change in luminosity causes change of hue—and this, as we have urged, to a much greater extent than had previously been imagined. Hence the unsatisfactoriness of many of the coloured-pyramid methods of representing the effect of the three, supposedly independent, variables (a), (b), and (c).

The very fact of psychologists using these particular three variables suggest that they realise the inadequacy in their domain of the purely physical variables amplitude, wave-length, and wave-form. Otherwise their representations would be in terms

of the variables photometric intensity, hue (for this corresponds to wave-length on the physical theory), and whatever is the (to them) unknown equivalent of wave-form. Psychologists cling, in the domain of sound, to the three variables, pitch, timbre, and loudness chiefly because the analogy between sounds and waves—the three corresponding variables of the latter being wave-lengths, wave-form, and amplitude. The success of the wave-analogy in sound in the hands of Helmholtz sufficiently explains this. But if one considers the sense-data of sound without any preconception as to what ought to be the case on the wave-theory, one can see at once that loudness, or physical intensity, does not play the rôle it is supposed. The psychological equivalent of loudness in colour is usually the result of increase in the area covered, but loudness is an assault made upon the ear, and, as in music, this effect is not produced by one method only. The feeling of aggression, of domination, of advance and retreat, which is characteristic of the sensation of loudness, may be produced in music in various ways, besides increase in volume; as by causing an abrupt sound to break in upon a soft and sustained one, or conversely by playing stringed instruments very loudly in an orchestra and suddenly introducing a high but not very loud sound, or a triangle or oboe.

In colour, therefore, the equivalent of loudness may be variously felt in saturation, in increase of area, in the contrast of a delicate and clear colour against rather harsher colours, or in the position occupied by a colour in regard to spacing and its combination into forms.

“There is so strict an analogy between shade and sound,” says Hogarth, “that they may serve to illustrate each others qualities: for as sounds gradually decreasing and increasing give the idea of progression from, or to, the ear, just so do retiring shades show progression, by figuring it to the eye. Thus, as by objects growing still fainter, we judge of distances in prospects, so by the decreasing noise of thunder, we form the idea of its moving further from us.”

Hogarth goes on to explain that the “retiring” shade is so called, “because by the successive, or continual change in its appearance, it is equally instrumental with converging lines, in showing how much objects, or any parts of them, retire or recede from the eye; without which, a floor, or horizontal-plane, would often seem to stand upright like a wall. But although the retiring shade hath this property, when seen with converging lines, yet if it describes no particular form, it can only appear as a flat pencilled shade; but being enclosed within some known boundary or outline, such as one signifying a wall, a road, a

globe, or any other form in perspective where the parts retire, it will then show its retiring quality."

The intensity-variable which would much more readily serve the purpose of description in psychology is something akin to purity or saturation in colour. For a note of one particular timbre attains its maximum æsthetic effect of fulness (not loudness) at some definite pitch, as is recognised instinctively by composers. A further illustration of the inadequacy of purely physical concepts founded on the analogy with wave motion, to describe the perceptual domain of sound is provided by the variation which the timbre of a note may undergo without any corresponding change of wave-form, its analogue on the wave-theory. When a gramophone is played the form of the waves produced remains the same whatever the rate at which the instrument is run. For that form is determined by the movement of a needle over a surface of definite shape. Yet the speeding up of the gramophone, with its consequence increase in pitch, causes immediate change of timbre or quality in the notes produced. This effect is difficult to explain on the wave-theory. But if we take timbre as analogous to hue, and pitch to luminosity, it becomes merely the sound analogue of the variation of hue with luminosity. In other words, it is the Purkinje effect in sound.

Once the variables have been chosen it is possible to construct a colour keyboard—but one which will not have the narrowing effect of the pianoforte-keyboard in sound (with its confinement to one timbre, roughly). For our keyboard will be complete; it will embody all three variables. The analogue in sound to this would be a mighty orchestral instrument showing the complete gamut for each separate timbre.

THE ANALOGY OF THE KEYBOARD.

When thus completed, the colour keyboard resembles a series of rainbows from dark to light. Its practical advantages cannot be described in detail here, but it may be mentioned that in addition to standardising colours, it enables them to be harmonised, so that if treated with a certain amount of latitude, such as slight variations in the interval not exceeding a quarter-tone in either direction from the standard hue, it gives full scope for realising even the most delicate modifications which may be required. Sombre and much alike in the lower octaves, it gradually becomes more and more differentiated. The intervals between hues are seen to widen, and the brilliancy of the colour to increase as it reaches middle luminosity, and thence as it continues to rise, it fades off into a monotonous whiteness. Eleven

octaves are seen of which only seven or eight are distinct. Similarly in sound, eleven octaves are heard of which seven or eight are distinct.

A chromatic scale of musical sounds, of twelve musical half-tones to the octaves, extending from A to a vii. is perceived as a combination of tone and pitch, tone succeeding tone at regular intervals. Deep and undifferentiated in lower pitch, it becomes more and more differentiated, both in tone and pitch, as it reaches the middle pitch; thence, as it continues to rise, it fades off into a monotonous similarity.

In reply to the objection that this arrangement is arbitrary, we would by no means assert that it has reached its final development. Indeed, the advisability of keeping the wide interval of luminosity between the various hues given by the spectrum is at least doubtful. But the Tudor-Hart method does certainly achieve the standardisation of hue, giving the correct colour and saturation in different degrees of luminosity and producing the same colourless grey by pairs of complementaries in all degrees of luminosity. Such a standardisation of intervals forms a basis on which to gauge harmonious relationship.

AN ANALOGY OF THE INTERVALS.

Before proceeding to the question of intervals it is necessary to emphasise the fact that the psychological equivalent of the simultaneous perception of two or more sounds, is the simultaneous perception of two or more juxtaposed colours. Consequently the analogue of harmony in sound must be sought in juxtaposed colours. Melody in colour will therefore result from the espacement of colours, their isolation by intervening neutral tint, and also from the order in which colours lie on the field of vision. Juxtaposition thus may serve a double purpose, as in music sounds in rapid succession blend together and produce effects which partake of the nature of both harmony and melody.

Let us now apply to the chromatic scale described above some of the laws of harmony in sound and see if they are applicable; taking a note and its harmonics, and using the following analogical equivalents:—

Duration of note—Area¹ of colour.

Interval of pitch—Interval of luminosity.

Order of note—Order of hue.

¹ It must be remembered that we are here dealing with psychological effects—the physical equivalent would be the duration of the coloured light.

Assuming C to be the equivalent in sound of Ruby-Red in colour (the octaves being counted from it upwards) we shall have:—

- Tonic Red—Dark wine coloured red.
- 2nd Harmonic—Red, Octave (deep ruby).
- 3rd Harmonic—Blue-green (deep peacock green).
- 4th Harmonic—Red, 2nd Octave (rich ruby).
- 5th Harmonic—Yellow (young leaf green).
- 6th Harmonic—Blue-green (lighter peacock green).
- 7th Harmonic—Red-violet (heliotrope, middle tone).
- 8th Harmonic—Red, 3rd Octave (deep ruby pink).
- 9th Harmonic—Orange (light orange vermillion).
- 10th Harmonic—Yellow (young pale yellow leaf green).
- 11th Harmonic—Yellow-green (bright apple green).
- 12th Harmonic—Blue-green (turquoise blue-green).
- 13th Harmonic—Blue-violet (light ultramarine blue).
- 14th Harmonic—Red-violet (light heliotrope).
- 15th Harmonic—Red-red-violet (lilac).
- 16th Harmonic—Red 4th Oct. (ruby pink).

It will be found that the intervals between the colours are pleasant to the eye in exactly the same degree as the sounds are to the ear, and that each harmonic is in consonance with its fundamental colour, just as in sound each harmonic is in consonance with its tone (or generating sound).

Furthermore, the colours lying between the third and fourth octaves are consonant or dissonant in exactly the same degree as the corresponding intervals of sound; their corresponding intervals have like qualities in lower or higher octaves. The octave gives unison, a perfect consonance. The fifth and fourth are consonant to a lesser degree; the major and minor third are slightly less consonant; as are also the major and minor sixth. The tritone, though not unpleasant, is not harmonious.¹ The major and minor second and seventh dissonant to a lesser degree.

Even more remarkable is the similarity of the emotional effects of the different intervals in sound and colour. The fifth in both cases is stimulating; it gives a sense of tension, of elation and of activity. The fourth is similar, but disquieting. The major sixth is passive, gentle and conclusive, melancholy; it is as though the notes were merging into one another from a distance. The minor sixth is similar, but uncertain and disquieting. The major third is calm, restful, satisfying, while the minor third is more blended but gives an effect of anxiety. The

¹ The tritone presents features which seem to require separate and more detailed treatment.

major and minor seventh are excruciating and characterless, and the same applies to the major and minor second.

If the fifth of the original scale be taken as a fundamental "note" for a new scale and developed in the same way, it will have the same qualities of harmony as the original scale possessed and by progressive fifths one can constitute a diatonic scale of every one of the twelve hues. Each scale possesses an individual quality that differentiates it from the others, which is also the outstanding feature of musical tonality.

This colour arrangement allows for modulation from one tonic to another, without disparity or unpleasantness to the eye; but perhaps the most convincing support to the analogy is provided by the fact that pictures and decorative rhythm developed in one definite colour tonic possess a particular emotional quality which is lost or changed if transposed into another key, though the harmoniousness of hues remains—just as musical themes and melodies of a definite emotional character in one key change their character when transposed into another, though the harmony remains.

The examination of a large number of nature's colour schemes which are most pleasing to the eye—flowers, the wings of butterflies, the plumage of birds, the coats of beasts, and various minerals—reveals in them harmonics correct both in luminosity and in hue. Furthermore, the principles of harmony implied by the analogy are those which were intuitively used in the most successful colour schemes of ancient art, both oriental and occidental.

THE CAUSES AND TREATMENT OF JUVENILE DELINQUENCY.

BY CYRIL BURT.

THE occurrence of crime in children and young persons has many reasons which induce the modern psychologist to prefer it, as material for his enquiry, to the study of the aberrations of the criminal adult. In the first place, during earlier years, the originating factors are more easily accessible; and, in the second, when treatment is undertaken at a youthful age, there is a brighter prospect of achieving a cure. In what follows, therefore, I shall principally confine myself to delinquency in the young. My conclusions are based for the most part upon an experience of juvenile offenders, who have been referred to me for psychological examination, either by the magistrate, or by secretaries of colonies for juvenile delinquents, or by the London County Council, operating through its school teachers, or through its organizers of Children's Care. In almost every instance I have kept full records of the physical, psychological, and environmental conditions of the case; and have frequently been able to follow up the child's progress for a period of seven or eight years.

In studying crime, as in most other fields of individual psychology, we encounter at the outset the fact of multiple determination. So violent a reaction, as may easily be conceived, is commonly the resultant of a plurality of causes. It needs a good many coats of pitch to paint a thing thoroughly black. Crime, therefore, in any given person proves nearly always attributable, not to some single all-explaining cause—called "moral imbecility," "inborn criminality," or (more simply and plainly) "original sin"—but to a converging multitude of alternative factors; and the nature of these factors, and of their various combinations, may differ widely in different individuals.

Usually, it is true, some one predominating factor can be singled out as chiefly responsible: here dulness of intellect, there instability of temperament, and, in another, vicious companions or a criminal home. Hence, for convenience of exposition, it seems legitimate to classify both cases and causes under half-a-dozen broad recurring types. But, in treatment, it is never safe to deal with one factor only, however crucial that factor may appear. Every probable influence must be considered: every hostile agency must, if possible, be removed.

In taking case-histories of young delinquents, I pursue the

same general plan of enquiry, the same "psychographic scheme," that I have adopted for investigating backwardness and deficiency.¹ Indeed, in all problems of individual psychology, whether the mind in question be normal or abnormal, and whether the abnormality be moral or intellectual, it is essential, for any scientific appreciation of the disturbance, to make first a complete and comprehensive survey of the whole child and his surroundings. Without this basis, no diagnosis can be sound, no treatment satisfactory. Any "psychographic scheme," therefore, must be all-inclusive: it will contain systematic headings for the analysis of the characteristics of the environment, as well as of the personality, and for the analysis of the physical characteristics of that personality, as well as of its mental characteristics, whether intellectual, emotional, inborn, or acquired. Here, for the most part, I shall follow the programme of study so suggested: but the limits of space will restrict me to psychological characteristics almost exclusively.

Of these, intelligence is by far the most easy to assess and measure. My account, therefore, of the causes that instigate crime will begin with an examination of the intellectual conditions, and proceed later to a discussion of the emotional conditions—those motives that originate in temperament and character. Physical factors and environmental factors I can glance at only by the way.

I.—INTELLECTUAL CONDITIONS.

It is impossible to evaluate the sources of crime, or to recommend an appropriate treatment, until the criminal's intelligence has first been accurately gauged. For this purpose standardised tests are now, of course, available, and should always be applied.

In considering the intelligence of the delinquent, the chief questions to be determined are these: is he above or below the average level for his age; and, if below the average, is his backwardness general or limited, inborn or acquired, relatively slight or so extreme to be diagnosed as mental deficiency? Our review may begin with the last and most serious alternative.

1. MENTAL DEFICIENCY.

Of all the psychological causes of crime the commonest and the most important is now generally alleged to be mental defect.² With this opinion, or with the

¹ For a brief account see *Studies in Mental Inefficiency*, Vol. I., No. 3, p. 54.

² The most eminent authorities, applying the most modern devices of science, have been led to express this view. In England, for example, Dr. Goring concludes that "the one vital mental constitutional factor in the etiology of crime is defective intelligence" (*The English Convict*, p. 184); and that "the proportion of mentally defective criminals cannot be less than 10 per cent., and is probably not greater than 20 per cent." (*ibid.*, p. 179). In the United States, the use of the Binet tests has furnished figures extremely high and extraordinarily various: one investigator finds that "probably 80 per cent. of the children in the juvenile courts of Manhattan and Bronx are feeble-minded"; while the majority of other American writers fluctuate between a figure of one-third and one-half. Alive to the countless pitfalls that beset the inexperienced in their facile deductions from these methods, the most recent investigators have dropped to a figure far lower than that of the earlier testing enthusiasts. J. Eurt Miner gives a proportion of 7.3 per cent. (*Deficiency and Delinquency*). Healy's figure I calculate at 11.2 per cent. (*The Individual Delinquent*, Table on pp. 131-2, including figures for both "morons" and "imbeciles"). Healy, however, still insists that among the personal characteristics of the offender "mental deficiency forms the largest single cause of delinquency" (p. 447).

extreme formulation of it, my own experience fails to concur. Both facts and figures seem in recent studies to have been greatly over-stated. The exaggeration springs chiefly from two kindred sources, from accepting an interpretation of deficiency that is far too broad, and from assuming criteria of deficiency that are far too narrow. As a rule, the criteria consist almost exclusively of tests; and these tests in turn are almost entirely of a scholastic or linguistic type. The interpretation of deficiency is at the same time defined so as to embrace, not only those who are genuinely defective in native intelligence, but also those who are merely dull or backward, sometimes those who are merely unstable, and not infrequently all who may be dubbed defective morally. At times, indeed, it is naively argued that, since crime is a defect, and since criminality is a mental, not a physical quality, therefore, mental defect may, without further evidence, be predicated of everyone who has committed a crime.

Mental deficiency is a technical term; and has now a fairly well-marked connotation. Adopting the line of demarcation generally accepted in this country in certifying cases for special mental deficiency schools, I find that, of the juvenile delinquents whom I have tested with the Binet-Simon tests, 7 per cent. are mentally defective. Seven per cent., that is to say, are children who are backward in intelligence by at least three-tenths of their age.¹ When ten years old, for example, they respond like normal children of seven or less; and, when adults, will at best hardly ever attain to the level of a normal child of eleven.² Among girls, particularly older girls drifting into sex-delinquencies, the proportion of defectives is distinctly higher than it is among boys; and among adults, particularly the habitual inmates of the prison, the proportion is higher still. When placed against the sensational statistics from America, my own percentage may seem low. In itself, however, it still reveals among the delinquent a proportion of mental defectives five times as great as among the school population generally.

Mental deficiency, therefore, is an important ingredient in the production of crime. Further, wherever it does co-operate, it plays the part, almost without exception, not of a mere contributory factor, but of a major, if somewhat negative, cause. Its mode of working is plain. The defective child has not the necessary intelligence to perceive for himself, or to hold effectively in mind, that what tempts him is dishonest, and that dishonesty is wrong—base in itself, and bad policy in the long run.

There are among delinquent defectives two or three broad types which it is useful to distinguish.

(a) Most commonly, when young, the defective is the mere tool and catpaw of others who are more intelligent. He is highly suggestible; and falls a facile prey to criminal ideas or vicious propositions put into his mind by accomplices of a richer invention or a bolder initiative. The more astute ring-leader may himself be sufficiently shrewd to elude discovery or to evade capture; and even refrain altogether from setting his own guilty hands to any enterprises likely to involve him in personal risk. But the foolish jackal is nearly always trapped.

(b) But frequently, when older, the defective plays a more active rôle. A child in intelligence, he may, in his emotions and in his sordid knowledge of the street, be a full-grown man. Yet, by virtue of his puerile intellect, he is still forced to associate, both in school and out of it, with children much younger and much smaller than himself. These, by his greater strength and size, and by

¹ See *Mental and Scholastic Tests*, p. 186.

² Since, however, by statute the definition of deficiency during school age is more comprehensive than the definition referring to adults, less than one-third of these school-defectives will be legally certifiable as mentally defective when they have passed the school-leaving age. The school defective belongs to the highest grade of deficiency; and the delinquent defective belongs usually to the brightest type of school defective.

his deeper worldly wisdom, he can often intimidate or provoke into deeds which their own little minds would never have imagined or dared. The defective is not always the harmless being he is often thought.

(c) In special directions the defective at times shows an ability that seems nearly or entirely normal. This sometimes puzzles the layman, failing, as he does, to discriminate special from general ability. Too often the technical efficiency of the criminal expert is held to acquit him of all suspicion of mental defect; but low cunning in a limited sphere is no proof of high intelligence. Some defectives possess a special linguistic capacity; and, as talkers, are fluent, plausible, and inventive. Other have a special motor ability; and are deft to execute such manual sleight-of-hand as is requisite for burglary or the picking of other people's pockets. Many again are normal, or even precocious, in the development of certain instincts; for example, those hereditary impulses that stimulate personal vanity or sexual desire. In a dull mind these special abilities and these precocious instincts are like matches or razors in the hands of a baby; useful in themselves, they are instruments of danger when foolishly misused.

On the other hand, there is undoubtedly an upper limit to the criminal ingenuity of the genuinely deficient. There are certain crimes which a defective of whatever age can hardly ever commit. He seldom forges; for he can scarcely write and barely spell. He seldom embezzles; for the arithmetic of all but the simplest transactions in money, lies wholly beyond his range. Fraud, too, where it rises above mere verbal misrepresentation, demands planning and resource; and even a coiner or receiver must have more sense and craftiness than will suffice for the practices of the petty thief. There are other crimes to which the defective seems particularly prone. To add violence to robbery is eminently characteristic of the deficient mind; and, among murderers, defectives are nearly twice as common as among those whose personal violence takes a less extreme and perilous turn. Malicious damage to property is, with the feeble-minded, a frequent ground of conviction; plainly, it is a less sapient mode of damage than burning insured property for private gain. With adult defectives, indecent assaults upon children, and sexual offences of an unnatural type, are commoner than is rape upon persons of their own age and size. Generally, therefore, the offences of a defective mentality are those of blind and childish impulse rather than of intelligent deliberation.

It will be remarked, however, that from first to last the influence of mental deficiency¹ as a pre-condition of crime, seems negative rather than positive, permissive rather than provocative. A boy of fifteen murders two little girls. The public and the press cry out that he must have been defective; and their utterances imply that his defect must have inspired his inhuman crime. The popular view, however, is a fallacious one. Of itself, mere lack of intelligence can hardly furnish the motive to crime. If a delinquent is genuinely defective, the criminal suggestion must first come to him either from some external source—a bad companion or a "crook" film—or from some inner instinct or impulse, such as easily expands, in a temperament that is unstable, to an excessive and uncontrollable degree. The deficiency itself simply removes some of the usual checks, which, based on prudence and rational insight, would restrain a more normal person from yielding to the force of such promptings.

Treatment. It is fundamental to a proper treatment of the defective criminal to deal with him, not as a criminal, but as a defective. The first requisite is to see that he is scientifically tested and examined by a qualified psychological expert. When almost half the juvenile delinquents appearing before the court

¹ Throughout this section I am using mental deficiency in the sense adopted by most psychologists, namely, to connote a severe retardation in general intelligence, such as is disclosed pre-eminently by the usual mental tests. Temperamental deficiency, if the phrase be permitted, will be discussed in a later section.

verge upon the borderline of mental deficiency, and when a decided proportion of them definitely fall below it, there is plainly a pressing need, if only on this one ground, for the co-operation of a trained psychologist; practically every second case must call for technical testing. Special psychological experience and special psychological methods are more especially needful, first, to discriminate the genuinely defective from those who, from accidental causes or from mere physical conditions, appear so dull as to be indistinguishable from genuine defectives without a scientific examination and perhaps even detention in some residential observation-centre; and, secondly, to detect any additional disorder of mind or temperament, which, in a defective child, must obviously be more difficult to diagnose.

From its very nature, genuine and general mental deficiency is incapable of cure. Nevertheless, since its influence is so frequently a negative one, much leniency may be extended towards the first offender. If young, he should be committed to a special school. The additional supervision that this will entail, together with the association of the child with companions whose mental level is more nearly akin to his own, often of itself suffices to effect an immediate improvement.

The conditions obtaining out of school, however, are of crucial importance. The good that is done in the class-room may be altogether undone in the home or in the street. If the child's own family can make no provision for guarding him during the hours of leisure, then the very fact that he is kept continually watched and fully occupied during lesson time, puts him all the more at the mercy of the first mischievous temptation when he is released and left to himself. Defective delinquents, therefore, require unremitting vigilance out of school as well as within. Where this supervision cannot be supplied by the parents or guardians, the child, especially if approaching adolescence, and above all things if a girl, should be segregated in an institution or colony. There is no other measure. Permanent segregation is, in most cases, preferable, but is not always indispensable. After a spell of training in a suitable institution, a high grade defective, who is presently sent to a country farm, where temptations are fewer than in the streets of a city, will frequently do well, despite the worst of previous records. The mere circumstance that continued supervision keeps the child perpetually at work, and sees that he has always a place to work at, is in itself a guarantee for good behaviour.

It should not be forgotten that defectives vary enormously in temperament and in special abilities, more so perhaps than normal children. Individual study and individual treatment are, therefore, always needful. Moreover, additional complications are not uncommonly present among defective delinquents of a higher mental grade. Too often, having discovered that a child is certifiable, the examiner forgets to look further for super-added aberrations—definite tendencies to hysteria, for instance, and even symptoms of the graver psychoses. Whether mild or serious, the presence of emotional instability in whatever shape, yields an added reason for institutional seclusion.

Defective youths of an unstable temperament show a peculiar susceptibility to alcohol. And, indeed, given appropriate opportunities, deficient persons generally are apt to become an easy prey to intemperance, and to all the vicious consequences which a habit of intemperance brings in its train.

Special emotions—for example, anger, with its wild impulses to blind destruction or cruel revenge—are often developed to an extreme degree among these children. The sex-instinct in particular is at times unusually precocious; and, in a male defective, may lead to crimes of character exceptionally hideous. In these instances, Healy goes so far as to recommend a drastic surgical operation, not merely to prevent the creature from propagating his type, but also to eradicate these dangerous desires. With female cases, this remedy, simple but drastic, is not practicable; and defective girls who, by the very fact of a premature develop-

ment towards the age of puberty, reveal a physical basis for strong and early sexual impulses, should be isolated from all risks, until the habit of control has been firmly established, or at all events until the ability to control has fully emerged. This again means either unfailing supervision, or else immediate transference to a residential place of safety.

2. MENTAL BACKWARDNESS.

If they are always not definitely defective, most delinquents are yet definitely dull. Of my total list of cases, over 90 per cent. sink below the middle line of average ability; and over 30 per cent. drop so far below it as to be classifiable as technically backward in general intelligence.¹

There exists, as is now well recognised, no sharp line between mental backwardness and mental deficiency. Except for the few pathological cases belonging to the well-known clinical types—inorgols, cretins, and the rest—cases which rarely come under notice for the commission of crime, deficiency may simply be regarded as an extreme degree of backwardness. It is natural, therefore, to find that, in the production of delinquency, mental backwardness operates in much the same way, though not perhaps with the same intensity, as mental deficiency. Crime, after all, is a simple, senseless way of gaining one's ends; hence, its perpetrators are principally those who, in the literal meaning of the phrase, are born simpletons; most rogues are also fools. Indeed, it is with detective officers a commonplace that the criminal, however adept he may become in his own particular line of knavery, can nevertheless be relied upon, almost without fail, to commit some minor piece of folly, to leave some clue behind, or to omit some obvious precaution, and so with his own hand to open up the way for his easy discovery and eventual arrest. There are, it is true, exceptions; and these are the most dangerous. But, fortunately for society, a Moriarty, a Raffles, or an Arsène Lupin, is far more uncommon in fact than in fiction.

The history of the backward delinquent, whether he is still at school, or whether he has quitted school for industrial employment, follows in either case pretty much the same general course. At school he drifts to the bottom of the class; and, under old-fashioned methods of teaching, becomes quickly branded as the dunce and the nuisance of his school. School itself not only loses any interest it might possibly have had for him, but rapidly comes to seem just a useless place of torment, a place where he is continually scolded or punished, a place where he learns little except that he himself is good for nothing, a place, in short, which it would be better to avoid. He soon begins to live up to the character he is given; and, to escape the drudgery of work for which he has neither aptitude nor inclination, takes readily to a life of habitual truancy. Truancy, indeed, is with most juvenile delinquents the first step on the downward stair to crime. The succeeding stages are self-evident. If a boy plays truant, he has from the outset to cover up his movements by prolonged and hardy lying. Having shirked one lesson, it will appear no more dangerous to shirk the next. Then, after once disappearing, it seems wiser to remain from home until evening, when parents are tired and perhaps in bed. And in this way meals are missed; hunger increases; and it becomes necessary to pilfer to satisfy the pangs.

In later life, the effect of maladjustment is very similar to that resulting at school. Owing to lack of normal intelligence it is difficult to find remunerative work; still more difficult to keep it; and almost impossible to perform the requisite duties, so as to avoid the reproaches of the foreman and the contempt of fellow-

¹ For precise statistics, see *Mental and Scholastic Tests*, pp. 184 *et. seq.*, I may explain that by technically backward I understand a child who is retarded in mental development by more than 15 per cent. and less than 30 per cent. of his true age. Thus, a child of ten who, without being absolutely defective (that is, without falling below the level of an average child of 7), is yet beneath the level of an average child of 8½, is termed "backward" in this special sense.

workers. Once more, therefore, the backward person begins to make up by illegitimate means—by shirking, by deceiving, by lying, and at last, by stealing—for what he has lost from lack of general competence.

Treatment. Many social workers would be disposed to stretch some clause in the Statute-book, and to have these cases certified for institutions as mentally or morally deficient. Certainly it is an essential characteristic of the congenitally backward that, both during school life and afterwards, they can never compete on equal terms with their fellows; and this inequality in social competition was at one time put forward as the distinguishing mark of the defective. If, however, we are, on this ground, to regard every backward person as deficient, we should soon find that one-tenth of the population had to be treated, in theory at any rate, as certifiable, and as suitable for institutional care. Ten per cent. of the population are technically backward. But these ten per cent. are not all criminals. Most of them are too dull to be dangerous.

It may, indeed, be suggested that, as public opinion advances, and as more liberal funds are granted for such purposes, it will become practicable to raise, step by step, the limit of demarcation for certifiable cases; and to segregate the most seriously backward, at any rate when their backwardness is coupled with a propensity to crime. But to this simple measure, threatening, as it would, so deep an encroachment on the liberty of so large a section of the population, there are drawbacks both social and psychological. An intermediate course might be to organize residential homes or hostels, where the inmates should enjoy far more freedom and independence than they can be granted in the existing type of institution. Under such a régime an adjustable amount of supervision could be given, and an adjustable amount of control could be exercised in regard both to leisure hours and to money matters; while the young person would be free to go to and fro to his work, and even, within certain limits, to turn where he liked, after work was over, for recreation and amusement. This solution seems particularly commendable for mentally backward girls during the critical period that extends from the beginning of puberty to the end of adolescence.

But, even so, it is hardly just, and it is beyond doubt scientifically unsound, to treat the commission of a crime as a psychological pretext for segregation, co-ordinate with the possession of an undeveloped intellect. One fatal consequence would be to herd together in close association criminals of totally different types, regardless of the real origin of their criminality. To give this measure a pseudo-psychological colour by talking, not of the fact of crime, but of a propensity to crime, is simply to obscure the fundamental axioms that propensities to crime are of a very different nature in different individuals, and that something approaching to a propensity to crime exists, in one shape or another, in every man of us. As with deficiency, so with backwardness, the feebleness of mind is, in fact, usually a negative, or at most an aggravating condition; and the precipitating factor, whether residing in the individual or in his environment, whether hereditary or acquired, calls for thorough psychological investigation, before it can be fairly treated either by segregation or otherwise.

At the younger stages, the most important broad administrative measure is the organization of special classes, and perhaps even of intermediate schools, for the backward child. Here he would receive something of that extra supervision accorded in the special school to the mentally deficient; and the curriculum would be so framed as to relieve him of the burden of scholastic work that is absolutely above his level, and to give him concrete manual work that will absorb his energy and arouse his interest, and in some degree prepare him for the actual tasks of his after-school life. This is being done upon an increasing scale by the initiative of head teachers themselves; and certain education authorities—for example, those of Birmingham, Coventry, and London—have lately carried out surveys to estimate the number of backward children within their area, with a view, as soon as the

present economic crisis is over, to making definite administrative provision for them upon a general scale.

The measure would be preventive as well as remedial. By far the greater portion of our potential criminals would then pass through the meshes of the backward class. And it would thus become possible to cope with almost the whole problem from the very earliest beginnings—to study individual cases, to strengthen the weak intellect, and to fortify the infirm will, before the habits of delinquency became thoroughly ingrained, and often before any criminal temptation was encountered or experienced. Much, indeed, has already been accomplished in this direction. And those visiting the backward classes already existing are uniformly struck to see what a stimulating reaction upon temperament and character is produced by furnishing suitable intellectual work and suitable intellectual interests, adjusted to the low level of these backward individuals. Provided the transference to a backward class involves no brand or stigma, the children committed thither, finding that there is after all a species of work at which they can succeed, begin not to lose but to gain in self-respect.

The dull and backward are often acutely conscious of their own misfortune; and a dim, half-realised sense of their psychical inferiority may sometimes operate like a buried grudge or grievance against the world in general, or against their luckier relatives and school-companions. Except, however, with the comparatively brighter cases, a complete psycho-analysis is, at any rate in my own experience, always difficult and usually fruitless. Psycho-analysis calls for an intelligent and introspective co-operation on the part of the patients; and this from the backward can hardly be obtained. Indeed, with them re-education, and a character-training of whatever kind, must be content with the humblest procedure. It can seldom follow the lines of rational insight, of a self-analytic understanding of self; and must approximate rather to such crude forms of training as are adopted with the higher animals—the simple breaking of bad habits through pain or the subtraction of pleasure, the simple strengthening of good habits through the addition of pleasure and the bestowal of encouragement, the punishments being always swift, certain, and consistent, and the rewards equally immediate and equally designed to appeal to the native instincts of the child. With such cases, actions are more effective than words. They should be talked to, and talked at, as little as possible. Moral instruction is of small use; and most demoralising of all is the repetition of threats which are rarely enforced.

Of the two modes of habit-formation, that which works through pleasure and reward is usually more productive than that which works through pain or deprivation. And this method of rewards can be carried through most easily in the freedom of the home. I have, however, known several cases where the dull delinquent has developed very favourably, when removed to the discipline and restraint of a good reformatory or industrial school. Where there are two or three delinquent children operating together within the same family or within the same gang, it seems a just policy to sacrifice the duller to save the brighter; to transfer the former to a place of confinement, in the hope that the other—though, perhaps as the prime instigator, he may seem the guiltier of the two—may, nevertheless, while still at large, with a practical warning thus before his mind, deprived, too, of the admiring assistance of his tool and ally, spontaneously give up his criminal practices. In juvenile colonies, and in little commonwealths for delinquents, the very dull, in my experience, seldom make good citizens.

It is chiefly with cases of this dull type that I have found a helpful resource in hypnotic suggestion. With brighter children, psychological treatment of a more thoroughgoing kind is not only possible, but also, it would seem, necessary, at least for permanent success: they are, too, often more restless and unstable, sometimes more critical and contra-suggestible, and so more resistive to hypnosis. The moderately dull child, on the other hand, is often highly suggestible, for good as well as for evil.

For purposes of ordinary therapy—relieving headaches or curing mild functional troubles, like tics and troublesome mannerisms and habits—a profound state of trance is not essential; but, in handling delinquency, the deeper the hypnosis, the better the result. This means numerous and rapidly repeated sittings—preferably, to begin with, one every day for the first week or fortnight, followed by a series of treatments with the intervals progressively prolonged, as soon as evidence of successful post-hypnotic influence is obtained. Suggestion seldom produces any definite outcome, at any rate of a lasting character, unless the patient's personal desires are to some extent already running in the direction that is to be suggested. It is, therefore, most efficacious where a child is beginning to grow tired of his delinquent escapades and of the trouble they entail; but, either from shame or pride, or from the long-standing domination of a chronic habit, is unable, without some independent help, to give his genuine desires effect. At the outset, the moral suggestions must not be too obtrusive. The first few sittings, indeed, should be devoted to a sort of hypnotic training, enabling the hypnotist to gain some insight into the reaction of his patient, and the patient to gain confidence in the goodwill of the hypnotist, so strengthening *rapport* and increasing control. Even in the later stages, suggestions are commonly the most beneficial when they are positive rather than negative, concrete rather than abstract, indirect rather than direct, when they deal with definite feelings and sensations rather than with impulses, desires, or mere prohibitions. To say, "Tobacco will taste nasty and bitter; cigarette smoke will make you feel ill and sick," will be found more effective than to declare, "You will never want to smoke again," or "You will never again take money for cigarettes." To suggest, "Whenever you see money lying about you¹ will feel impelled to put it under the clock on the mantelshelf, and to tell your mother where it is," will be more likely to succeed than to assert, "You will never again steal money from your mother."

With brighter children, hypnosis is also occasionally helpful in explorations of a quasi-psycho-analytic kind, when there is considerable resistance, whether from shame or from genuine repression, to the confessions involved. Where a child says, "I can't remember," the mildest effort of suggestion will often help him to remember. But, as a rule, it is far better to deal patiently with the resistance by the full technique of psycho-analysis, wherever time and the child's intelligence allow. Nor is it ever desirable to attempt to hypnotise him before first obtaining the consent of his parent or guardian.

3. EDUCATIONAL BACKWARDNESS.

So far I have been discussing primary or inborn backwardness, that is, arrested development of natural ability; and I now turn to consider what may be called secondary backwardness, backwardness merely in acquired attainments, or, in one word, ignorance. Among juvenile delinquents the most startling fact is their extraordinary lack of knowledge: it is with them both more frequent and more profound than any other intellectual failing. They are ignorant alike in the narrower respect of the simpler scholastic subjects—reading, writing and arithmetic, and also in the broader reference of general information and culture.

Ninety-eight per cent. of my cases fall below the middle line of average educational attainments; 42 per cent. are so far below it as to be classifiable as technically "backward" in school work.¹ Of these, nearly 11 per cent. might be termed "educationally deficient";² they are, that is, quite as ignorant as the congenital defective attending a special school. These figures include the children

¹ By 'technical backwardness' I mean retardation to the same extent as before, that is by more than 15 per cent. and less than 30 per cent. of the chronological age.

² By 'deficient' I mean as before retarded—though now not in inborn ability, but in educational attainments—by 30 per cent. or more of their age.

for the foregoing categories, namely, the mentally deficient and the mentally backward; but the several pairs do not altogether coincide. Inborn deficiency or backwardness almost invariably results in deficiency or backwardness in educational acquirements; but deficiency or backwardness in educational acquirements may be due to other causes than that of inborn incapacity. The dull are nearly always retarded; but the retarded are not necessarily dull.

Of those whose educational backwardness is merely secondary, there are various classes or types, each of which should be considered according to its own special nature. With many the backwardness is due to a large extent to physical causes, to disease, ill-health, and the usual list of bodily ailments that delay the progress of the child at school. In other cases the backwardness is attributable to some limited disability of a psychological kind, some temperamental defect, or some defect of memory or attention. With the delinquent child the backwardness has very commonly a moral origin. He is recognised in class as the lazy child, the obstinate child, the unmanageable child. Often, like the inborn dullard, an habitual truant, he will also shirk his lessons, even when present in the classroom; and then, as a rule, is tempted to make up his shortcomings—with greater cunning than his duller colleague—by cheating, copying, and other illegitimate means. One dishonesty leads easily to another. It is no long stride from stealing your neighbour's ideas to stealing your neighbour's wealth.

The delinquent, however, is not only ignorant in the special subjects of the school. He possesses also, as a rule, the most scanty knowledge of informational topics generally, particularly those of a more intellectual character, such as the details of municipal and political government, and the popular items of practical physics and engineering. It is instructive to draw up a testing-scale for general information, arranging the questions according to the successive ages at which on an average they are answered. Measured by such a test, the criminal youth appears a woeful ignoramus. Most boys of his years, and of his general mental level, will have a hobby—collecting postmarks, studying locomotives, making toy aeroplanes or kites. He has none. If he reads, it is a picture-paper, or a coloured comic, or the escapades of "Deadshot Dick and the Avenging Nine." If he goes to any place of amusement, it is to a fun-fair, or a cinema, from which he gleans indeed astonishingly little that is of any intellectual worth. He plays no games that calls for much intelligence or skill; and his athletic accomplishments are usually far slenderer than those of the normal youth of his school or neighbourhood. Hence, his mind is utterly empty; he has no progressive interest; and, with nothing to occupy his leisure hours, it is small wonder that, in the search for stimulus and relaxation, he lights only upon enterprises that in a civilised community are held to be vices or crimes.

Treatment. These cases of educational backwardness are among the most hopeful that one can have to deal with. Since their general intelligence is but little if at all below the normal, there is every hope that, as they grow up, they may perceive the folly of a career of delinquency and settle down in the outer world to a life of respectable work.

During childhood, as with the congenitally backward, so with the educationally backward, the most useful measure is transference to a special class for the backward child where the backwardness is mainly secondary. Such transference, however, will now, as a rule, be temporary. If the child's lack of adequate school knowledge rests upon no inborn basis, then proper attention to health and attendance and a tactful appeal to his natural interests should gradually lift him up to the normal. A sympathetic approach is essential: school and school work should be made so fascinating that these young defaulters come actually to prefer lessons to truancy, and the class-room to the street. Often the mere removal to another class or to another school operates as a sharp warning; and removes

the ingrained friction that has probably grown up between the child and his previous teachers.

Where an intelligent boy or girl, of excellent health, attending regularly at school, and showing no special inborn disabilities of temperament or intellect, still fails to make progress in his lessons, it is essential to search for emotional reasons. Hidden mental conflicts, and what may comprehensively be termed psycho-analytic mechanisms, are far more commonly to be found in those whose intelligence is nearly normal than in those who are innately backward. Often some such "complex" (to adopt the current phrase) lies at the root both of the apparent backwardness and of the delinquency. There may be some repressed hostility to the teacher, some secret antipathy to a special subject, some revolt against all authority and restraint as such, of which the child himself is barely conscious. Psycho-analysis, or treatment upon psycho-analytic lines, may, therefore, be doubly successful; and end by restoring the child to normal behaviour both in school and out of it.

Express attention should be paid to those who suffer from some limited form of backwardness, who are retarded in one subject of the curriculum only. A number of my cases include small boys of eight or nine, who are normal in general intelligence, and quick at simple arithmetic—particularly where money sums are concerned, but who yet cannot read the easiest two-letter words and barely recognise the characters of the alphabet. Often their illiteracy is in part hereditary; and their fathers and mothers prove to be persons of a rough, irresponsible coarser type who themselves can neither read nor write. Against the freer atmosphere of the infants' school they have not rebelled. But upon promotion to a senior department, with its stricter discipline, its sedentary habits, and its call for book and paper work, their repressed energy breaks out; and, even if they do not try to avoid, by truancy, the reproofs and punishments to which their ignorance so often exposes them, they give way very readily to anti-social conduct out of school.

At an older age the poor reader suffers another serious handicap. Not only is he shut out from many of the better spheres of employment to which his intelligence might otherwise entitle him, but he is also cut off from all the boons of literature, from the most valuable form of quiet recreation, and from the most helpful source of intellectual, moral, and æsthetic improvement. To him every book is a closed volume. He remains, and feels himself remaining, an uncivilised barbarian, in the midst of a civilised society; and is apt to act accordingly. The boy, therefore, who is bright but backward, may learn nothing else that school usually teaches; but he should at least be taught to read.

With every delinquent an effort should be made to build up healthy and progressive mental interests; nothing can kill a passion for something criminal, except a greater passion for something which is wholly legitimate. With the child whose ignorance is general rather than scholastic, the need for a broader type of education is doubly requisite. Here the usual school curriculum might with profit be extended; and include among its aims the transmission of those wider and humaner interests, of those floating stores of common knowledge and popular information, which, with children in more prosperous circumstances, would normally be supplied at home. In the home of the delinquent, life is too often deplorably empty. The child is perhaps an only girl, or the youngest child whose brothers and sisters are one and all grown up; yet neither father, nor mother, nor other relatives, trouble to see that her free hours are wholesomely filled, or to find her congenial companions, or to enter into companionship with her themselves. Or, again, the child may be a growing boy, the eldest of a family whose other members are infants; and he is left to entertain himself amusing the little ones, or by toying and trifling with their babyish playthings: books, games, tools, building blocks or meccano outfits—there is nothing of this sort. Once the defect is pointed out, most parents, however poor, will do something to remedy

it. But usually they themselves are too ignorant to do much. Here, then, is the opportunity of the school, and the chance for the teacher of the backward class. Training for leisure is quite as essential with the backward as training for industrial life : and far more important than spelling or grammar, or decimal fractions. But, once more, for the best results, a sympathetic study of the individual is essential. Not infrequently some unsuspected vein may be struck—an interest in wood-carving, a talent for painting, a whim for collecting and classifying flowers ; and the new-found hobby or recreation will open up, by an instantaneous magic, a salutary outlet for self-expression and superfluous energy, which hitherto school and home had alike left running to waste.

(To be continued).

THE UNITY OF MENTAL PROCESSES.

BY W. WHATELY SMITH, M.A.

THE object of this paper is two-fold. First, I wish to urge, very briefly, the desirability of making a determined attempt to give an explanation of all mental processes in the simplest terms; in terms, that is to say, of the minimum number of irreducibles; and secondly, I shall try to indicate, by means of one or two examples, the kind of way in which I think that this may be done.

I have called the paper "*The Unity of Mental Processes*," because I believe that in psychology, as in other sciences, it is possible to explain all the diverse phenomena with which it deals as the outcome of a very few simple and elementary laws, which are operative throughout them all and which exhibit them as parts of a coherent whole rather than as discrete and discontinuous. I doubt whether this has been done in psychology to anything like the same extent that it has in other sciences, and this omission appears to be one of the most serious defects in the present treatment of the subject.

For every science has registered a most notable advance when it has obtained this co-ordinating stage. Thus our mastery of astronomy, for instance, dates from our reduction of its various phenomena to terms of the laws of mechanics and of gravitation; the bewildering variety of chemical reactions only become comprehensible when Dalton propounded his atomic theory and the simple laws of chemical combination were enunciated. The doctrine of evolution similarly brought order into the previously chaotic field of biology, and the concept of the luminiferous ether enabled us to unify the apparently disconnected phenomena of light, heat, electricity and magnetism.

I suspect that in psychology we are too apt to keep our "explanations" in water-tight compartments, and to be content with their isolation. Thus we talk of dreams and sublimations, of conversion hysterias, compulsion neuroses and repressions, of amnesias and fugues, of hypnosis, suggestion and resistances, almost as if each were a distinct process of *sui generis*, and we make very little effort to show how they are all inter-related, or how precisely the same mechanisms underlie them all. It is true that this is, and must always be, convenient, just as in

astronomy we find it convenient to talk about the sun rising and setting, or about eclipses, precession, nutation, tidal friction, and so forth. But astronomers are prepared to explain all these phenomena in terms of the fundamental laws of mechanics, and have, indeed, long ago so explained them, whereas it is at least doubtful whether psychologists are yet in a position to do the same for the phenomena which they study.

I do not think that it is wholly unfair to suggest that modern psychological exposition is open to the same kind of criticism as was rightly directed against the old faculty psychology. Exponents of the latter system were accustomed to "explain" mental phenomena by ascribing them to the exercise of the faculties of discrimination, perception, judgment, reasoning, imagination, and the like. This procedure was justly condemned on the ground that it did not really explain the phenomena at all; for explanation consists essentially in re-description in terms of fewer irreducibles than were primarily necessary, or in the re-statement of the obscure in terms of the less obscure, and this is not effected by reduction of phenomena to terms of many and diverse faculties which themselves remain unexplained. The present state of affairs is not nearly so bad, but a tendency of somewhat the same nature is certainly observable to-day. We are apt to speak of dreams, for example, as consisting of a regression to more infantile or primitive modes of thought than those responsible for the mental process of waking adult life, and to talk of the abrogation of rational control, or of the supersession of higher by lower centres regardless of the fact that such words as regression, abrogation and supersession themselves introduce new problems which are left unsolved.

I do not wish to imply that such efforts at explanation are wholly abortive. On the contrary, to conclude that the phenomena of dream life closely resemble the processes observable in primitive or infantile man is a most interesting and valuable achievement, but I submit that it does not appreciably advance explanation in the proper sense of the term. It is valuable in the same sort of way as was the recognition of the fact that the revolution of the moon round the earth is the same kind of phenomenon, and presents the same kind of problem as does the revolution of the earth round the sun.

But this is only a small step in the process of explanation, which is not seriously advanced until we are able, not merely to recognise problems as similar but to solve them in terms of general formulæ applicable to all the phenomena concerned.

Thus in the particular case which I have cited, it is not sufficient to point out the similarity between the mental states

and processes of infants or savages and those which occur in dreams; it is necessary also to give some description of the laws of mental processes *in general*, and to show why their operation in dream-life yields results of an approximately infantile or primitive character.

In order to do this thoroughly would involve a complete exposition of psychological theory which is obviously beyond the scope of the present paper, and I must therefore ask for leniency if I indulge in somewhat abbreviated and dogmatic forms of statement which in other circumstances I should attempt to justify.

In doing this I shall have occasion to speak of conflict between different systems of ideas—a principle which I believe to be absolutely fundamental to the foundation of the laws of mental activity. I cannot here discuss in detail just what I conceive to be the origin and mechanism of conflict, or how that quality of mental states which we call “affective tone” is precisely determined by it. But I think that it will be possible to justify my use of the phrase by means of empirical illustrations.

We are most of us familiar nowadays with the concept of “complexes”—associated groups of ideas, that is to say, which are described by psycho-pathologists as lying buried in the unconscious, and as incapable of being brought into consciousness on account of the force of repression.

But to say that a complex is repressed is merely to say that it is of a nature so incompatible with certain other systems of ideas—constellations, sentiments, or whatever we please to call them—that its accession to consciousness would be productive of intense conflict accompanied by intolerably disagreeable affective tone. This is indeed the essence of repression, and would be admitted to be so by the great majority of modern psycho-pathologists. The least misleading analogy is perhaps that of two bodies carrying similar electrical charges, of which one represents the complex, the other the sentiments, etc., aforesaid. So long as these are remote from one another—so long, that is to say, as the complex is repressed in the unconscious—the repulsive force between them is negligible. But if the outlying one be brought, for any cause, near to the other, the repulsion—that is to say, conflict—rapidly increases.

Probably the best and simplest concrete instance of this is to be found in the word-association test. When a stimulus word “strikes a complex,” as we say; when, in other words, it tends to arouse by association a group of repressed ideas, the latter are, so to speak, drawn towards the surface, conflict is set up, and, as is well known, certain easily observable effects are produced.

Here we have a clear example of conflict between two different elements in the mental content—between the complex and other systems of ideas. But we have no right arbitrarily to divide the systems of associated ideas which constitute mental content into two radically distinct and opposed groups of sheep and goats—complexes on the one hand and non-complexes on the other.

I maintain, on the contrary, that repression is a process or force capable of quantitative variation, and that different systems of ideas, constellations and sentiments may conflict or harmonise with each other in infinitely varying degrees. Nor can we suppose that it is only such specific stimuli as those of the word-association test which tend to arouse those complexes or constellations which at any given time are banished from consciousness. Any situation contains elements tending to arouse all kinds of systems by association.

Mental activity consists in the coming and going in consciousness of various combinations of presentations, images, or ideas, a flux which is determined on the one hand by the sense-data which constitute the momentary environment—on the other by the stored content of the mind and the laws which govern the interaction of the different elements of this. So far as these laws are concerned they may, I suggest, be summed up by saying that “the aggregate of presentations which occupies the field of consciousness at any moment is succeeded by such other presentations as being associated therewith are productive by their presence of the minimum degree of conflict.”

I cannot devise any really satisfactory physical analogy to illustrate this principle, and perhaps this is just as well, for analogies are always dangerous. But it is not, I think, difficult to grasp and accept the general idea of different groups of presentations being drawn, as it were, towards the field of consciousness by virtue of their association with those already therein and jostling each other, crowding each other out, on account of the conflicts between them and the repulsion consequent thereupon.

I cannot, here, amplify or defend this way of envisaging mental activity, but I do not think that it is likely to arouse serious opposition, for it closely resembles the form of exposition adopted by many authorities.

I am anxious, rather, to turn to more concrete points such as the similarity, mentioned above, which has been observed between dream processes and those of primitive and infantile mental life. But in order to bring out as clearly as possible the nature of the view which seems to me to establish a real unity between them, I think it will be best to consider rather more closely one point

concerning this flux of presentations under the influence of the law of minimum conflict.

This is the question of why, in a case where two or more groups of presentations are productive of conflict as a result of their juxtaposition in consciousness, one group should prevail rather than another. I have spoken, for instance, of a "complex" being denied accession to consciousness because of the acute conflict which its presence would engender, and have implied that this is only a specially intense case of a general process. But I have deliberately evaded the question of why *it* and not the other systems with which it conflicts should be worsted and repressed.

It is no use to say that the "other systems"—cultural, ethical, social, practical, or what-not—are "larger" or anything of that kind, for to do so tacitly assumes some psychical analogue of size or inertia which we have no right to do. And to talk of their being "more important" is meaningless for the present issue. So far as I can see there is nothing to choose on *a priori* grounds between complexes based directly on crude, primitive, instinctive cravings and the more elaborate cultural or ethical systems which after all are elaborated from the self-same fundamental necessity of adaptation to environment.

If this be conceded, it is clear that we must look further for the reason why these latter systems commonly prevail in the waking life of the civilised adult. We are here dealing with precisely the same question as Freud is when he contrasts the pleasure principle with the reality principle, and claims that as infancy is left behind the latter supersedes the former. The antithesis between the pleasure and reality principles is identically the same as that between the systems based on primitive cravings and those in conflict with them which I have referred to above.

The problem is why the systems corresponding to the reality principle should prove more powerful than those corresponding to the pleasure principle, why the former should, in normal waking life at any rate, be less easy of displacement than the latter.

I believe that the answer is a very simple one. I believe that what I may call the reality systems are kept in the foreground of consciousness, so to speak, by the stream of sensations of one kind or another which—in normal waking life at least—constantly pour in upon us. In sleep, when these streams of "sense-data" are wholly or largely cut off and when, consequently, our previous experience of the contemporary world is no longer brought constantly into play by association, we

function in much the same way as do infants and savages who have never had that experience at all.

With this point I dealt rather more fully in an earlier number of *Psyche*,¹ and I will not repeat my contentions again here. I may illustrate the point I wish to make at least equally well by a brief discussion of Symbolisation, which is most often considered in connection with dreams, but is of equal importance in the study of hysteria and of sublimations. In such psychological contexts the term is used somewhat differently from that which is customary. As a rule we mean, or should mean by the word symbol something—a mark on paper or a particular sound—which is used, as a matter of practical convenience, to refer to something else. But in psychology this element of intentional reference is lacking. When we say that something in the manifest content of a dream symbolises something else, we do not mean that the images, etc., concerned are used, for means of practical convenience, to *refer* to the thing symbolised; we mean, rather, that one set of presentations has been in some sense *substituted* for another. And similarly when we speak of an hysterical movement, for example, being a symbolic satisfaction of an expressed wish, we do not mean that the movement symbolises the activity in the same way that certain deliberate ceremonial observances or pieces of ritual symbolise events or procedure which cannot be executed in their original form.

In this latter case the deliberate ceremonial action is intended to recall the original to the minds of the participants; it possesses the essentially symbolic quality of *reference*. But symbolisation in dream, hysteria, or sublimation is more in the nature of being the closest approximation to the motivating wish or tendency which is practicable in the circumstances.

The dream symbol is essentially a compromise determined by the same law of minimum conflict which I referred to above. For even in sleep, or at any rate in that state immediately antecedent to waking of which alone we appear to possess any knowledge, the influence of reality systems is not wholly absent. It is very much weakened for the reasons mentioned above, but is still enough to occasion a certain amount of conflict with the more primitive pleasure systems. Consequently the presentations directly originated by the latter would produce more conflict than do others associated with them, and it is these, therefore, which rise to consciousness rather than the originals. Moreover, it seems probable that besides the residual influence

¹ (*July*, 1921, pp. 62 and 63.)

of the reality systems, there may well be circumstances in which different pleasure systems may be in opposition to each other, and this would also mean that some group of presentations indirectly associated with both would be productive of less conflict than any group directly associated with either.

Dream processes like those of waking life are, in fact, determined by the *whole* of the mental content, and the aggregate of presentations which constitutes the content of consciousness at any given moment must be such as is in equilibrium with *all* the forces which are operative. It is this perpetually shifting equilibrium under the influence of all the various incoming stimuli—including, of course, those of endo-somatic origin—which constitutes mental activity. In the absence of *any* change of incoming stimuli an entirely static condition would be produced.

If we once grasp this general idea of the determination of every mental state by the whole of the mental content according to the law of minimum conflict, we find that an immense number of processes commonly referred to by different names, fall into line as mere variants in the central theme.

Thus "condensation" and "over-determination" are at once seen to be obvious and inevitable effects of the law. These terms admittedly are no more than refer to different aspects of the same process—an element of the manifest dream content is found to be determined by many factors and thus is called "over-determined" while, from the other point of view the influence of all these many factors is said to be condensed in the production of that element. But this is no more than a limited mode of expressing the fact that the elements of the dream or any other mental state must be such as to be in equilibrium with regard to all the operative forms.

Similarly we need no longer talk about the "Censor" except for descriptive purposes. Freud himself says that this concept is only an expression descriptive of the effects of the sum total of the repressing forces, and would probably be very willing to admit that the principle of minimum conflict can satisfactorily be substituted for it. But although the word is convenient it is apt to be misleading and to induce a too anthropomorphic conception of mental forces. Especially is this the case when Freud speaks of there being a censor between the unconscious and the preconscious, and speculates as to whether there may not be another between the preconscious and the conscious. This arbitrary division of the mind into strata or tracts seems to me to be thoroughly unsound. We can never hope to deal satisfactorily with psychological problems until we have acquired a

point of view which envisages the mind as a continuous *unity*, a unity as coherent and as homogeneous in the universality of its laws as in any physical system.

I believe that the general conception of systems of "ideas" constantly shifting in such a way as to maintain equilibrium determined by the law of minimum conflict, will in time enable us to express all mental phenomena in terms of very simple laws, and to achieve that co-ordination the desirability of which I emphasised at the beginning of this paper.

RECENT WORK IN PSYCHICAL RESEARCH.

BY E. J. DINGWALL.

DURING the last few months there has been a good deal of activity in centres where Psychical Researchers are wont to gather. One of the most important events was the meeting of the first International Congress for Psychical Research at Copenhagen at the end of August, 1921, when a number of papers were read and discussion instituted.¹ The weak point of the Congress was apparently the lack of any kind of co-operation amongst professional psychical researchers, since the barrier of language was not broken down by the judicious use of trained interpreters.

In England, the chief points of interest have been concentrated upon the book tests of Mrs. Leonard, spirit photography, and the séances of Miss Besinnet. In Part LXXXI. of the *Proceedings* of the Society for Psychical Research appeared a paper by Mrs. Sidgwick examining the book tests of Mrs. Leonard, but we have not yet seen any serious criticism of these tests by a competent psychologist. Apart from their immense psychological value, they constitute a series of phenomena of a special interest since their very nature precludes the possibility of telepathy unless this hypothesis is strained to the utmost limits. Indeed, the entire absence of criticism from psychological quarters suggests in this case something more than that the psychologists are ignorant of the phenomena themselves. On all sides are symptoms of a gradual awakening of the sleeping psychologists to the enormous mass of material which has remained to them a sealed book owing to their prejudices, timidity, and remarkable credulity. Their complete silence on the mediumship of Mrs. Leonard implies perhaps that they are beginning to think a little for themselves instead of taking for granted the so-called "explanations" of persons who have no acquaintance whatever with the subject in dispute.

The controversy over spirit photography still continues. A new medium has appeared who has been giving remarkable results, and the whole subject deserves the careful consideration

¹ Reported in "Psyche," October, 1921, pp. 172-174.

of psychical researchers, if only they can persuade the spiritualists that it is of no interest to anyone to prevent a proper investigation, but on the other hand does great harm to themselves and throws what may be wholly undeserved suspicion on their mediums.

Amongst physical mediums, England has been favoured by a visit from Miss Ada Besinnet, the "Anna Burton" of the report of over 670 pages published by the American Society for Psychical Research in April, 1911. In a great number of cases, the sitters at her séances were unaware of the existence of this report, which showed in great detail that the bulk of Miss Besinnet's phenomena was produced by herself in abnormal mental states, thus constituting a valuable example of hysteria in connection with alleged mediumship.

Speaking of Miss Besinnet, it is curious that her native land should at the moment be so destitute of good mediums, Mrs. Chenoweth, of Boston, being the only well tested psychic for trance work. The Department of Physical Phenomena of the American Society for Psychical Research has been doing a good deal of work in alleged supernormal photography, but unfortunately when controlled conditions were instituted the phenomena ceased. Amongst materialising mediums the same fraudulent practices go on as usual, and indeed it seems difficult to believe that any but an American audience could be taken in by the exhibitions of luminous cheese cloth, which are held twice a week in the very heart of New York City. Well tested materialising mediums are extremely rare, and in France, Dr. Geley is to be congratulated on securing the services of Franek Kluski, a Pole, who produces the most extraordinary phenomena and a full account of whose work we hope will be published in the near future. According to Dr. Geley's report, he has obtained impressions in wax of materialised hands, these impressions revealing all the details including bony structure, muscles, tendons, and even the furrows of the skin. It is said that these hands do not resemble the hands of the medium. Materialisation of human faces have also been observed. They are of natural size and appear usually behind and at the side of the medium, but higher than his head and those of the experimenters. The faces appeared to be alive; they gaze keenly upon the experimenters, and the grave and calm appearance of their countenances reflected a severe dignity as if, according to Dr. Geley, they were conscious of the dignity of their rôle. Amongst other strange manifestations the materialisation of animal forms are alleged to have occurred, phenomena which even more than the others, will need an enormous weight of evidence in their support.

Besides being a supposed physical medium, he is an automatic writer, and the mental side is intimately connected with the physical manifestations.

The medium, Eva C., is still giving sittings in Paris under the direction of Madame Bisson, and her phenomena do not seem to be losing anything in their intensity and physiological interest. Dr. von Schrenck-Notzing, who previously investigated this medium, has lately been turning his attention to hauntings and poltergeists, and has recently reported an important case near Weimar in which the phenomena were witnessed by a large number of people. It appears that Madame Sauerbrey, a nervous invalid, was hypnotized by her step-son, Otto Sauerbrey. She soon became worse, loud raps were heard in her vicinity, and she began to suffer from what were supposed to be hallucinations (conversing with imaginary persons in the room). The raps occurred all over the house, but appeared to stop when the patient spoke, while objects in the kitchen were alleged to move without contact, but rarely in broad daylight. The dog showed some signs of fear whilst in the house, and finally the police were called in, many of whom bore witness to the facts. A physician from the neighbourhood of Weimar attended the woman, and made some experiments. He endeavoured to persuade the patient that she was able to resist the influence exercised by Otto Sauerbrey, and his ministrations met with some success, for about a fortnight after the manifestations had begun, the woman suddenly cried out saying that she was free, and from that day the phenomena ceased.

The case is obviously of great interest from whatever point of view one chooses to regard it. As supplementary evidence to that already gathered in favour of the reality of hauntings and poltergeists it is important, and also for the light it throws on physical "mediumship," which if one can judge from the reports, was exercised unwillingly by the victim of suggestion.

FOREIGN INTELLIGENCE.

[We are glad to be able to announce that we have made arrangements whereby regular instalments of notes from foreign sources will be contributed by competent authorities abroad. These will include comments on the progress of psychology in the countries concerned, together with abstracts of such periodicals and books of importance as are not readily accessible to English readers. The latter will be found in our "Survey of Current Literature." We publish a preliminary instalment of General Foreign Intelligence below, and propose, in the near future, to extend our arrangements to cover all centres of psychological importance.]

PSYCHOLOGY IN THE UNITED STATES.

The last two years have witnessed, as might be expected, increased interest in the fields of mental testing and applied psychology; and, if the great war has not advanced the growth of American psychology to the same extent as it has British psychology, it is due perhaps to the operation of the Weber-Fechner law. This country for some years had taken the lead in the world as a psychological market, so that there was no inertia to overcome except such as was incidental to the situation created by the war.

Within the last year, the *Journal of Applied Psychology*, the *Journal of Abnormal Psychology*, and the *Journal of Experimental Psychology*, the publication of which had been temporarily suspended, have re-appeared with renewed vigour, while other periodicals like the *Psychological Bulletin* and the *Journal of Educational Psychology*, which had been lagging behind, are gradually catching up in their issues. A new publication—the *Journal of Comparative Psychology*—under the joint editorship of Dr. Yerkes and Prof. Dunlap, takes the place of the *Journal of Animal Behavior and Psychobiology*. The *Psychological Bulletin* is now devoting practically all its space to special reviews and abstracts. The change in title of the *Journal of Philosophy, Psychology, and Scientific Methods* has apparently not affected the character of its contents; for equal prominence is given to psychology and philosophy, despite the

curtailment in name, eliminating "Psychology and Scientific Methods." The editorial management of three psychological periodicals has been re-organized, Prof. Titchener taking charge of the *American Journal of Psychology*, Prof. Rugg of the *Journal of Educational Psychology*, and Dr. Porter of the *Journal of Applied Psychology*.

The discussions in theoretical psychology, for the most part, centre about behaviorism, and many laborious efforts are expended by the younger psychologists on explaining conscious experiences in terms of stimulus and response. Attempts to combine psycho-analysis with behaviorism seem to be plentiful, and one might observe in general a tendency in some of the recent works to dovetail two apparently conflicting points of view. On the experimental side, the variety of investigations is amazing. Specialization is very noticeable. A man working, for instance, on brightness effects will rarely take up anything else.

A hopeful sign of the times is the great attention which social psychology is beginning to receive in this country. Probably no branch of psychology has been so deplorably neglected, amidst the splendid opportunities for observation along those lines, as group psychology. Lately, however, the lacuna has been partially filled by sociologists. And now the psychologists are beginning to recognize the value of collective problems in the light of their science. It is interesting to note in this connection that the *Journal of Abnormal Psychology* is shortly to include in its programme a social psychology section which will, in all likelihood, develop into a Journal of Social Psychology. Among the most important works of the year are two volumes in social psychology—the one by Prof. McDougall entitled *Is America Safe for Democracy?*; the other, a production of unusual breadth and scholarship, by Prof. Williams, called *The Foundation of Social Science*.

A further gratifying phenomenon is the advertence to the historical background of psychology which is manifesting itself in America. It may be merely a chance happening that the same year should see the completion of Prof. Brett's comprehensive work, *A History of Psychology*, and Prof. Warren's *History of Association-Psychology*, yet one can readily anticipate that Germany will no longer retain her monopoly on historical research. Brett's history, let it be said, may be claimed as a British work, not only because it was published in England, but also because it reflects the British point of view.

The organization of the New York Association of Consulting Psychologists and the proposed formation of a large corporation with similar aims, to be directed by prominent members of the

American Psychological Association, seem to have been actuated by the desire to protect the American public from the charlatanry which is so rampant here in the guise of psychology.

What appears to be the bulkiest psychological report ever published is the fifteenth volume of the *Memoirs of the National Academy of Sciences*, entitled *Psychological Examining in the United States Army*. It contains about 900 pages in quarto size. When we consider that the Psychological Examining Committee was only one of a dozen or more psychological committees engaged in war work of various kinds, we can imagine to what extent psychology has been exploited in the service of the United States Army.

The appointment of Prof. Angell, Dr. Farrand, and Prof. Scott to the presidencies respectively of Yale, Cornell and Northwestern University is an indication that psychology is becoming more and more a field to be reckoned with in the administrative world; and will probably lead to the expansion of the science so as to become a force in the community and not merely a subject on the college curriculum.

The death of Prof. George Trumbull Ladd removes from our midst a pioneer in the field of psychology, his *Elements of Physiological Psychology* affording many a teacher, including William James, a scientific guide-post in a labyrinth of speculation.

A. A. ROBACK.

THE DEVELOPMENT OF PSYCHOLOGY IN ITALY.

It may be said that psychological studies in Italy began from the time when the works of Locke, Berkeley, Condillac, and the Scottish School became known there. The problem of the origin of ideas gave place to many publications strongly marked with a psychological character, as *Ideologia*, by M. Gioia (1767-1828), and the *Genealogy of Thought*, by P. Borrelli (1782-1859). With the increasing influence of the French sensationalists, psychology has been more and more cultivated, but the line of inquiry was one-sided and limited to studies of sensibility, so that finally physiology was cultivated, instead of psychology. This predominance of physiology and materialism was hindered by the great influence of the Scottish school which had the merit of developing the psychological side. It may be said that P. Galluppi (1770-1846) was the first modern psychologist in Italy. He tried to combat the physiological bias, and one of his first works was a strong refutation of the physiological point of view. His gnoseological works are also marked with a

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psychological character. Although influenced by Locke, Galluppi drew from this philosopher very different conclusions from those at which the French sensationalists arrived, because he accentuated and developed the subjective and volitional aspects of mind. The great Italian philosopher, A. Rosmini (1796-1855) also merits consideration as a founder of psychology in Italy, but he inclined chiefly to metaphysical and gnoseological studies. After Rosmini there was a period of stagnation in the development of Italian psychology, because of the great development of pure speculative metaphysics. Psychology was neglected almost until our own time. We must pass to F. Bonatelli (1830-1911) in order to find an eminent psychologist of Italian race. Two opposite and hostile currents had been acting till his time: on the one hand, the obstinate idealism refractory to any experience, which denied the real existence of matter; on the other hand, the sensationalism that denied the existence of mind. Bonatelli, judiciously compromising, reconciled in the immediate and primitive intuition of self the antithesis of subject and object, form and content, thinking and thought, and the secular distinction between reality and idea. His chief book was *Consciousness*, and in this book he laid the foundations of certitude, the criterions of reality and objectiveness. He may be called the father of modern psychology in Italy, because he was the first to treat psychological questions by analytical and scientific methods; he was the first to introduce empirical psychology and the analysis and precise observation of mental facts into Italy. He has the great merit of having turned his attention to single questions, and there is no mental act or state on which this incomparable analyst did not direct his exploring gaze. He made deep and efficacious studies on the general nature of consciousness, on its properties and characteristic forms, on the so-called mechanism of representations, on illusions of memory, on perception, on association, and on will.

In the second half of the last century the naturalistic line of inquiry was also prevalent in psychology, and under the influence of foreign culture experimental psychology began. But at first the greatest contributions were made by psychiatrists and physiologists, and the means of the study and experience were furnished by physiological laboratories and psycho-pathological clinics. The great physiologist, A. Mosso (1846-1910) initiated the investigation of the relations between circulation and mental processes, both as regards the choice of the problem and the technique of the research. He demonstrated the small increase in the frequency and energy of cardiac systole which accom-

panies mental processes and emotions; he discovered the diminution of volume in the forearm and other peripheral regions, the more abundant flow of blood to the brain, and the increase of general blood pressure—all fundamental researches, on which depend many others, so that together they form one of the most valuable and remarkable achievements of modern psychology and anthropology. Not less important are his studies on the respiratory expressions of mental processes, on the connections between muscular and intellectual work (by means of the ergograph invented by himself), on brain temperature, fatigue, and his fine and penetrating analysis of the emotion of fear, especially in its somatic aspect. The very important works of other great Italian physiologists, Luciani, Tamburini, and Leppilli, on brain physiology, cerebral localisation, genesis of hallucinations, physiopathology of language, etc., were a great contribution to the study of mental in relation to physiological processes. To Tamburini is due the great credit of having created in the asylum of Reggio Emilia a real Institute of Psychiatry, where the most distinguished alienists now directing the asylums and clinics of Italy received their psychopathological and psychological training. This institute became a centre of psychological studies, and here were performed the first researches in experimental psychology, among which the most important were those of Buccola on the reaction-time and duration of elementary and complex psychical acts, interrupted by his premature death. His principal work, *The Law of Time in the Phenomena of Thought* (1883) still remains a classical essay in psychometry. The researches of the Reggio Emilia school have been published in the "Rivista sperimentale di Freniatria," which has already completed forty-five years of life. Contemporarily with this development of psychological studies in Reggio Emilia, the great Italian anthropologist, G. Sergi, founded in Rome the first laboratory of experimental psychology attached to the Institute of Anthropology (1889). From the physiological institutes of Mosso and Luciani, from the psycho-pathological institutes of Tamburini, Morselli (who made a notable contribution to the study of suggestion, hypnotism and spiritism), and Sergi, went out a number of bold investigators of psycho-physiology, psycho-pathology and experimental psychology; Kiesow, Patrizi, De Sanctis, Ferrari, Treves, and others. This physiological and pathological direction of psychological work encountered a strong and effective opposition in F. De Sarlo, at one time a psychiatrist, physiologist and investigator at the Reggio Emilia Institute, who afterwards turned to philosophical studies, of which he is now one of the chief Italian

masters. He founded in Florence, in 1903-1904, the first laboratory of experimental psychology, in close connection with the philosophical faculty, and with a purely psychological orientation. Through this institution he wished to establish the position of psychology as an autonomous science, and its right to be pursued by psychologists, and not to be considered any more as a mere branch of physiology. Although he accepted all the methods of objective observation and experimental research, he wished to deepen and improve these by constant reference to the data of introspection, which he held ought to be considered the true basis of psychological inquiry. This opposition has been very effective not only because his laboratory produced capable investigators in experimental psychology (Aliotta, Bonaventura), but also because it had an influence on the current of thought which he opposed, provoking in it a deepening of methods upon the basis of introspection. (We hope shortly to give an abstract of the very important recent publication by De Sarlo: *Psicologia e filosofia*). A great and valuable contribution to the psychological advance in Italy has been given by G. C. Ferrari, who since 1905 has edited the *Rivista di Psicologia*, which until 1920 was the only psychological review in Italy. In 1920 began the publication of the periodical, *Archivio Italiano di Psicologia*, under the direction of F. Kiesow and A. Gemelli. From 1912 till 1914 was issued the review *Psyche*, edited by R. Assagioli, who made interesting studies on the unconscious, psycho-analysis, the psychology of animals and psychotherapy.

H. HELLER-HEINZELMANN.

PSYCHOLOGY IN BELGIUM.

General circumstances have never been very favourable for philosophical sciences in Belgium, and since the end of the war they are less so than ever. As in all other Roman Catholic countries philosophy has not yet become popular here. Then since the small nation of seven millions is composed of two races with different languages—French and Flemish—the accessible reading public is so small that in view of the increased cost of printing a psychologist can hardly find a publisher willing to run the risk of putting a new book on the market.

Since the armistice, Miss Dr. Ioteyko, the creator of the independent Paidological Faculty, has accepted a chair at the University of Warsaw, her native place, with the consequence that her promising institute has not re-opened its doors, and that the *Revue Psychologique*, which was also her own undertaking, has not made its re-appearance. The *Revue de Pédotechnie*,

created in 1913, on the initiative of Prof. De Croly, of Brussels, has not survived the war on account of financial difficulties. As from our special point of view these were the two only theoretical reviews we possessed here, it is clear that we are rather badly off at present. Prof. Dwelshauwers, who is a well-known psychologist, has lost his chair at the University of Brussels on account of his Germanophile views, but his departure is nevertheless a loss for our national science.

But in spite of all these deplorable circumstances, there are none the less some encouraging signs. The University of Brussels organised last year a sort of unofficial pedagogical faculty under the leadership of Prof. De Croly, who is the originator of a "new school" system highly appreciated on the Continent, and which I hope shortly to expound to the readers of *Psyche*. The new institution is meeting with much success.

Then there is to be mentioned the creation in Antwerp of a Flemish University for girls only, by the Roman Catholic feminist organisations. It has given an important place to psychology, both general and in its applications to education, religion, sociology, and æsthetics. This is probably due to its rector, the Reverend Father Jansens, who is himself a distinguished scholar in mental philosophy.

Next there is a big movement being prepared in connection with employment psychology. The Compulsory Education Bill, which was only voted in 1914, has just been extended to the fourteenth instead of the twelfth year. The institution of the eight-hours day (whereas before work was protracted in some trades as long as twelve and even fourteen hours) has created a strong need for higher productivity of labour. Finally, the unfavourable situation of Belgium on the money-market has rendered the position of Belgian manufacturers extremely difficult. It is indeed based almost exclusively upon the transformation and export of imported raw materials. These various circumstances have combined to create an unusual interest in industrial psychology, from which much help is expected. No wonder that the question of vocational and employment psychology is the order of the day in our daily papers and in governmental circles. It is undoubtedly due to this impulse that the laboratories of experimental psychology in the Universities of Brussels and Ghent (the latter under the direction of Professor van Biervliet) are almost exclusively at work on this problem, and count an unusual number of students who follow their courses. The town corporations of Brussels and its suburbs, who always take the lead in educational questions, have recently created, perhaps somewhat prematurely, an inter-

communal laboratory with the object of orienting their pupils in the different trades and professions, and there are even signs that this initiative will be followed by and by throughout the country.

J. VARENDONCK.

PSYCHOLOGY IN FRANCE.

INSTITUT DE PSYCHOLOGIE, PARIS.—Lectures will be delivered throughout this year (December, 1921—July, 1922) on the following subjects:—

General Psychology.—Pfr. Delacroix: The Hypothesis of Subconsciousness.

Pathological and Experimental Psychology.—Pfr. G. Dumas: The General Directions of Psychology—Practical Work and Demonstrations at Ste. Anne Asylum.

Experimental and Comparative Psychology.—Pfr. Pierre Janet: The Psychological Evolution of some Modes of Religious Behaviour.

Physiological Psychology.—Mr. Piéron, Director of the Laboratoire de Psychologie Physiologique: Vision—Practical Work on; Perceptions, Motricity, Emotion, Mental Efficiency.

Zoological Psychology.—Mr. E. Rabaud, Professor of Embryology: Recent Researches on Tropisms: A General Study of Instinct—Practical Work and Demonstrations.

Educational Department.—Dr. Wallon: Psychology Applied to Education (Internal Secretions, Nervous System, the Time of Growth, the Child's Perceptions and Knowledge, its Representation of Objects).

Dr. Simon: Experimental Education (from a Traditional to an Experimental Education)—Practical Work in the Laboratory of A. Binet.

Department of Applied Psychology.—(Application to Work and Industry; Professional Selection and Orientation).

M. Piéron: Measurement in Psychology; The Method of Tests; The Calculation of Correlations, etc.

Practical Work by M. Lahy: Technique of Physiological Psychology Applied to the Determination of Aptitudes. Graphical and Cinematographical Study of the Professional Gestures. The Symptoms of Fatigue.

In addition to the abstracts of purely psychological periodicals which will be found in our Review Section, the following notes are of interest:—

Sociology.—E. Durkheim: *La Famille Conjugale*¹ (Revue de Philosophie, Jan., 1921).—The author gives this name of “the conjugal family” to the group formed by the father, the mother, and their minor or unmarried children who are living with them. It is the last and highest form of the family organisation, and is characterised by the nearly total disappearance of the old family communism and by the individualisation of its members. This evolution must be achieved by the disappearance of the right of inheritance, which is nothing but the prolongation of the family communism under the régime of private property, and introduces artificial differences between the individuals. The stimulus to our personal efforts will then be the professional consciousness, as it is already in the élite. The progress of the family is also marked by the growing intervention of the State in its private life and relationships. When we see that the power of the family over its individual members declines, we see on the contrary that marriage strengthens and tends to be the exclusive condition of parenthood.

M. Fauconnet: *La Responsabilité*.

Responsibility is not an intuitive notion which could be studied only by introspection; there are objective data, which are the judgments of responsibility delivered in various societies. The subjects considered responsible in our society will be judged irresponsible in another; *e.g.*, the insane, animals, inanimate objects such as stone, wood, and collective entities such as the family are considered responsible in primitive societies. The commonly accepted theory that there is responsibility when there is causality is a tautology: for there must be causality when there is responsibility, a being which we do not think responsible, such as an animal, a stone, cannot be the *cause* of the crime or offence. The point is that the notion of responsibility would be meaningless if first of all we did not want to punish; the rôle of the sanction is to strengthen the social beliefs violated by the criminal action. If it were possible it would be applied to the crime itself in order to do away with it; but since this is impossible it is applied to the symbol of the past crime: to the being which had a share in it. The rôle of responsibility is to make possible the realisation of the penalty by furnishing a being

¹ This is the last of a series of lectures on the Family which were given in 1892 at Bordeaux University, and were never published.

to which it will be applied. Thus responsibility is an institution of social safeguard. Society is first inclined to consider itself responsible as a whole, then the localisation of responsibility upon one single being delivers society; this localisation may even become an institution, as in societies where a human or animal victim is sacrificed yearly as a sin-offering. This theory, which considers in penalty and responsibility only their social usefulness, might be thought immoral, but the author adds: Sanction being the condition of the existence of a morality, therefore sanction and responsibility take their moral value from the value of that morality.

Education.—E. Claparède. *L'Ecole sur Mesure*. Hitherto the teaching at school is directed to an average and unreal pupil. But children have very different aptitudes, and in order that the teaching at school be more fitted than it is now to the individuality of each child, the author proposes that half of the courses should be compulsory, the other half optional.

NOTES FROM AUSTRIA AND GERMANY.

The Society of Medicine and Natural Science of Dresden held a discussion on the Psychology of Spiritism and Telepathy. A closer scientific enquiry was unanimously thought to be necessary, though some of the debaters were convinced of the truth, others of the falsity of the facts alleged.

Society of Applied Psychology and Psychopathology of Vienna.—Dr. Prinzhorn, of Heidelberg, read a paper on the art of the insane, comparing it with the primitive and children's art and modern expressionism. A symposium was held on the Biological Value of Psychopathological Elements in Culture, with an introductory paper by Prof. Strausky.

Professor Constandin T. Oesterreich, of Tübingen University, known by his books on Self and on Religious Psychology, and by his revision of Vol. IV. of the Neberweg-Heinze History of Philosophy, has published a book on *Parapsychology*, by which term he designates all phenomena of occultism, mediumship, telepathy, etc. He holds them to be true manifestations of powers as yet unknown. Dr. Kolb, director of an asylum for the insane, criticised Oesterreich's work and similar publications somewhat acrimoniously in the *Münchener Medizinischen Wochenschrift*, whereupon some discussion arose, which did not, however, contribute anything materially new.

Anthroposophy is the name given by Dr. Rudolf Steiner to an occult science inaugurated by him which seems to have a great number of adherents. The sect has its own temple or school at Donach. They not only speculate on occult and metaphysical matters, but intend to reform the social organism and to teach new theories of medicine and therapeutics. Steiner was known through some studies on Goethe and work in the philosophy of liberty. His new teachings derive from the old theosophical theory and seek to combine it with the views of German mystics. He lays stress on acquiring a higher knowledge by personal experience; his descriptions are only rightly understood if one has such experience. Though it is quite clear that some of Steiner's teachings are very fantastic, the number of his admirers seems to increase; the true and earnest ethical pathos pervading his writings certainly contributes much to this effect.

Professor G. E. Müller, the well-known psychologist of the University of Göttingen, has resigned. Prof. W. Koehler, of Berlin, is to be his successor.

SURVEY OF CURRENT LITERATURE

[As previously announced, we have made special arrangements, in response to numerous suggestions, whereby any books recommended or mentioned in our pages, as well as other psychological works, can be obtained with the least possible inconvenience and delay from The Cambridge Magazine Bookshops (Psychological Dept.), 6, Kings Parade, Cambridge. The proprietors have kindly consented to a scheme whereby readers of *Psyche* need not forward a remittance with every order, a system which is calculated to save much correspondence and annoyance at a time when, through abnormal trade conditions, books are so constantly out of print or rebinding.—ED. *Psyche*.]

Morbid Fears and Compulsions. By H. W. FRINK, M.D. With an Introduction by James J. Putnam, M.D. (Kegan Paul, 21/-.)

This book consists of a general exposition of Freudian doctrines, together with detailed accounts of two particular cases—one of compulsion neurosis and one of anxiety hysteria.

We agree with Dr. Putnam when he says, in his introduction, that "there will be room, and welcome, during many years to come, for any book that deals consciously and clearly with the problems here involved." Furthermore, Dr. Frink's exposition appears to us to be in many respects markedly superior to the usual run of psycho-analytic literature. It conveys the impression of having been written by a man possessed of a wide psychological knowledge and a correct psychological and biological perspective. This is a pleasant change from the too common alternative of a writer who may have studied psycho-analysis thoroughly, but is insufficiently versed in general psychology to present his special doctrines as parts of a coherent whole.

In particular we may refer to Dr. Frink's careful explanation of the meaning to be attached to the Freudian term 'sexual'; to his emphasis on the fact that all instincts and tendencies arise from the primary instincts of self-preservation and race-preservation; to his treatment of emotions and morbid fear, and to the recognition of the fact that the conscious, the fore-conscious, and the unconscious are not really discontinuous. Another good example is this: "If we had impulses which throughout the whole life of the individual were so consistently and unremittingly warped, cramped, and deformed in every conceivable and unnatural manner . . . then we might have neuroses in which they and not the sex factor played the dominant rôle."

On the other hand, the very important subject of The Theory and Mechanism of Psycho-analytic Cure (Chapter X) is disappointingly treated. A more satisfying account could have been given by shewing how neurotic symptoms often constitute a compromise

formation whose value is automatically destroyed by exhibition of its *raison-d'être*, and thence arguing to the more general cases where less specific symptoms are involved. Nor can any account of psycho-analytic theory be considered complete without a thorough investigation of the influence of the physician in the light of modern knowledge of what is involved in the process of suggestion.

The book can be recommended to those who want a sound, conscientious, and exceedingly lucid account of Freudian doctrines.

Psychoanalysis in the Class-room. By GEORGE H. GREEN.
(University of London Press, 7/6.)

Few needs of to-day are greater than education, and there can be no greater aid to the teacher than a proper understanding of the minds he has to train. But he can seldom afford the time to make an exhaustive first-hand study of modern psychological thought, and it is therefore very suitable that writers like Mr. Green—who laid sound foundations under the auspices of Professor McDougall—should write a book of this kind for his benefit. Mr. Green writes clearly and sanely; he does not profess, we think, to make new contributions to theory or technique, but explains accredited views with lucidity and moderation.

Reincarnation: True Chronicles of the Re-birth of Two Affinities.

Recorded by one of them. (Cecil Palmer, 10/6.)

“This . . . book . . . is sure to give the reader the key to many of the mysteries of life.” (Wrapper.) It is also romantic.

Divorce: To-day and To-morrow. By C. GASCOIGNE HARTLEY.
(Leonard Parsons, 6/-.)

To secure the good consequences of right marriage and to avoid the evil results of bad ones is the most urgent problem of the modern state. Any book on divorce which may assist to form sound public opinion is therefore to be welcomed.

To this category Mrs. Hartley's work unquestionably belongs. Starting with three introductory chapters on the history of divorce, she proceeds to a summarisation of foreign divorce laws (it is perhaps unfortunate that she has not told us of the customs of non-European civilisations, such as China), and thence, *via* certain illustrative examples, to Discussions in Parliament and The Cost of Divorce to the Poor. In her Attempt to Answer the Christian Objections to Divorce, the author seems to us to have much the best of the argument and to clear the ground effectively for her final constructive chapter. That she is guided by the right principles is sufficiently evidenced, we think, by the following quotations:—

- (i) The marriage is broken before the divorce decree is applied for.
- (ii) If there are no children to be considered when the marriage tie is severed the main consideration is that each of the partners should behave honourably to the other.
- (iii) If there are children . . . the main consideration is that each of the partners should behave honourably to the child or children.
- (iv) In every case the welfare of the child . . . should be taken as the standard to which the desire of the parents must be subordinate.

These embody the right scale of values, and such a code is immeasurably superior to any dogmatic misinterpretations of

Biblical texts. With views built on this foundation we have nothing but sympathy, even although we may differ on minor points of policy. We hope the book will be widely read.

The Gate of Remembrance. By F. BLIGH BOND, F.R.I.B.A., (Blackwell, 7/6.)

This new edition of Mr. Bligh Bond's well-known book is welcome. The story of the automatic writing which led to the discovery of the Edgar and Loretto Chapels at Glastonbury is a classic of first-rate importance to psychical-researchers and also to such psychologists as condescend to learn about such things. It is one of the few cases which is not only above suspicion, but which has also been properly recorded and has led to definite tangible results of an unexpected nature. Such of our readers as do not know the book would be well advised to order it.

Taboo and Genetics. By M. M. KNIGHT, Ph.D., I. L. PETERS, Ph.D., and PHYLLIS BLANCHARD, Ph.D. (Kegan Paul, 10/6.)

Whatever else may be said about this book, there is little doubt that to the majority of non-technical but intelligent readers it will prove intensely interesting.

No single reviewer can hope to deal adequately with it, however, for in order to do so he would have to be well versed in the latest work on biology, sociology, anthropology, and psychology.

The first part deals with the biology of sex: inheritance by chromosomes, sex in terms of internal secretions, sex as quantitative, intersexes, sex specialisation and adaptation, etc.; this is probably the most interesting and informative section for the general reader. The second part discusses The Institutionalized Sex Taboo, and argues the dysgenic influence of the Taboo. The third part is psychological; most of it is on standard lines, but a sound and relatively original line is taken in urging that the standards of social esteem must be reorganised on a eugenic basis.

The book is well worthy the attention of the general reader, although the authors are somewhat indiscriminate in their choice of "authorities." The split infinitives are innumerable.

National Welfare and National Decay. By WILLIAM McDUGALL, F.R.S. (Methuen, 6/-.)

The supreme importance of the subject with which Professor McDougall deals would alone suffice to make his book of more than common interest, even if it were not so clear and readable as it is.

His thesis is that most civilised nations are at present breeding their new generations chiefly from the inferior grades of their existing stocks, and that if this process is not speedily arrested and reversed the nations in question will soon deteriorate and become virtually extinct.

This prospect is so terrible and the evidence in favour of Professor McDougall's views is so strong that the subject merits the most careful consideration.

The main stages of the argument are: (i) Mental and moral characters are important to the race; (ii) they are transmissible by heredity; (iii) it can be shown experimentally that valuable transmissible characters predominate (*a*) in certain races, (*b*) in certain

(socially superior) grades of any given race; (iv) the birth rate is much higher in the socially inferior than in the socially superior grades of most civilised races; and, therefore, (v) the new generations of these races are unlikely to inherit as large a share of desirable characters as their predecessors, whence (vi) every effort should be made to breed succeeding generations as much as possible from socially superior grades.

With the first, second, and fourth of these no sane person will disagree; the possibility of doubt enters in the third. Even here we must make certain reservations before attempting to criticise. In the first place, there can be no doubt whatever that the whole argument is unimpeachable so far as the dregs of humanity are concerned. Idiots, imbeciles, criminal lunatics, obvious mental defectives and syphilitics unquestionably not only transmit their disabilities to their children, but are also extraordinarily prolific. In the second place, we may concede that the intelligence tests on which Dr. McDougall relies to a considerable extent do measure, in the individual to whom they are applied, mental characters which are valuable to the race. Nor need we deny that parents who are found to be, in this sense, "intelligent" are likely to have children who will show up equally well under test.

The question is rather whether such tests, however skilfully devised, really demonstrate and measure qualities which are truly innate and independent of environmental influences (hygiene, nutrition, etc.), and whether, if they do, there may not be other qualities, of equal racial value, which may be actually or potentially present in those who make a bad performance in the tests selected as criteria.

Opinions will doubtless vary, but it is at least interesting to note that so responsible an authority as Mr. Frank Watts, summarising the present position of Intelligence Tests (1921), says:

"(i) The idea that innate capacity could be measured apart from the influences of education and training has proved barren.

"(ii) The attempt to construct a single reliable test capable of measuring general intelligence has been given up as impossible."

The second question, as to whether tests may not overlook qualities as valuable as those they demonstrate, is more difficult, but it seems very probable that children possessing, for example, valuable æsthetic aptitudes might make a very poor showing under test.

By advancing these considerations we do not mean to suggest that heredity is of negligible importance, or that intelligence tests are valueless, but rather that the problem of environment is more urgent, at the present time, than that of heredity, and that the conclusion that the socially superior grades are very much more desirable as parents than are the socially inferior is not of sufficient cogency to justify its being pressed in the face of the opposition which it cannot fail to arouse in this democratic age.

None the less, we believe that Dr. McDougall's contentions are in the main correct: intelligence tests probably do, on the whole, indicate the more desirable individuals from the racial point of view; and these would probably, on the whole, be more numerous in the socially superior grades, even if environmental conditions were levelled up. But the latter constitute the most urgent

problem, and inasmuch as most of our social ills proceed from over-population, we regret that Dr. McDougall does not extend a less qualified approval to the Birth-Control movement, which, universally applied, would be of inestimable benefit to mankind.

In spite of these criticisms, the book is full of interesting matter, and should be read by all who take an interest in the welfare of the race.

The Analysis of Mind. By BERTRAND RUSSELL, F.R.S., late Professor of Philosophy at Pekin University. (Allen and Unwin, 1921, 16/-.)

Logis. Part I. By W. E. JOHNSON, M.A., Fellow of King's College, Cambridge. (Cambridge University Press, 1921, 16/-.)

The growing importance of Psychology is well shown by the appearance of these two books by two of the foremost living logicians. Mr. Russell's covers most of the psychological topics which have been discussed during the present century, with only occasional reference to logic, while the extent to which Mr. Johnson departs from traditional treatment may be seen by a comparison with any standard logical treatise.

As readers of recent numbers of *Mind* are aware, Mr. Russell has been led of late to devote serious attention to the work of the behaviourists in its bearing upon Meaning. Thinking, he sees, can no longer be regarded as a mysterious and undiscussable phenomenon, unique in kind. It is a form of behaviour or adjustment like walking or eating; and the result is a causal account of thought-processes on a biological foundation. So unexpected a conversion should be beneficial in many quarters, for though the standpoint is not new to psychology the attempt at precise formulation has seldom been made. On the other hand, it must be admitted that the texture of the argument is below Mr. Russell's usual standard, and ambiguities and evasions are not infrequent.

We may instance his discussion of the *act*, which is rejected on p. 18 and virtually reappears as necessary for an account of *memory* on p. 21; the foot-note on p. 50, which makes a grave objection to his own definition of *instinctive movement*; the acceptance of Watson's erroneous *frequency theory* for learning (p. 52); the fading of the *smell* of the fish from the argument (p. 54); the *discomfort* which on p. 71 he defines in causal terms is not the same property which he has distinguished from pain on p. 70; the conflict between the *conscious desire* on p. 73 and the definition given on p. 72 will, when recognised, involve the re-writing of many pages, since desire, as desire + true belief as to its purpose, is not the conscious desire which we all commonly oppose to unconscious. And so on.

Particularly interesting are the difficulties raised by Mr. Russell's previous physical theories (recapitulated pp. 93-107, where 'happenings' replace sensibilia) in relation to the tentative acceptance of engrams (p. 92). It is difficult to believe that modifications of physiological structure are merely the sets of 'their' aspects.

Chapters IX-XIV, pp. 157-279, are occupied with the analysis of knowledge, and form the most valuable portion of the book. Few psychologists can complete its perusal without gaining a new

conception of their science. Most striking is the attempt to construct a causal theory of Meaning. "Sometimes an image or word as stimulus has the same effect as would belong to some object. In that case we say that the image or word means that object" (p. 209). This definition in terms of causal efficacy covers too narrow a field, and Mr. Russell sometimes supplements it with resemblance. He would probably do better to replace causal efficacy by causal origin, making an opposite use of mnemonic causation whereby the meaning of a stimulus would become the completing term, if any, of the context which includes the stimulus as sign and its mnemonic antecedents. In this way he would avoid the 'duality' (p. 271) of objective reference, and the appalling complexities with regard to truth and falsehood which he is driven to admit.

If Mr. Russell fails explicitly to relate his psychology to the logical views for which he is famous, Mr. Johnson's painstaking work by no means provides an alternative solution. He defines Logic as "the analysis and criticism of thought," and adopts as a general view "that no logical treatment is finally sound which does not take account of the mental attitude in thought." He further holds that "logic formulates standards or imperatives which as such have no significance except as imposed upon mental acts." Yet, in spite of this step in the right direction, which every psychologist must welcome when made by a formal logician of the old school, the reader will be surprised to find such entities as 'the reason,' 'the content of an idea,' 'notions,' and so forth appearing haphazard amongst the 'universals,' 'particulars,' 'relations,' 'facts,' and the rest of the more usual machinery. Mr. Johnson, moreover, has a habit of re-christening ancient difficulties as though this process affords a solution. Thus, on p. 11, "the distinction and connexion between substantive and adjective correspond to—and, on my view, explain—the distinction and connection between particular and universal," and similarly for the familiar antithesis 'subjective' and 'objective,' "it is better to substitute the antithesis *epistemic* and *constitutive*. . . . As for the term *constitutive*, it has the force of 'objective'."

Although much is said about the fundamental term 'proposition,' what it stands for nowhere clearly emerges. It is *par excellence* the unit of thought (p. 9); it characterises some fact (p. 14), and also is in accordance with a certain fact if true (p. 16); it is an object of belief (p. 4); and then, again, "it is not, so to speak, a self-subsistent entity, but only a factor in a concrete act of judgment" (p. 3). Such obscurity in a work which both claims and requires a special clarity necessarily vitiates all but the most obviously formal elaborations. Those, however, who are familiar with Dr. Keynes' handbook will recognise marked advances in this somewhat arid field. Chapters III and IX may be instanced.

It is to be hoped that we shall hear more in later volumes of the doctrine of the Determinable which appears in Chapter XI. This, which is Mr. Johnson's most original contribution, deals with the synthetic compatibility of adjectives. A given surface may be either red or green, but not both; light or dark, but not both; vivid or dull, but not both. Thus colour is in Mr. Johnson's terminology a single though complex determinable, precise hues, brightnesses, and saturations being determinate adjectives under this determinable

(p. 183). In a similar way sound is a determinable, under which as super-determinates are tone, pitch, and intensity. Further, the same kind of analysis can be applied to all kinds of adjectives, quantitative and qualitative alike. The applications of this in psychology are evident. What is the form, for instance, of the complex determinables 'mental,' 'feeling tone,' 'attitude,' and 'belief'? Is 'sensation' a determinable? Regarded from this angle, all problems of psychological analysis and classification can be more systematically treated than hitherto, and Mr. Johnson's further elucidation of the *fundamentum divisionis* will be welcome when it appears. More light on the nature of the adjective is, however, a necessary preliminary.

L'Evolution des Facultés Conscientes. By G. VARENDONCK.
(Alcan, 1921, 18frs.)

This interesting and readable book deals in a wide manner with the development and elaboration of consciousness, partly from a biological and partly from a psycho-analytic angle. Dr. Varendonck makes much use of the distinction between merely repetitive revival, for him the most primitive function of retentiveness, and such 'synthetic memory' (the term, as is well known, is better retained for other purposes) as is involved in perception and in mnemonic causation generally. Upon both he brings together a wealth of interesting and often amusing instances and illustrations. It cannot, however, be said that he succeeds always in making his points clear, and his use of terms such as 'mémoire,' 'intelligence,' and 'conscience' is open to criticism. Particularly is this so when he comes in his final chapter to discuss the relations of 'la conscience,' 'l'intelligence,' and 'la faculté de se rendre compte des phénomènes,' i.e., awareness. All these have in his treatment too many aspects, and are too much aspects of one another for a clear result to emerge. But in spite of such defects in the theoretical development of his subject, the author has produced a book which, like his earlier *Psychology of Daydreams*, is decidedly worth reading, if only for the many finely-recorded observations of psychical processes of all kinds which are introduced in the course of the argument.

Industrial Fatigue and Efficiency. By H. M. VERNON, M.A., M.D.
(Kegan Paul, 1921, 12/6 net.)

Since the British Association Committee's report of 1915 there have been numerous additions to the literature of Fatigue, but it is doubtful whether, with the possible exception of the statistical researches of Dr. Florence in America, anything worth speaking of has been added to our knowledge. Moses himself was presumably aware that when fatigued we do less, or worse, work, and that a good deal of unnecessary as well as necessary work is carried on under conditions which do not make for efficiency. Certainly Miss Josephine Goldmark can have learnt little from her imitators and successors, and even from her bulky treatise the chief lessons to be derived were those of common sense.

Of the many general surveys now available, that of Dr. Vernon is far the most useful and informative. As one of the Investigators

for the Industrial Fatigue Research Board, he has had access to material of special interest, both during the war and since; and he is also familiar with much of the latest American literature. A volume such as this, on a subject which raises so many important psychological problems, is particularly valuable to those who are disinclined to familiarise themselves with industrial conditions at first hand. The author does not raise issues sufficiently fundamental to render his work either difficult or disquieting, and his curious conclusion that "every boy ought, during his school days, to devote a portion of his time to the study of some branch of natural science, such as chemistry or physics," in order to "acquire a scientific habit of mind," will probably find more support amongst psychologists than his remark that "it is possible to say definitely in many cases whether women ought, or ought not, to continue working in an occupation now there is no longer a shortage of male labour."

A Project Curriculum. By MARGARET ELIZABETH WELLS.
(Lippincot, 8/6.)

Seven Ages of Childhood. By ELLA LYMAN CABOT. (Kegan Paul, 12/6.)

Twentieth-century America, inspired by the activities of James and Dewey, has been prolific in educational studies of merit, and these two books are both of value to teachers in search of psychological suggestions. The 'Project' in question was worked out in Trenton, N.J., and though there is nothing very new in using the experiences (in this case a Fair) and social relations of everyday life as a setting and a stimulus for school work, the particular applications are here set forth in unusual detail and supported by an elaborate treatment of Play "as essential for the maximal development of the child, a fact to be definitely recognised in the organisation of a curriculum." One may suggest, however, to writers of volumes on these topics, that it would prejudice readers in favour of their enthusiasms if it were more obvious that 'Projects,' in addition to producing poems such as that cited in the Appendix (p. 323)—

" Buy, buy Thrift Stamps,
Buy, buy, Bill;
And Uncle Sam's soldiers
Will the Kaiser kill "

—are capable of engendering a certain respect for the laws of Euphony. "The Outcomes of Curriculums" is hardly a happy chapter-heading, but it is quite in keeping with the jargon in which the Project is introduced. Here the author of **Seven Ages of Childhood** has a distinct advantage, and her knowledge of the extensive literature of child-psychology is skilfully utilised for the public benefit. Of the Seven ages distinguished, the Dependent Age lasts till the beginning of the fourth year, the Dramatic Age ends with the seventh year, the Angular with the eleventh; the Paradoxical Age is passed at 14, the Age of the Gang at 16; from 15–18 we have the Age of Romance, and from 16–21 the Age of Problems. In an interesting table we have the alternative divisions of Lee, Fiske, Puffer, Johnson, King, and Tyler—and nearly all the divergencies from these writers seem fully justified.

F

Bergson and Future Philosophy. By GEORGE ROSTREVOR.
(Macmillan, 7/6 net.)

Mr. Rostrevor writes from the point of view of one who, "while accepting the Bergsonian doctrine of the reality of time, combats the theory that this reality is apprehended by a *non-intellectual* intuitive faculty" (p. 110). In Bergson's later writing, he contends, the contrast comes to be drawn "no longer between intuition and analysis as *functions* of the intellect, but between intuition and intelligence as *faculties* of the mind," whereas intuition might be defined (p. 13) "as standing simply for direct intellectual apprehension of an object set over against the mind."

Unfortunately, it is no longer possible to carry on what is primarily a psychological discussion in such vague language with much profit. Intuition (contrasted with analysis inside intelligence, which is "a development out of instinctive action") is for Mr. Rostrevor "the direct apprehension of an object, which is always *more or less abstract*" (p. 88). The italics are ours; and, again, "Any knowledge of a relation is already, in essence, intellectual" (p. 177). At such a level it is not difficult to range cheerfully over all the so-called problems of philosophy. In so ranging, Mr. Rostrevor succeeds also in saying many informative things about Bergson, and further provides the reader with an interesting reply to what he describes as Mr. Russell's "loose and superficial argument"—from which "it is clear that he altogether fails to understand the very foundation of Bergson's theory of knowledge."

Fijian Society. By the Rev. W. DEANE. Macmillan, 1921, 16/-.)

In the present state of anthropological research most of our material has unavoidably to be collected from the notes of travellers, with no special qualifications for discriminating observation. This haphazard source of our knowledge is the more to be regretted since ethnology, unlike other subjects, must be scientifically explored during the next decade, or the opportunity will for ever have vanished. Such reflections are particularly applicable to the volume before us, since, though the missionary who is responsible for it has collected an unusual amount of miscellaneous information, his attitude, due to religious considerations, makes many interesting records either suspect or incomplete, and colours the whole with the atmosphere of an alien morality.

The Fijians, it appears, are unfortunately immoral—"Until the clothing of the native becomes less scanty we cannot hope for much diminution in this great vice" (p. 148). The psychologist, however, will find useful facts about the motives responsible for cannibalism, and about signs and signals, cursing, and suggestive magic in general—though he would do far better to book a passage to the South Seas and study these vanishing phenomena for himself.

Divine Imagining, an Essay on the First Principles of Philosophy.
By DOUGLAS FAWCETT. (Macmillan, 15/-.)

Anyone interested in Psychology who was led by the title of this book to expect that some account of human Imagination would precede the use of Imagining as an all-explaining concept will be disappointed. That to make comforting opinions plausible is the first business of metaphysics is a view which has not in recent times

been openly acknowledged by writers on these subjects. Mr. Fawcett, however, is more frank. "If ultimate reality is such as we supposed it to be in the *World as Imagination*, we can afford to weather all trials with our confidence unabated and unimpaired." The doctrine which has, it is averred, the simplicity of divine things (p. xxiii.) is, since thinking is regarded as "a pale substitute for concrete imagining," nowhere very precisely formulated; the bulk of the book being occupied by expatiations upon its advantages. Those who require assistance in imagining a really desirable universe will no doubt find it of service. For others, whose attitude towards speculation is more critical, this book, advertised on the title-page as "No. 2 of the 'World as Imagination' Series," will appear to have no more concern with truth than a parallel series known as the adventures of Tarzan.

Measure Your Mind. By F. P. STOCKBRIDGE and M. R. TRABUE. (Harrap, 1921, 10/6.)

This work embodies most of the U.S. Army experience in classifying recruits. The tests cover a very wide range, and though no doubt useful on occasion, even in industry, for the most part give results extremely hard to interpret. As may be seen from the chapter on what the tests measure, the authors have not brought to the inquiry more than a vague physiological technique. The subject is, however, one of growing importance, and the suggestions and results here collected may be of service to further investigators. A good deal of ingenuity has gone to the framing of the different tests, and many of them, such as the Mazes (p. 142), would provide excellent after-dinner entertainment for mixed gatherings.

Activism. By H. L. ENO. (Princetown University Press. London, Milford, 1921, 6/6.)

By Activism Mr. Eno means a philosophical hypothesis according to which all forms of being are reduced to "activities," an activity being (pp. 7 and 138) "that by reason of which change exists." An elaborate and cumbrous system is constructed, by the aid of which relations and numbers "exist or subsist on the metaphysic plane." Further, "'psychon' the universal, not otherwise than other universals, has its home on this plane" (p. 140), and the electron (pp. 45 and 89) is held to be composed of 'psychons' not in space or time. Just what critical notes William James did jot down in the margins of the original sketch of this essay it would be interesting to know.

Psycho-analysis and Sociology. By AUREL KOLNAI. Translated by Eden and Cedar Paul. (Allen and Unwin, 7/6.)

Even in the hands of his experienced translators, Kolnai's brochure makes tiresome reading, for whether he is dealing with Durkheim or Janet, with Marx or Lenin, the same awkward phraseology and the same pedantic treatment are in evidence. Those in search of bricks to hurl at psycho-analytic extravagances will find them here in abundance. The author passed through the Hungarian revolution, and this is apparently his revenge as a Liberal-Socialist to whom "the shrewd dialectic of paranoiacs is familiar" (p. 160). But (p. 161) "it would be wrong to look upon Marxism simply as

a case of paranoia" (there may be some sense in it), and even Bolshevism in one of its forms (p. 168) may "really be an anagogic manifestation" (there may be some good in it). Red, however, functions as "the symbol of three different concepts, love, sin, and the revolution. It thus logically corresponds to (*sic*) uniformity, to the all-devouring action of the libido" (p. 172). The ideal of anarchism appears as "confraternal uterine introversion" (p. 118). Everywhere the (Edipus-complex is rampant; and though it is admitted that people often emigrate for economic reasons, we are warned that "the impulse towards emigration may in part arise from an exogamic trend"—a tendency to 'Ahasuerismus', presumably! Even the wooden walls of Old England figure in a desperate effort to get to the bottom of British Hypocrisy: "There is a point of contact between navalism and sexual symbolism; the 'ship' is of the feminine gender" (p. 98). And this is by no means intended only for the marines.

To those who can make allowances for these and similar vagaries the book offers a certain amount of suggestive material, and readers of Durkheim will find in Chapters III and IV an elaborate argument to show that the conclusions of Freud and the French sociologists supplement one another.

Beauty and the Beast. An Essay in Evolutionary Æsthetic. By S. A. McDOWALL. Pp. 93. (Cambridge University Press, 7/6.)

Mr. McDowall is, in the main, a follower of Croce, and, like his master, is too easily satisfied with high-sounding phrases which will not for a moment withstand critical examination. The book may well be useful in awakening interest in the subject among those who were previously wholly ignorant of it; but it is far too vague and rhetorical to be of any value as a serious contribution to the study of the problems concerned.

PERIODICALS.

Scientia (September, 1921). The only psychological contribution is a critical note by Vernon Lee on "Psycho-Vitalism and the Hypothesis of the Mneme," which discusses Semon's doctrine of the Mneme in its relation to the views on heredity developed by Weissmann, Mendel, Bateson, MacBride, and others. October: E. Lugaro has a paper of some 17 pages on "The Association of Ideas in Dreams." The author admits that the illogicality of dreams may be explained by the absence of sensory impressions, "Pendant la veille les sens nous rappellent sans cesse à la réalité." He also agrees to some extent with Rignano and others in holding that 'affectivity' is much reduced, if not wholly suppressed, in sleep, but contends that although a pure or mechanical process of association may "wander in the realm of the fantastic it may not produce absurdities." He discusses dream-processes, hallucinations, and waking thought at some length, and concludes that "the content of dreams is far from representing the product of free association, pure and simple; it is produced by a feeble, fragmentary, ideative association on which is imposed the product—fantastic, but richly coloured with realism—of hallucinations on the one hand, and, on the other, the senseless product of purely phonetic verbal associa-

tions." November: A. A. Mendis-Corrêa on "Le Milieu Geographique et la race" will interest social psychologists and anthropologists. Among the reviews may be noted those of Bianchi's "La meccanica del cervello," and Schleiter's "Religion and Culture." December: M. Carrara has a very interesting critical note on "The Theory of Evolution in Neuropathology," in which he reviews the work of Brouwer, Muck, Gierlich, Negro, Zeehandelaar, and others, which has shown that on both the organic and functional sides the processes last acquired (whether considered phylogenetically or ontogenetically) are the least stable and the most liable to disease or to neurotic suppression (*e.g.*, speech, hearing, the abdominal reflexes and horizontal nystagmus)

The British Journal of Psychology (Medical Section) for July, 1921 (double number), contained the following:—"La Tension Psychologique, ses Degrés, ses Oscillations," by Pierre Janet, being three lectures delivered before the University of London. J. C. Flügel, "On the Biological Basis of Sexual Repression and its Sociological Significance," discusses the antagonism between Individuation and Genesis, and shows that this applies to the human race. On the psychological side the sexual instincts correspond to Genesis and their sublimations to Individuation. The sexual inhibitions have been imperfectly realised for reasons which are given. The whole constitutes an interesting and vigorous plea for birth-control methods. W. Whately Smith has two papers on "Some Properties of Complex Indicators" and "Complex Indicators and the Form of the Association." By means of the word association test and using the psycho-galvanic reflex, reaction-time and reproduction test as indicators, and identifying the nature of the concomitant affective tone by means of previously described memory tests, he determines the affective significance of the various possible combinations of complex indicators and the various classes of association responses. With regard to the latter, he gives reasons for adopting a system of classification slightly different from that of Jung. Millais Culpin discusses "The Problem of the Neurosthenic Pensioner," and T. W. Mitchell writes on "Psychology and the Unconscious," with especial reference to the various meanings which have been attached to the latter word. The October number contains several important papers. W. Langdon Brown writes on "The Influence of the Endocrines in the Psychoneuroses," and emphasises that "there is a close association between the sympathetic nervous system and the endocrine glands," which with the gonads "form a basic tripod entrusted with the defence of the individual and the continuity of the species." C. G. Jung, in "The Question of the Therapeutic Value of 'Abreaction'," considers the traumatic aetiology of war neuroses, and, dealing with abreaction, emphasises that "it is not merely the rehearsal of experience that possesses an unconditional curative effect, but rehearsal . . . in the presence of the physician." The relationship of patient to physician is all important: "only in so far as they hamper present adaptation have [the infantile phantasy roots] any real significance": "an exclusively sexual interpretation of dreams and phantasies is a shocking violation of the patient's psychological material": the true superiority of the physician is essential. These are but landmarks, as it were, in a very fine paper by the eminent

leader of the Zurich school. E. Prideaux publishes a most valuable paper containing some of the results of his researches on "Expression of Emotion in Cases of Mental Disorder as shown by the Psychogalvanic Reflex." He reviews the meanings assigned to the term 'emotion,' and finally defines it as "a subjective feeling consisting of central excitement and consciousness of visceral sensations." He repudiates the James-Lange theory on the ground that a person feels emotion some time before visceral or even peripheral reactions are demonstrable—a criticism which seems of little weight, but which cannot be refuted here for reasons of space. He discusses the reservations subject to which the psycho-galvanic reflex may be rightly taken as a measure of the intensity of emotion, and, applying a carefully devised 'constant' method, he shows that most interesting differences are to be observed between persons suffering from various mental disorders. Healthy persons give the largest reflexes, and there come, in order, Anxiety states, Paranoid Dementia, Delusional Insanity, Conversion Hysteria, Manic-Depressive Insanity, Epilepsy, Dementia Præcox, Dementes, Imbeciles, Idiots, and, lastly, General Paralytics, who give none at all. It is worth noting that a similar grading has recently been obtained by Hollingworth (*Psychology of Functional Neuroses*) using intelligence tests: a comparison of results would be interesting. Dr. Prideaux is to be congratulated on a fine piece of solid research work. W. S. Inman writes on "Emotion and Eye Symptoms"; and Constance Long contributes an analytical study of "Mary Rose."

The Journal of Educational Psychology. (November, 1921.) Harold Rugg asks the question, "Is the Rating of Human Character Practicable?" His answer is "Yes" if the rating is done under certain conditions which are not realisable in practice, but "No" if the question is one of rating with sufficient accuracy to be of practical use in education. A first instalment of detailed evidence, drawn from experience with the American Army tests and elsewhere, is given. Dr. A. A. Roback compares "Subjective *versus* Objective Tests," to the detriment of the latter. A. I. Gates concludes his study of "Reading and Reading Tests"; and J. W. Barton deals with "Smaller *versus* Larger Units in Learning to Typewrite."

Recent numbers of *Discovery* contain, as always, a great amount of matter of high general interest. Among articles of psychological relevance may be noted Mrs. R. H. Thouless' "Suggestion and Auto-suggestion (November) and Dr. Mariette Soman's "New Tendencies in French Fiction" (December).

The Journal of Abnormal Psychology and Social Psychology (July-September, 1921) has many interesting features. In particular we may mention Hocking's paper on "The Dilemma in the Conception of the Instinct," in which he maintains that "we can derive the whole set of behaviour phenomena in principle from the demands of consciousness; but we cannot in turn derive the fact, nor the need, of conscious life from the principles of the bodily organism and its world. Miss Spaulding's Presidential Address to the Association of Clinical Criminology at Columbus, Ohio, 1920, deals with "The Role of Personality Development in the Reconstruction of the Delinquent." Dr. G. T. Johnson contributes a very valuable "Survey of the Physiology of Contention." There are also papers

on "Revivalist Methods," the "Study of Repression," the "Fear of Action," "Stammering," and "Dreams Psychology."

The Sociological Review (October, 1921) includes the final installment of Prof. H. E. Barnes' very valuable survey of "American Psychology."

The British Journal of Psychology (General Section), October, 1921. Dr. Rivers on "Affect in the Dream"—the nightmare as a failure of wish-fulfilment; character of affect due to this failure; influence on affect of mental level action in the dream. P. B. Ballard: "The Limit of the Growth of Intelligence." Given a normal environment, a certain factor of intelligence—the power to integrate experience—arrives at maturity when the subject is sixteen years of age or younger. H. Hartridge continues his "Vindication of the Resonance Theory of Audition." B. Muscio on "The Importance of Feelings of Fatigue in Industry." T. H. Pear on "The Intellectual Respectability of Muscular Skill"; and a paper on "Marking Group Tests," by Charles Fox.

The Philosophical Review, Vol. XXX, No. 176. R. B. Perry on "The Appeal to Reason." J. W. Scott on "Psychology and Idealism." (No. 177). E. Noble makes an attempt to determine the Objective element in *Æsthetics*, and concludes, amongst other things, that "an enjoyment of music, in which *æsthetic* satisfactions culminate, may be regarded as an enjoyment of that which most completely imitates the universe process itself."

Beyond an interesting critical review of Dr. Bernard Hollander's "In Search of the Soul," there is nothing in *Science Progress* for October, 1921, of direct psychological importance. Professional psychologists (and others) will, however, be interested in the short account of the efforts which have been made by the National Union of Scientific Workers to secure abatement of Income-tax in respect of professional expenses incurred by scientists.

Zeitschrift für die gesamte Neurologie und Psychiatrie. Vol. LXXI. Otto Klieneberger: "On Simulation of Mental Disease."—Observations and conclusions drawn especially from the life of prisoners of war. Kurt Schneider: "Remarks on a Phenomenological Psychology of Inverted Sexuality and Erotic Love."—Sexuality is not love; it is to be distinguished from erotic love also in the pathology of sexual life. Types of Sexuality are described. Vol. LXXII. Heinrich Lewy: "On Yawning." Gustav Aschaffenburg: "Remarks on the Project of a German Penal Code of 1919." Hans Toepel: "Psychology of Lesbian Love."—Three observations analyzed from the point of view of descriptive and exegetical psychology. E. D. Wiersma: "The Psychological Interpretation of Certain Reflexes." Describes modification of reflexes under the influence of different states of consciousness. Ernst Gellhorn: "The Relations of Tactile to Optic Space." Karl Tuczek: "Analysis of the Language of a Katatonic Patient."

Journal für Psychologie und Neurologie. Vol. XXVII. Nos. 1 and 2. Valentin Dumpert: "Contributions to the Study of the Nature and Physiological Significance of Yawning."

Archiv für Psychiatrie. Vol. LXIV. Nos. 1 and 2. Max Kastau: "Asocial Behaviour of Mentally Abnormal Juveniles During and After the War." W. Jacobi: "On the Relations of Poetic Production to Hysterical Crepuscular States, Illustrated by Goethe's Productivity." Wern. H. Becker: "Paul Morphy, his one-sided endowment and his illness."—A pathographic study of the celebrated master of the chess-board, who, apart from his special genius, seems to have been more or less feeble-minded.

Internationale Zeitschrift für Psychoanalyse. Vol. VII. No. 3. S. Ferenczi: "Further Development of the 'Active Technique' in Psycho-analysis."—Introduction of educational measures, setting tasks, teaching resignation, etc., in psycho-analytic treatment. Georg Groddeck: "On the Psycho-analysis of the Organic in Man."—The unconscious makes use of organic symptoms as well as of neurotic. O. Pfister: "Plato as a Precursor of Psycho-analysis." Franz Alexander: "Metapsychological Considerations."—Observations on biological activity and the inhibitory function of consciousness. A. T. Westerman Holstijn: "Analysis of a Patient with Spasms of the Spinal Nerve." H. Nunberg: "Decrease of the conflict of libido in a case of Schizophrenia." Michael T. Eisler: "On Freud's New Paper: 'Tenseits des Lustprinzips'."

Imago. Vol. II. Nos. 2 and 3. Frida Teller: "The Correlation between Psychic Conflict and Bodily Ailments in Schiller." It is shown how the repressed tendencies and the conflicts arising from them manifest themselves in the life and the work of the poet, and how many of his bodily sufferings are connected with those conflicts. Honorio F. Delgado: "The Beauty of the Eyes."—The affective interest in eyes is caused through association, the infant regularly seeing the mother's eyes in moments of maximal libidinous contentment. P. C. van der Wolk: "The Psycho-analysis of the Smoke-Sacrifice." Géza Roheim: "The Self" (Part II) continues the ethmological survey of facts, serving for a study of the evolution of the concepts 'self,' 'soul,' etc. The unity of a soul, belonging to the whole body, arises through the unification of partial tendencies under the influence of the 'Lustprincip.' Alfred Winterstein: "The Collector." A study of a novel by V. Fleischer. Géza Dukcs: "Psycho-analytical Points of View in the Juridical Interpretation of 'Guilt'." Carl Müller Braunschweig: "Psycho-analytical Contributions to the Psycho-genesis of Morals, especially of the Moral Act."—The origin of moral tension and norm is to be found in the narcissistic formation of ideals. Melanie Klein: "The Development of a Child."—A highly documented study of the mentality of a young boy, with remarks on the rôle of psycho-analysis in education. Géza Roheim: "The Self" (Part III, Eidolon).—Eidolon signifies one's shadow or soul in Homer, etc. The study of the genesis of 'self' leads to a theory interpreting it as the result of a compromise between libido and resistance. The sum of libidinous tendencies (bodily soul) as the foundation of self-feeling is ejected as a second bodily self (eidolon, soul). The true cause of every ejection is always an inhibition, external (the adversary not being found, a picture must suffice) or internal (resistance, formed by the bipolarity of the tendencies). The ejected is the unconscious; the duality of the world, body and soul, arises out of the duality of the individual, of consciousness and unconsciousness.

Skandinavisches Archiv für Physiologie. Vol. XLI. Nos. 5 and 6. A. Apajalahti and A. Panelius: "The Influence of Bodily Fatigue on Precision-work."—Bodily work diminishes the faculty of threading needles; quantitative measurements. Hjalmar Ohrwall: "The Analysis of Sensory Impressions" gives a thorough-going discussion of the sensation-representation problem from a positivistic and physiological point of view.

Archiv für die gesamte Physiologie. Vol. CLXXXIX. Nos. 1-6. Hans Honigmann: "Studies of the Sensibility to Light and of the Adaptation of the Eye in Birds." Vol. CXC. Nos. 1-6. A. Kreidl and S. Gatscher: "Studies in Physiological Acoustics" II.—Experiments on a subject with deafness of one ear the 'Schwebungen' are perceived, are therefore of central origin.

Monatsschrift für Psychiatrie und Neurologie. Vol. L. Nos. 3-5. E. Popper: "Clinical Studies on the Genesis of Schizophrenia." Paul Schilder: "The New Trend in Psychopathology."—Remarks against any atomistic psychology; advocates a phenomenological point of view; psycho-analysis; the necessity of a central self. Erwin Strausky: "The new trend in psychopathology."—Denies any philosophical reflection in psychopathology, especially any psychology influenced by philosophical (phenomenological) tendencies.

Psychologische Studien. Vol. I. Nos. 1 and 2. 1921. A new periodical, to be issued irregularly, for psychology and allied sciences. Editors are: The psychologists—Prof. Koffka, of Giessen; Prof. Koehler, of Berlin; Doceut Wertheimer, of Berlin. The psychiatrists—Prof. Goldstein, of Frankfurt, a.M., and Prof. Gruhle, of Heidelberg. Publisher: Julius Springer, Berlin. W. Koehler: "The Psychology of the Chimpanzee."—A very interesting description of behaviour; the first four instalments are to be found in the Proc. of the Berlin Academy. Max Wertheimer: "Contributions to the Theory of form" ['Gestalt']. Diedrich Westermann: "Life and Death with the Kpelle in Liberia."—Primitive ideas on death and life after death. P. Cermaks and K. Koffka: "Studies on Phenomena of Motion and Fusion." (No. V of Koffka's studies on form, I-IV having appeared in *Zeitschr. f. Psychologie*.) Observation of motions in intermittent light. Erich M. von Hornbostel: "On Optical Inversion."—Inquiries into the psychological factors determining the convex or concave appearance of objects. Wilhelm Fuchs: "A Pseudo-fovea in Hemianopsia."—The point of clearest vision in hemianopsia is not necessarily identical with the projection of the macula, but depends upon psychological factors.

Zeitschrift für Psychologie. Vol. LXXXVII. Nos. 5 and 6. Antonin Prandtl: "Psychical Efficiency in Changing Dispositions." Studies on learning and retaining nonsense-syllables, on tachistoscopic apprehension, optical memory, etc., in the normal condition and after rotatory vertigo. Hans H. Keller: "An Experimental Contribution to the Theory of Recognition," studied by learning pairs of syllables and determining the influence of different factors on recognition. Imre Hermann: "On Formal Tendencies in Choosing." The influence of spatial position in a field (central or marginal); its dependence upon age.

Allgemeine für Zeitschrift Psychiatrie. Vol. LXXVII. Nos. 1-5. Leokadya Waldberg: "The Influence of Emotions on the Faculty of Remembering in Normal Adults, Children, and Insane."—Acoustic presentation. Normal persons remember only words touching on emotional (displeasing) complexes. Influence of complexes in Dementia præcox; none in Epilepsy. J. Berze: "Schizophrenia and Psychological Interpretations."—Polemizes against Bleuler. Ernst Less: "Experiments by the Method of Jakobsohn for the Examination of Sentiments."—A study on moral judgment in juvenile persons. Schob: "On Psychic Disturbances Consequent upon a Penetrating Lesion of Both Frontal Lobes by a Bullet."

Archiv für die gesamte Psychologie. Vol. XLI. Nos. 1 and 2. Aloys Müller: "Contribution to the Problem of Reference-surfaces of the Sky and the Stars." A. Kirschmann: "Lustre and Colour of Metals."—Takes up the work of *Philos. Stud.* (XI), and declares the phenomenon to be of a parallax nature, one part of the light passing through and being reflected. Rudolf Beck: "Is the Modern Idea of the Beauty of Mountains Caused by a Change of Human Ideas of Beauty?"—The question is answered in the negative; only technical and social factors are of influence. Friedrich Grossart: "On Tachistoscopic Errors in Reading, with a Special Study of Emotional Influence and the Question of Objective and Subjective Types."—Emotions have a great influence on the subjective conviction and the content of the utterances; so have individual differences of psychical structure. Vol. XLI. Nos. 3 and 4. Martha: Moers: "A Study of Immediate Retention with Different Modes of Presentation, and the Total and Discreet Behaviour of Attention Indicated Thereby." R. Rudlowski: "A Casuistic Contribution to the Psychology of 'Aussage'."—Analyzing a complex fact; influence of emotions connected with an oath. Theophil Lehmann: "Psychology of Comparing Short Intervals."—Influence of 'constellation.' E. Czuber: "Theory of Linear Correlation." Wilhelm Wirth: "Reply to Czuber on Linear Correlation."—Discussion of some questions of probability raised by Wirth's new work on psychometrical theory. Maria Tittel: "Assimilation and Contrast in the Acoustic Sphere."—Intervals within an octave are subjected to assimilation; if the distance is greater than an octave, contrast prevails. Musical persons are exceptions. Auguste Fischer, Alexius Meinong, Anna Berliner: "Determination of Reliability in the Method of Relative Position, with Special Reference to the Study of Advertising." Anna Berliner: "Correlation Between Æsthetic Value and Recognition."—Pictures valued higher are more easily recognised.

Archivio Italiano di Psicologia. (Nos. 1 and 2, July, 1920.) A. Gemelli and his assistants, G. Tessier and A. Galli: "The Perception of Position and Displacements of the Body."—The very interesting researches described in this study were provoked by the necessity of determining the capacity of aviators to perceive the aeroplane displacements, and have had a practical application, but they have also a great theoretical importance. Besides a precise analysis of lateral, longitudinal, and rotary displacements and of tactile, articular, and muscular perception of movements (especially of the phenomena of complication by association of the sensations and representations of different fields), these researches necessitate

a revising of the theory of a special 'static sense,' considered to be localised in the ampullæ of the semi-circular canals of the ear, which are supposed to receive excitation from the weight of the endolymph (theory of Goltz, Mack, Crum Brown, Cyon, Breuer). They prove, on the contrary, that the origin of this sense is very complex and results from the combination of various elements. It is determined by sensations of various organs according to different movements and displacements (tactile, muscular, articular, and tendinous sensations). The ampullæ of the labyrinth give a sufficient explanation only in the case of the perception of rotatory movements of the body. V. Roncagli describes experiments on faculties of apprehension by the labyrinth method. G. A. Elrington: "The Expression of Musical Intervals" (experimental research).—The result of the experiments is as follows:—There is a noticeable uniformity in expressions, which serve to characterise the different intervals. The expression does not merely relate to subjective experience, but is something that the subject perceives in the interval itself. This objective character or 'expressivity' of the interval is most clearly recognised in the following intervals:—Both seconds, the seventh, the octave, and the ninth.

Archivio Italiano di Psicologia. (No. 3, January, 1921.) F. Kiesow: "Observations on the Relation Between Two Objects Seen Separately by Two Eyes."—The first problem treated in these experiments is the explanation of the phenomenon, called by the author *subjective transparency*, which occurs when a distant object is seen through a near object put before one eye; it is explained as a case of the phenomenon known as rivalry between the visual fields of two eyes. Secondly, Kiesow answers affirmatively the much-discussed problem (cp. Haldat, Helmholtz, Hering) on the possibility of binocular mixture of colours, and establishes many laws of this phenomenon. Its explanation, according to the author, is not only of a physical nature, but also psychical, being in effect the principle of psychical fusion. Studying the problem of stereoscopic brightness, Kiesow, in opposition to Dove, Rood, Reute, and others, concludes that it is a product of a synthesis by the mind, conceived in the Wundtian sense. The phenomena of binocular contrast lead the author, in opposition to Ebbinghaus, to the conclusion that binocular contrast represents a distinct category, which follows, in general the laws of common contrast. M. Ponzo has studied the measurement of the course of the processes of denomination and recognition by means of respiratory graphs, and concludes that by means of respiratory curves it is possible to measure directly the duration of partial mental processes included in complex ones.

Rivista di Psicologia. (January-March, 1921). G. Tarozzi: "Philosophy, Science, and Psychology."—The author maintains that psychology must be the basis of education, against the idealistic tendency of Croce, Gentile, and Lombardo-Radice, which is now much in vogue in Italy. He affirms that education is to be founded upon philosophy conceived as a science of pure spirit—distinct as regards both method and scope from all natural and empirical sciences, to which category psychology also belongs. O. Decroly gives an outline of the programme adopted in an experimental school. A. Delmenico describes experiments on reading performed

in elementary schools of Canton Ficino. R. Serafini: "The Genesis of Crime in the Light of Modern Psychology."—The author maintains that the significance of the abnormality of the delinquent has been exaggerated, and that the greatest contribution to the study of criminality is to be expected from normal individual psychology. The origins of a single crime are manifold and complex, and the habits acquired under the influence of environment appear to be the prevailing factor in criminality. G. C. Ferrari is glad to communicate that in Milan Salvoni has founded a 'School of Spontaneous-Activity Education' with the purpose of applying to education the contributions of affective and genetic psychology. E. Bonaventura: "Sight and Touch in the Perception of Space" (1-3, January-September). These interesting experiments not only throw light on one of the more notable and controversial points of the problem of space perception, but also contribute to the study of the constructive activity of thought and imagination. Bonaventura has investigated tactile-motor-visual association in the perception of dimensions and forms—that is to say, in the principal determinations of space perception. His experiments prove that the tactile-motor data are not capable of furnishing a precise basis for space judgments of form, magnitude, and direction. The tactile-motor-visual association of space data is dependent on antecedent experience, and is variable from individual to individual. Tactile-motor space judgments are different from visual space judgments as regards identity of extensions, direction of lines, estimation of empty spaces, etc. In the transcription of dimensions the prevalent tendency is to diminish them. The experiments prove the original radical difference between the two sets of space concepts, and thus tend to refute the Kantian theory of space.

Archivio Generale di Neurologia, Psichiatria e Psicoanalisi has for its principal item a long and exhaustive paper on "The Internal Secretions and the Nervous System," by Laignel-Lavastine. A short paper by Luigi Zanon Dal Bò on "Whether There are Special Forms of Psychosis Caused by the War" is followed by an extensive bibliography of 214 Italian publications on the subject.

The Journal of Comparative Psychology (October, 1921) has four original papers. Yerkes describes "A New Method of Studying the Ideational Behaviour of Mentally Defective . . . Individuals," depending on the use of an electro-mechanical 'multiple-choice' apparatus. S. Bent Russell discusses the "Evolution of Nerve Muscle Mechanisms," starting from the most elementary physico-chemical conceptions. Colin P. Stone describes an investigation of the threshold of "Brightness Discrimination in the Dog." In one case he obtained a value of about 0.14 c.p. in 1.0 c.p.; in another of about 0.2. The lowest values for which evidence of discrimination was obtained were about 0.12 and 0.10 respectively. He finds that human subjects "can discriminate much smaller differences than the dogs could be trained to discriminate." Atkins and Dashiell write on "Reactions of the White Rat to Multiple Stimuli in Temporal Orders."

Journal de Psychologie (1921). January—Fr. Paulhan: "Sur le Psychique inconscient."—The author admits the existence of an unconscious psychicism and of infinite degrees of consciousness and

subconsciousness. He thinks that consciousness does not change the essential nature of the psychic phenomena: a love which ignores itself, however, is love. He conceives the mind as a system of tendencies, and the conscious and unconscious psychic phenomena are but signs of the activity of these tendencies. Dr. G. Dumas: "Le Rire."—Laughing may be considered from five different stand-points: (i) The anatomo-physiological mechanism of laughing; (ii) laughing as expression of joy; (iii) laughing as expression of the comic; (iv) why does the comic make us laugh? (v) how and why has laughing become a language? Dr. H. Wallon: "La conscience and la conscience du moi."—It is an error of introspection which makes us believe that consciousness implies the consciousness of self. The notion of self appears very late in psychological evolution, as we may see in observing children and mental defectives, and is very fragile: our representations and psychic actions have a virtual orientation in Space, which is revealed whenever the feeling of self weakens: when recovering from a swoon there is no consciousness of the self as such, our consciousness is diffused in our external sensations and perceptions; hallucination is but an exteriorized thought; certain insane persons complain that their thought is stolen from them, that *they* do not act their own actions. In such cases of regression there is no opposition between self and not-self. The place occupied by Space in consciousness is the more prevalent as the consciousness is more primitive. By a supreme abstraction the self stands out of Space, and then pretends to absolute identity and independence. February—H. Delacroix: "De l'automatique dans l'imitation." P. Janet: "Les oscillations de l'activité mentale." E. Rabaud: "Contributions à l'étude de l'instinct: comportement de quelques araignées."—When a spider is attracted (e.g., by a bee falling on the web) and repulsed by another insect bigger than itself, we might suppose that it is manifesting intelligent behaviour. But the attraction is a mere reflex response to the vibrations of the web, if they are of the proper intensity, but if these vibrations grow too strong the spider is repulsed. This anti-finalistic point of view can be verified by placing on the web a vibrating tuning-fork instead of a living bee: according to the violence of the vibrations and to the size of the spider, the latter is attracted, immobilized, or repulsed. The author, after some analogous observations on other insects, concludes that we must change all our notions, both on Instinct and Intelligence. March—E. Claparède: "L'orientation lointaine." W. Boven: "Caractère individual and alienation mentale." April—J. P. Pawlow: "Sur le centre de la faim." Dr. G. Revault d'Allonnes: "Le Mécanisme de la pensée."—If it is true that the data of the senses are but mere outlines, general figures, and not 'images,' a new Psychology must therefore ensue, and the author suggests the replacement of the old Psychology of Taine based upon images by a Psychology based upon 'schemes.' Dr. G. Dumas: "Les Mouvements volontaires."—The delusion of will conceived as a power of absolute beginning comes from the disproportion between the *cause* of the voluntary movement, which is but a very slight tendency, much weaker than in the passional movements, and the *effect*, which may be a very complex action. This disproportion between the cause and the effect is explained by the automatism of the motor mechanisms, for the mere fact of saying "I will" is not able in the least to produce a single voluntary movement. In spite of the

delusion, the voluntary movements are but conditional reflex, and volition is nothing but the intellectual feeling accompanying these reflexes. June—E. Rabaud: "*L'instinct maternel chez les mammifères.*"—The following observations have been made chiefly upon mice:—The maternal instinct (*i.e.*, the attraction of the female towards the little ones) is a kind of chemical reflex. This instinct results from internal secretions, and can be provoked experimentally by injecting the product of these secretions into a young mouse which previously showed no attraction at all towards the new-born babies of her comrades. July—P. Masson-Oursel: "*Doctrines et Methods psychologiques de l'Inde.*"

Revue Philosophique (January, 1921). H. Beaunis: "*Les Aveugles de Naissance et le monde extérieur.*" March-April, 1921—Dr. H. Wallon: "*le Problème biologique de la conscience.*" It is only through the collective representations derived from the customs, language, literature, etc., of his group or nation that the individual consciousness can reach its inner processes. Introspection, therefore, does not give an adequate account of the psychic realities. The psychologist must not study the content of consciousness, which is of a super-individual origin, but should leave this task to the sociologist; the subject of his studies must be the organisation, progress, and mutual relationship of the mental functions, and his method that of the physicist. May-June—E. Rabaud: "*L'Adaptation et l'Evolution*". A very remarkable article, characteristic of the Mechanistic School. (i) The adequacy of the organism to the milieu in which it is living is generally recognised as a fact. Discussions arise only about the nature of this harmony, between the religious school who are content to wonder at the "marvels of Nature," the Darwinians, and the Neo-Lamarckians. (ii) But the strict adequacy of the organism to its milieu is a delusion. Seeing the organisms live and multiply, we suppose them to be in the best conditions, and each morphological detail to have a definite and necessary rôle in the adaptation. There is, of course, concordance to some extent, otherwise the organisms could not live, but the fact that in the same species all the individuals are not anatomically identical (*e.g.*, there are aquatic animals without fins), and that this difference does not interfere in the least with their life and development, shows that the rôle of morphology has not for the adaptation the vital importance we might have supposed. (iii) Adaptation as a physiological process: Metabolism constitutes essentially the conditions of existence. The external influences (temperature, humidity, etc.) make the metabolism possible or impossible. When it is possible the organism is adapted; when it is impossible the organism dies. Morphology has no active rôle in adaptation, but simply results from the metabolism. All naturalists agree with this statement in so far as monocellular organisms only are concerned. But it is also true for the multicellular beings. The author, who is a distinguished zoologist, supports his theory with many and interesting instances. G. Poyer: "*La Psychologie des caractères.*"—The author gives his definition of the word 'character': the psychological individuality. He then gives an

¹This article and some others will shortly appear in book form under the same title.

account of the classifications which have been proposed, and of the various methods used for the study of individual differences. Finally, he concludes that psychic individuality results from two factors: (i) an innate and hereditary datum; (ii) the acquired character which is framed up by physical and social influences and by the personal will of the individual working upon the innate character and modifying it. July-August—Fr. Paulhan: "Le perception de la synthèse psychique." H. Piéron: "La notion des centres coordinateurs cérébraux et le mécanisme du langage."—M. Piéron gives an historical account of the various theories of Aphasia, and then concludes that the progress of our knowledge in cerebral localizations is unquestionable, and that this progress will continue until we shall try to localize not imaginary "Faculties," but psychophysiological processes. November-December — Dr. Revault d'Allonnes: "Les schèmes présentés par les sens."

La Nouvelle Revue Française (July) contains two contributions of psychological interest. M. Jules Romains (whose claims to have established the existence of 'La Vision Extra-rétinienne' were summarised in the April issue of the *Psychic Research Quarterly*) offers an Introduction to a course of poetical technique; while M. Albert Thibaudet discusses the Unanimist movement and M. Jules Romains.

L'Esprit Nouveau (Nos. 7-12) has published a variety of articles by Basch Lalo and other writers on æsthetics in relation to modern Art. A convincing series of studies on the degradation of modern Architecture shews why the modern engineer is so often superior to the architect in the effects which he produces.

Books.

G. Dwelshauvers: "Le Psychologie française contemporaine." (Paris: Alcan, 1920, 1 p.-16.)

P. Fanconnet: "La Responsibility (étude de sociologie."

D. Parodi: "Le Problème moral and le pensée contemporaine."

P. E. Cornellie: "Le Survivance de l'âme and sou évolution après le mort."

Fr. Paulhan: "Le Mensouge des monde." "Les Transformations Sociales des Sentiments."

A. Longuet: "L'origine Commune des religions."

E. d'Eichtal: "On rôle de la me'morie dans nos conceptions metaphysiques, ethétiques, persionnelles, actives."

Dr. E. Osty: "Le Sens de la vie humaine."

ALSO RECEIVED.

(Mention under this heading does not preclude subsequent review.)

The Psychology of Thought and Feeling. By CHARLES PLATT. (Kegan Paul, 7/6.)

A Treatise on Probability. By JOHN MAYNARD KEYNES. (Macmillan, 1921, 18/-.)

The Neurotic Constitution. By ALBERT ADLER. (Kegan Paul, 18/-.)

- Essays in Critical Realism.** By DURANT DRAKE and others. Macmillan, 1921, 10/-.)
- The Man from the Other Side.** By ADA BARNET. (Allen and Unwin, 7/6.)
- The Care of the Adolescent Girl.** By PHYLLIS BLANCHARD, Ph.D. (Kegan Paul, 7/6.)
- The Psychology of Society.** By MORRIS GINSBERG. (Methuen, 5/-.)
- Joan of Arc.** By R. B. INCE. **Prentice Mulford.** By EVA MARTIN. **Jacob Boehme.** By W. P. SWAINTON. (Rider, 2/- each.)
- The Symbolism of Colour.** By ELLEN CONROY, M.A. (Rider, 3/6.)
- Psycho-Analysis, Sleep and Dreams.** By ANDRE TRIDON. (Kegan Paul, 7/6.)
- The Psychology of Medicine.** By T. W. MITCHELL. (Methuen, 6/-.)
- The Process of Man's Becoming.** By "Quaestor Vitae." (Duckworth, 8/-.)
- Psycho-Analysis.** By R. H. HINGLEY. (Methuen, 6/-.)
- The New Psychology and the Teacher.** By H. CRICHTON MILLER. (Jarrolds, 6/-.)
- The Psycho-Analytic Study of the Family.** By J. C. FLUGEL. (Allen and Unwin, 10/6.)
- Pathology of the Nervous System.** By E. FARQUHAR BUZZARD and J. GODWIN GREENFIELD. (Constable, 30/-.)
- Radiant Motherhood. Married Love. Wise Parenthood.** By MARIE C. STOPES. (Putnam, 6/- each.)
- The Control of Parenthood.** Edited by Sir JAMES MARCHANT. (Putnam, 6/-.)
- The Gain of Personality.** By W. CHARLES LOOSMORE. (Murray, 6/-.)
- Woman and Marriage.** By MARGARET STEPHENS. (Fisher Unwin, 6/-.)
- The Education of Behaviour.** By I. B. SAXBY. (University of London Press, 6/-.)
- Dreams and the Unconscious.** By C. W. VALENTINE. (Christophers, 4/6.)
- The Sociological Determination of Objectives in Education.** By DAVID SNEDDEN. (Lippincott, \$2.50.)
- Mountain Pathways.** By HECTOR WAYLEN. (Kegan Paul, 3/6.)
- The Law of Laws.** By BERNARD TEMPLE. (Kegan Paul, 3/6.)
- The Hidden Self.** By H. ERNEST HUNT. (Rider, 4/6.)
- The Philosophy of Nature Cure.** By CLEMENT JEFFREY, M.A. (Daniel, 5/-.)
- Revue de l'Ere Nouvelle.** Vol. I. No. 2.
- Theosophy in England and Wales.** Vol. I. No. 11.
- Journal of the American Society for Psychical Research**
- Journal of Comparative Psychology.** Vol. I. Nos. 1, 2, 3, 4.
- The Twentieth Plane.** No. 5.

Etc., etc.

PSYCHE

VOL. II, No. 4. NEW SERIES: APRIL, 1922.

EDITORIAL

THE controversies about alleged "psychical" phenomena which have recently appeared in the pages of the lay press can scarcely be described as either edifying or instructive; but they serve, at least, to show that public interest in the subject is unabated. These circumstances, together with the fact that a somewhat unusual amount of interesting literature has reached us during the last few weeks, seem to justify a few observations on the present position of Psychological Research and our own attitude towards it.

We have always held that nothing but good can come of a closer co-operation between professional psychologists and students of Psychological Research, and that both parties are likely to derive great benefits therefrom. We are well aware that many psychologists—perhaps the majority of them—still regard the whole range of psychical phenomena as savouring of "unorthodoxy," and therefore as something to be avoided rather than investigated. This position may not be strictly scientific, but when we consider the amount of deliberate charlatanry and unconscious deception which have obscured the subject in the past, and still obscure it, we cannot condemn such an attitude as either unnatural or unreasonable. We have the utmost sympathy, also, for those who feel that Psychology is as yet too young and too recently established a science to justify its exponents taking the risk of doing anything which might bring it into disrepute.

At the same time we believe that, provided he is not content with a merely superficial knowledge, the

psychologist has much to gain and nothing to lose by acquainting himself with the problems and methods of Psychical Research and by taking an active part in its investigations.

Consider, for example, the question of material: What psychologist would not welcome the chance of studying a case of multiple personality comparable with "Sally Beauchamp" or with "A. C. B."? And yet there is good reason to believe that every instance of "trance mediumship" is primarily of this type. We mention elsewhere in this issue a book¹ which describes what appears to have been an excellent example of "mediumistic dissociation," as we may call it, and there can be little doubt that if this case had been systematically observed throughout its development by an experienced psychologist results of the utmost interest from the strictly psychological point of view would have been obtained.

Moreover there is at least a possibility that psychologists may be ignoring the very existence of mental processes or powers quite as important as any which they study. To state the case at its very lowest we cannot, for example, reasonably dismiss the evidence in favour of Telepathy as insignificant. And if this process be really a fact in nature it is clear that no account of the mind which does not deal thoroughly with it can be even approximately adequate.

From the point of view of Psychical Research the case for co-operation with the psychologist is no less cogent. The psychologist is in a far better position than are students of other sciences to appreciate how difficult is the exact observation and accurate reporting of apparently simple phenomena; he is, or should be, familiar with the mechanism of self-deception, and the questions of motive which so frequently puzzle the layman should be comparatively simple for him to understand. He knows, also, something of the strange results which may be produced by "unconscious" mental activities, and he is unlikely to be too deeply impressed by the

¹ *The Survival of the Soul*, by M. Cornillier.

phenomena of cryptomnesia, dramatisation, and so forth, which are so commonly met with in this field.

On the other hand, just because he has a special knowledge of what the mind can do, he has also a special knowledge of the limits of its powers as at present known. He is, therefore, less likely than most to be satisfied with vague "explanations" which tacitly involve difficulties as great as those which they seek to remove.

But these assets, valuable as they are, form only a part of the equipment necessary for the successful prosecution of *Psychical Research*. The student must in addition possess tact, great patience, and a certain measure of erudition; he must be able to examine methodically and discard ruthlessly immense quantities of worthless material for the sake of the few grains of valuable fact which he may be able to sift therefrom. Above all, perhaps, he must realise that "psychical" phenomena cannot be forced into the particular form he would like them to assume, and that any attempt to do so is very likely to put an end to just those manifestations which best repay observation.

To do all this consistently, and to maintain meanwhile a truly critical, sympathetic, and judicious attitude, is far from easy; but signs are not lacking to show that many psychologists are gaining both in the will and the ability to undertake the task.

A NEW THEORY OF LAUGHTER.¹

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IN every age laughter has presented to thoughtful minds a fascinating problem or series of problems. Great philosophers, from Aristotle to Bergson, and a host of less celebrated thinkers have wrestled with these problems; but, in spite of the display of a vast amount of ingenuity, only a very moderate degree of success has attended these efforts.

In this short article I cannot examine the principal theories of laughter; and in justification of my assertion that none of them is satisfactory, I can only refer to three recent monographs on the subject, those, namely, of Professor James Sully, of Professor Dugas, and of Mr. Max Eastman. Each of these authors has examined the various theories of laughter and of the ludicrous from Aristotle to Bergson and Freud, and has shown that none of them can be regarded as successful. Yet, for the developed mind, the conditions and kinds of laughter are so various and complex, that it is difficult to make any statement about the subject which shall not contain some grain of truth; and so, as Dr. Dugas has well said, "Even the most paradoxical theories do not succeed in being completely false; for originality has its limits."

Messrs. Sully, Dugas and Eastman have shown that all the theories hitherto proposed are inadequate in that they fail to take account of all the many varieties of laughter. I submit that all the theories are inadequate in a second way also; namely, in that they do not even seek for an answer to the most fundamental of all the series of problems.

I may illustrate these two inadequacies of all the theories and at the same time define this most fundamental of the problems, by reminding the reader of two of the most celebrated modern theories of laughter, that of Herbert Spencer and that of Professor Bergson.

¹The theory sketched in this article was first proposed in briefest outline in a letter to *Nature*, and was stated rather more fully in a paper read before the British Association in 1913. That paper was published in abstract only because it was my intention to publish at an early date a complete exposition of the theory, with its bearings on humour, jokes, wit and comedy. As the war has prevented the realization of that intention, I now publish the sketch of the theory, substantially as drawn in 1913.

Spencer regarded laughter as the bodily expression of the overflow of nervous energy; surplus energy, engendered whether by bodily or mental processes, escapes, he said, by way of the motor nerves that are in most frequent use, namely, those leading to the muscles of speech and respiration, because, as he supposed, these provide the most open or easiest outlet. Apart from the questionable assumption that the nerves of speech and respiration provide the readiest channel of escape, this theory is inadequate, because there are many situations in face of which most of us are moved to laugh, when nevertheless there is no plausible reason to suppose that any excess of nervous energy is liberated in our brains. Take the case of a man sitting down upon his own tall hat; this incident will generally move the spectators to laughter. Spencer suggested no reason why such a spectacle should liberate an excess of nervous energy in their brains, and no such reason seems discoverable; yet this is the type of the largest class of ludicrous events or objects.

M. Bergson tells us that what excites laughter is always the appearance of mechanical rigidity in the behaviour of our fellows; and that the function of laughter is to punish and so prevent the repetition of such machine-like behaviour. On impartial consideration it is obvious that this theory also, in each of its two parts, fails to cover the field. Even the ingenuity and literary skill of its author succeed in fitting to the formula of mechanical rigidity only a small part of the wide array of facts. And, though some laughter serves to discipline the awkwardness of our fellows, much of it obviously does not; as when we laugh on being tickled (physically) or on becoming embarrassed, or startled, or when we laugh at the mishaps that befall our fellow mortals through no fault of their own, *e.g.*, when we see a hat blown away by the wind and its owner making the most agile and praiseworthy and wholly lifelike efforts to recover it.

Both theories, then, fail to cover the facts; and both are inadequate in a second way; namely, they provide no answer to the question—For what end did the human species acquire this capacity for laughter? This, I say, is the most fundamental of the problems. For laughter is not, as Spencer's theory implies, merely a series of random inco-ordinated contractions of the muscles of speech and respiration, which may be regarded as a bye-product of the operations of the nervous system. It is rather a highly complex co-ordinated series of movements, maintained by an impulse so strong and definite that it often defies the control of the will. Such a specific reaction, common to the whole

species, implies, just as do the complex specific reactions that we call fear or anger, that the innate constitution of the species includes a corresponding psycho-physical disposition, with a special co-ordinating centre in the brain. And we are bound to suppose that any such specific disposition or co-ordinating centre must have subserved some definite biological function.

Although M. Bergson himself does not consider this question in his essay, it might be argued that his theory of social discipline implies an answer to it. But it will, I think, be generally admitted to be highly improbable that the species should have acquired this peculiar reaction, if it did nothing directly to promote the welfare of individuals, but only that of highly organized societies. We may, I think, confidently affirm that in so far as laughter serves as an instrument of social discipline, this is a secondarily acquired function, a social application of a mode of behaviour which primarily served some more individual end.

These two famous theories, then, illustrate two defects of all the theories of laughter, namely (1) failure to cover the facts, (2) failure to point out the original and primary function of laughter in the life of the human species. It is probable that, if we can find the true answer to the latter question, we shall at once be able to remedy the former defect, *i.e.*, we shall be able to find a formula which will be applicable to every kind of laughter and every variety of the ludicrous. It will, in short, prove to be the key which unlocks all the problems of laughter.

In a letter to *Nature*, on the appearance of Professor Sully's book, I suggested such an answer, and though my suggestion has been almost ignored hitherto, I feel confident that it supplies the long sought key. It was set out very briefly in my letter, and I hope that the present more adequate exposition of it may bring it to the notice of the psychological world.

Mr. Eastman propounds a view of laughter which comes nearer to my own than that of any previous writer.¹ After examining and refuting all extant theories of laughter, he proposes the view that laughter is essentially an instinctive reaction, the expression of an instinct as distinct and specific as those which find expression in fear and anger. He adopts my conception of an instinct and of the relation of emotion to instinct, rightly seeing that these conceptions enable us at last to bring some order into our descriptions of human conduct and emotion, and to render some intelligible account of the relation

¹ *The Sense of Humour* (Charles Scribner & Sons, New York, 1921).

of emotion to behaviour. He adopts also my criteria of instinctive dispositions, and my principle of "primitive passive sympathy" or direct induction of emotion, and shews that in the light of all these conceptions, laughter must be pronounced to be the expression of an instinct.¹ In all this I agree with Mr. Eastman, and find his expositions as admirable as his criticism of the theories. But Mr. Eastman clearly has not come across the slight statements of my theory referred to above; and his theory remains incomplete in two fundamental respects, namely, it does not answer the two all-important questions (1) What is the essential nature of the ludicrous—what is common to all ludicrous objects? (2) What does laughter do for us? What biological service does it perform? What is its survival value to the species? It is clear that so long as laughter was regarded, in the way common to all previous theories, as merely a by-product of our mental or cerebral operations, this second question did not arise. But, as soon as we recognize the obvious fact that laughter is a complex reaction which implies the presence in our innate constitution of a specifically organized psycho-physical disposition, we are confronted with the problem of assigning to this cognitive-curative disposition or instinct, some *raison d'être*, some survival value, some biological function.

First, then, what are the conditions of laughter? In what situations do we laugh? What are the laughter-exciting objects which constitute the whole field of the ludicrous? There is no difficulty in drawing up a fairly complete list of the varieties of the ludicrous; or in defining them in a very general way. All are agreed that the minor defects, mishaps and misfortunes of human beings are the main part of the ludicrous. The difficulty is to answer the question, What is there common to all such objects and events that renders them capable of exciting our laughter in the very moment that we become aware of them? This is a question to which much of the discussion of the philosophers has been directed.

A procedure very commonly adopted has been to assume that laughter is essentially the expression of pleasure, that we laugh because we are pleased; and then to try to explain why we are pleased on contemplating ludicrous objects. This procedure has given rise to two famous theories, namely, (1) the theory of pure malevolence, that it is the nature of man to rejoice at the misfortunes and defects of his fellows (Aristotle, Descartes, Bain); (2) the theory of self-congratulation propounded by

¹ Ibid. Chapter XI.

Hobbes, according to which we rejoice on perceiving the misfortunes and defects of our fellows, because thereby our own immunity from these same misfortunes and defects is brought to our minds.

These are the two most famous varieties of what may be called the pleasure theories of laughter. They imply a dark view of human nature. If either of them be true, laughter is essentially hateful.

Other theories of the ludicrous are combined by some authors with the pleasure theory, and by others are offered as independent theories.¹ Of these the most widely accepted is the theory of sudden relaxation or of sudden mental descent from the large and serious to the small and trivial. Professor Sully, for example, sees in such sudden relaxation of mental tension the ground of the pleasure which he assumes without question to be the cause of all laughter. H. Spencer saw in such descent the process by which is generated that excess of nervous energy, the escape of which was for him the immediate cause of all laughter. Then, we have a number of ponderous German theories which interpose, between the act of apprehension of the ludicrous object and our laughter reaction upon it, all sorts of subtle intellectual processes of a purely fictitious character. With these must be reckoned M. Bergson's theory, according to which the intellect detects in all these mishaps and defects which are the ludicrous some indication of the rigidity of mechanism where there should be only the spontaneity of life.

But now let us put aside for a moment all these ingenious suggestions, and fix our attention upon a generally recognized

¹ Dr. Boris Sidis, in his *Psychology of Laughter* (New York, 1913), has put forward a somewhat confused view. In that he describes laughter as an instinctive reaction he may be said to agree with Mr. Eastman and myself. But he wavers uncertainly in his statements. He does not ascribe laughter to a special instinct of laughter, but rather to an alleged instinct of play, to which also he ascribes a vast amount of human activity. "Laughter, smiling, and grinning are the external manifestations of the play instinct" (p. 5). To this it may be objected that there is no play instinct. The postulation of a play instinct implies just that vagueness of the conception of instinct which has provoked the recent outburst of criticisms directed to the elimination of instinct from human psychology. Accordingly, we find that Dr. Sidis, having made a false start, falls into inconsistencies. He goes on to say that "Laughter seems primarily to be the expression of mere joy or happiness," and "all unrestrained spontaneous activities of normal functions give rise to the emotion of joy with its expression of smiles and laughter." Here, then, on two successive pages are two different and incompatible theories of laughter, both dogmatically asserted. Dr. Sidis tells us also that "Aristotle and Hobbes are right in the main" and that "it remains true that laughter arises from the consciousness of our superiority." He is inclined also to accept Spencer's theory, for he tells us "we may say that any release of reserve energy is the source of all laughter." In short, his catholicity is excessive. Accepting all that seems most plausible in the views of his predecessors, he fails to make any consistent effort to justify his postulation of a play instinct as the source of all laughter.

fact of human nature, the fact, namely, that the expressions of the feelings of our fellow men tend to throw us into similar states of feeling. In virtue of this fundamental principle of human nature, the sympathetic principle, we all tend to share in a purely involuntary and unreflecting manner the emotions and the pleasures and pains of our fellows, whether we actually witness the expressions of those feelings or merely imagine them.¹

If we keep this law in mind, we see that the problem of the ludicrous may be re-stated in the following way: Why do the minor distresses and defects of our fellow men constitute an exception to this general law of primitive passive sympathy? Still, we have not got the question quite rightly stated; and, as in so many cases, the correct statement of the problem is here the first and a long step towards its solution. There are some persons in whom the laughter-tendency is either originally lacking, or has atrophied owing to unfavourable conditions. To them, and to all of us in certain moods and conditions unfavourable to laughter, those things which normally are ludicrous are simply displeasing or distressing in some degree. Again, it is not only the minor distresses and defects of our fellows that excite our laughter. Let the persons whose misfortunes we contemplate be very remote from us, in time or space or in rank and mode of life, and we shall laugh on hearing of suffering which is by no means very slight, and which, if the persons concerned are very remote from our imaginations, may be very severe. It has probably happened to most of us that we have been shocked to find ourselves laughing at the recital of severe disasters which have befallen persons very far removed from us. Again, if we have any reason to believe that the expressions of pain which we witness are in any sense unreal, their appeal to our sympathetic tendency is weakened, and the appearance of very severe bodily hurts or of bitter griefs moves us only to laughter; thus we laugh when in the circus one clown deals another the most terrific blows or thrusts a sword into his belly. And we laugh at the groans of the hero in a badly-acted tragedy or drama; for the faulty presentation does not allow us wholly to forget the illusory character of the situation.

The things we laugh at are, then, those mishaps and shortcomings and distresses of our fellows which, either by reason of

¹ This peculiarity of our constitution was described by Malebranche (*Recherche de la Vérité*, Book IV.), and by Adam Smith in a single sentence (*Theory of Moral Sentiments*, chapter i.) which remain inconsistent with his general doctrine. It was independently re-discovered by myself and described in my *Social Psychology* under the designation "Primitive passive sympathy." On it depend in large part the mental peculiarities of crowds, as I have shown in my *Group Mind*.

their trivial character or because of the circumstances under which they are presented to our minds, make but a feeble appeal to our sympathetic tendencies; or, in other words, and more accurately, the things which evoke our laughter are things which, if we did not laugh, would excite in us a feeble degree of sympathetic pain or distress.

The occasions of laughter, the things we laugh at, are, then, essentially displeasing, or would displease us, if we did not respond with laughter. There are two exceptions to this rule, which I may best deal with at this point. They are: (1) Laughter from contagion of the laughter of other persons; this is one of the most striking instances of the law of primitive passive sympathy, and requires no special explanation. (2) There is a form of laughter, especially common among children, which perhaps is properly explained by Spencer's principle of overflow, namely, the laughter of high spirits. It is perhaps uncertain whether this form of laughter is really a pure overflow, or whether it is not merely that the condition of high vitality renders the laughter disposition peculiarly sensitive to stimulation, so that the faintest trace of the ludicrous suffices to set it in action. Nevertheless, given the existence of the co-ordinating laughter centre in the brain, the overflow principle is perhaps applicable to these cases; and that is the element of truth in Spencer's theory. I would suggest, in passing, a slight modification of this explanation. It seems not improbable that much of the objectless laughter of children should properly be explained by Groos' principle of play, *i.e.*, that just as other innate tendencies break out into spontaneous activity in children in the absence of any situation that seriously and properly demands them, so also does the laughter impulse break out from time to time in playful activity.

Having now surveyed the principal conditions of laughter, let us look at *its effects*. We may admit its effects in the way of social discipline; but these, together with other social effects, are secondary and adventitious. What are its primary effects on the laughter? In the main, they are two. First, laughter interrupts the train of mental activity; it diverts or rather relaxes the attention, and so prevents the further play of the mind upon the ludicrous object. So powerful is laughter to interrupt conative process, that its more intense degrees arrest well practised and habitual bodily actions, even though supported by deliberate resolution of the will; and the hearty laughter collapses, temporarily incapacitated for all mental or bodily activity. This effect, I imagine, is brought about by a process

of drainage of nervous energy by the laughter channels; but that is another story.¹ Secondly, the bodily movements of laughter hasten the circulation and respiration and raise the blood pressure; and so bring about a condition of *euphoria* or general well-being which gives a pleasurable tone to consciousness.

We are now in a position to see what laughter does for us, what advantages we gain from the possession of the capacity for laughter as a part of our native endowment. The possession of this peculiar disposition shields us from the depressing influence which the many minor mishaps and shortcomings of our fellows would exert upon us if we did not possess it, and which they do exert upon those unfortunate persons in whom the disposition seem to be abnormally weak or altogether lacking. It not only prevents our minds from dwelling upon these depressing objects, but it actually converts these objects into stimulants that promote our well-being, both bodily and mentally, instead of depressing us through sympathetic pain or distress. And now we see how the acquirement of laughter was worth while to the human species; *laughter is primarily and fundamentally the antidote of sympathetic pain*. The sympathetic tendencies are of the first importance for the life of society. If man was to rise from his animal condition, it could only be through a great development of his social life; and this was rendered possible only by a great development of the sympathetic tendencies of the species. But, though it was of importance that we should sympathetically share the enjoyments of our fellows, and feel something of their more serious distresses; it would have been a serious disadvantage to the species, if each man had had to suffer sympathetically, in however small a degree, all the minor pains of his fellows; for these minor pains were so abundantly spread around him that he would have been almost continuously subjected to their depressing influence, and, under the cumulative effect of so many slight pains, his vitality would have been seriously lowered. Hence, as the sympathetic tendencies and the social habits of the species developed hand in hand, some antidote, some preventive of these too frequent, and

¹ This may seem to bring my theory near to Spencer's; but the difference is fundamental. Spencer said, whenever there is release of surplus nervous energy it escapes by the channels innervating the organs of speech and respiration, so that laughter is a mere by-product of cerebral workings. I suggest that laughter depends upon a specifically organized disposition, and that, when this is thrown into action by the perception of any object of the appropriate class (ludicrous objects), it becomes a widely open channel through which nervous energy is drained from all other cerebral channels, thus inhibiting all other mental and bodily activities. Cp. my two articles "The Nature of Inhibitory Processes in the Central Nervous System" (*Brain*, Vol. XXVI.) and "The Sources and Direction of Psycho-Physical Energy" (*American Journal of Insanity*, 1913).

useless, minor sympathetic pains became necessary; therefore, the capacity for laughter was acquired as a protective reaction against them. In this way Nature solved the apparently insoluble problem that confronted her—the necessity of making each man continue to share in some degree all the more intense feelings of his fellow men, while sparing him the needless suffering that would have been his lot if he had been condemned to share also all their multitudinous lesser pains.

Let me anticipate my readers by dealing with two possible objections that seem to call for some notice. It may be truly said that even though for any reason I suppress my laughter when contemplating a ludicrous object, I am nevertheless thrown by it into a peculiar state of feeling which can be best described by saying that *I feel amused*; and that, if the ludicrous display continues, this feeling waxes more intense, until I give way to laughter. It may be argued, then, that laughter is really the expression of this feeling of being amused. Now this feeling of being amused is, in general, a pleasurable state of consciousness; but it is not to be identified with pleasure simply. It is a specific quality of feeling or emotion which arises when the laughter disposition is excited. Like every other one of our great conative tendencies or dispositions, the laughter disposition is a store or spring of psycho-physical energy; when this spring is tapped, energy wells out; and, if it is denied access to its normal motor outlets, it yet expresses itself in consciousness as this waning feeling of *amusement*. That is to say, just as with the other instinctive tendencies, the quality of emotional excitement peculiar to this tendency is felt, even though its bodily expression be suppressed.

The second objection may be stated as follows: If my theory is true, how comes it that both philosophers and common opinion have so generally regarded laughter as the normal expression of pleasure? The answer is easy, though not simple.

In the first place both philosophers and common opinion have committed the error of confounding the laugh with the smile, regarding laughter as expressing a more intense degree of the feeling which is expressed by the smile. Now, the smile is unquestionably the normal expression of pleasure; but I submit that the two reactions are distinct in origin and function, although they tend to become secondarily associated. Their distinctness of origin is indicated by the fact that in the infant they appear at different dates. The smile appears in the first weeks, normally at about the end of the third week or earlier; whereas the laugh does not appear until about the end of the

third month or later. Secondly (and here we have the explanation of the fact that the two reactions, the smile and the laugh, tend to become associated) very often it happens that when we laugh we are pleased; and for the following reasons. Laughter itself exhilarates us by the physiological effects we have noticed; and so gives a pleasant tone to consciousness. Again, very many of the occasions of laughter are complex and include a directly pleasing element. Consider, for example, the child who enjoys being tickled; he only enjoys it if it is tactfully done, that is, if he is tickled in such a way that the whole business becomes an exciting game; then he enjoys being tickled just as, with a similar proviso, he enjoys being frightened. But more important is the fact that a pleasing element enters into very many instances of the ludicrous. This is true of all good jokes. Let me illustrate the principle with a simple case. A man sits down upon his own hat. We laugh, even though he be our dearest friend, and even while we sincerely condole with him; that is a pure and simple instance of the ludicrous. But now suppose the man be a pompous acquaintance. Then there enters into our state an element of rejoicing at his misfortune; we are glad to see his pomposity scarified. Suppose, again, a third case—that a third person has skilfully brought about the result, the sitting down of the pompous person on his own hat; the event becomes now a successful practical joke, and supplies a further ground of pleasure to us, namely, pleasure in the skill of the joker, and perhaps a sympathetic sharing of his pleasure in the success of his manœuvre. Lastly, suppose that I myself am the successful joker who has brought off the stroke; then I am pleased at my own success.

Into the appreciation of all jokes there enters some pleasurable feeling from such sources as these. But there is always present, as the foundation of the whole joke, some purely ludicrous element. Thus, even in the refined witticism, there is some seeming confusion of thought or speech, some seeming stupidity or ignorance; but this appearance of stupidity is skilfully made use of to convey some meaning, which meaning is usually an aggression upon some individual or upon some generally accepted convention; therefore this aggression, in so far as successful, duplicates the ludicrousness of the whole situation, and adds the pleasure that we derive from contemplating feats of skill. The coarser the joke the more the purely ludicrous element predominates; the more refined the joke, the more the element of skilful attainment of an end becomes prominent; until in the most subtle witticisms the ludicrous element is almost submerged by the other pleasing factors; and,

instead of laughing, we smile merely in pleased appreciation of the subtle skill of the wit.

There, then, are the principal points in the explanation of the facts that the smile has commonly been confused with the laugh, and that laughter has been so widely held to be the normal expression of pleasure. It may be added that a further condition making in the same direction is the fact that, in young people more especially, there occurs, as we have seen, a spontaneous laughter of the nature of play, or a mere overflow of surplus energy; but with this form of laughter I have dealt sufficiently in the earlier part of this paper.

I can point out only in passing that here we have the suggestion of the true philosophy of wit and humour. Humour, I take it, is essentially the taking up of the attitude of a spectator towards one's own mishaps and shortcomings, so that one laughs at them and makes them the basis of witticisms, or at least includes one's self in the collective object of one's laughter, as when we laugh at mankind in general.

Let us examine the most rudimentary form of humour. One such is laughter on being physically tickled. Tickling is in itself unpleasant; and when it is due to a stray hair or fly, we are merely annoyed. But when one person tickles another, the tickled one becomes ludicrous, by reason of the extent and violence of the reactions by which he seeks to avoid the disproportionately gentle attack and expresses his discomfort. He becomes ludicrous to the attacker, and easily becomes ludicrous to himself; for he is aided by the laughter of the other, which infects him, according to the sympathetic principle. Thus by merely tickling our children we may promote in them the development of the capacity for humour, the capacity to see one's own minor mishaps and failures as ludicrous and, by laughing at them, to turn them into occasions of physiological benefit and pleasurable feeling. Again, if we knock our shin, or our "funny bone" against the furniture, we laugh at ourselves if we have any capacity for seeing ourselves as other see us; and if we have no such capacity we merely endure the pain as best we may. Here again the wise parent has the opportunity to develop in his children the humorous attitude. He who has learnt to laugh at such small bodily mishaps, will easily learn to laugh with his fellows at his own moral misfortunes and intellectual slips.

We see now why the most humorous of men are also at heart the saddest. They are the men in whom the sympathetic tendencies are most delicately responsive, and who at the same

time hold a lofty ideal of what man's nature is or should be.¹ To such a man the shortcomings of human thought and action are not merely ludicrous, but also humorous; for he makes no claim to stand above his fellows, immune from their frailties and misfortunes; but rather invites us to laugh with him at mankind in general, himself not excepted. Thus while we resent mere facility in laughter at the mishaps of others, humorous laughter becomes a precious bond of sympathy on a higher plane; for in the humorous response, laughter is not merely "laughter at," but also "laughter with"; we all laugh together, instead of bearing our troubles in silent isolation.

I have claimed that the theory of laughter here presented is new. Yet I must admit that one philosopher, who was also a poet, has anticipated me and stated my theory in two lines. Lord Byron wrote:—

"If I laugh at any mortal thing
'Tis that I may not weep."

SUMMARY.

Laughter is an instinctive reaction of aberrant type. The objects which primarily excite this instinct are such actions, situations and aspects of human beings as would excite in us some sympathetic pain or distress, if we did not laugh. The biological function of laughter is defence of the organism against the many minor pains to which man is exposed by reason of the high sensitivity of his primitive sympathetic tendencies. This defence is achieved in two ways; first, the arrest of the train of thought; secondly, the bodily stimulation resulting from laughter. Like all other instinctive activities, laughter is accompanied by an emotional excitement of specific quality, the quality that is best called "amusement." The instinct to laugh is peculiar in that its impulse seeks to effect no change in the relation of the organisms to the outer world, but terminates in, and finds its satisfaction in, the bodily changes produced by laughter.

¹ That laughter is akin to tears, that the occasion which provokes laughter in one man may bring tears to another, or that the same man may oscillate between laughter and painful feeling on contemplating a given situation, this is a fact too obvious to have escaped the notice of philosophers of the comic, and it has given rise to much speculation. The fact is beautifully expressed in the following passage which I cite after Mr. Eastman. It is ascribed by him to an unnamed "priest of the romantic movement in German literature": "Humour is the kiss which joy and sorrow give each other; it has for its device a smiling tear, it has the headdress of a folly adorned with crepe, while shod with the tragic sandal and the comic sock; it is also the electric spark which plays between the two poles of the contrary words, sentimentality and raillery; and we know finally that joy and grief, meeting in the nocturnal forest, loved without recognizing each other, and there was born to them a son, who was Humour."

MENTAL TESTS AND MENTALITY.¹

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IN this paper an attempt will be made to describe some of the speculations, hopes and misgivings which have occurred to me from time to time while applying, reading about or discussing mental tests. Its purpose will have been achieved if it expresses some real difficulties which arise when the present scope and achievements of mental tests are considered in relation to the whole subject of psychology.

Emphasis should be laid upon two points. Many of the issues raised are still matters of theory. While criticism is directed particularly towards the mass test, especially when accompanied by emphasis upon speed of performance, many remarks below are equally applicable to the individual test even when the latter is conducted by a careful and trained investigator.² Perhaps, indeed, it is time to consider more seriously the mentality of the examiner as well as that of the examinee.

Limitations of space forbid the obviously fitting preface: an appreciation of the considerable progress made by mental tests in the last ten years. Fortunately, however, this can be done in a more satisfactory way; by calling the reader's attention to the recent books by Dr. P. B. Ballard³ and Mr. Cyril Burt.⁴ Dr. Ballard has neatly fitted mental tests into the general history of human knowledge. Not only does he convince us that they are not new; he leaves us the suspicion that a topic usually regarded as ultra-modern—the possibility of coaching candidates for intelligence tests—probably caused heated discussion among the friends of Oedipus himself. In Mr. Burt's book the harvest of many years' work is laid before us in a manner which combines

¹ The substance of this paper was read to the Education Section of the British Psychological Society on 2nd January, 1922.

² " . . . This, too, is perhaps the place to insist upon one fundamental truth. Tests, infinitely more scientific than those set out below, can still be but the beginning, never the end, of the examination of the child. To take a young mind as it is, and delicately one by one to sound its notes and stops, to detect the smaller discords and appreciate the subtler harmonies, is more of an art than a science. The scientist may standardise the method; to apply that method and to appraise the results, needs the tact, the experience, the imaginative insight of the teacher born and trained." (C. Burt, Introductory Note to *Mental and Scholastic Tests*, London, 1921, p. 15.)

³ *Mental Tests*, London, 1920.

⁴ *Op. cit.*

thorough workmanship with attractive presentation. Probably for some years to come, when the uses of mental tests are questioned, any justification will involve a reference to this book.

This way of meeting criticism is obviously right; yet it brings to mind a retort which many defenders of mental tests are tempted to make to the hostile critic: "They're almost certainly better than anything you had before." At this taunt, certain intellectually honest people can only hang their heads. Among these are the examiner, who with a splitting headache in the sagging middle of a July afternoon has just given a numerical mark, implying a completely spurious exactness of judgment, to the four-hundredth answer to a once interesting question in History or English; the school doctor whose general impression, unsupported by standardized tests has recently led him to mistake a diffident, nervous child for a deficient one; the "judge of character" in a large business, who momentarily becoming sceptical of his own mysterious powers of intuition, suspects that he has just appointed a candidate on account of his facial appearance, his clothes, his accent, and the written testimonials, which, after all, do but express the opinions of others.

Yet it is obviously undesirable for the mental tester or his apologists to indulge too often in this retort. And probably few would deny that at the present time, whether intelligence tests succeed or not in measuring intelligence, there are no really successful "mental" tests *sensu stricto*, i.e., scientific determinations of types and grades of general mentality.

TESTS OF INTELLIGENCE, MENTAL TESTS, AND PSYCHOLOGICAL EXPERIMENTS.

It should be unnecessary to explain that a mental test is not a psychological experiment in the proper sense of the term. The difference between them should be clear. An experiment is an observation under controlled conditions. In such a procedure the various factors in the phenomenon to be observed can be isolated, separately changed, and their individual action studied. The aim of the experiment is usually to answer the question "how." In order to do this it may—in fact it usually does—ask such questions as "how much?" "how well?" or "how quickly?" Its goal, however, is not attained as soon as answers to these questions have been received. The interest of the experimental psychologist is directed towards the ways which the mental mechanism works. That it may work more or less efficiently is, of course, noted by him, but *quid* psychologist, he cares as much for the inefficient as for the efficient mind.

B

Mental testing, on the other hand, is an art; a branch of applied psychology. The nature of the mental processes actually occurring during the application of a test to an individual are usually taken for granted; at least, it is certainly not studied at that time, and the "subject" is not required to introspect. It is assumed that before the test has been deemed suitable for application to a large number of people, the person who applies it will not only have found out just what mental processes it involves, but also will have considered their special mode of action under the particular circumstances of the test.

My impression is that at this point there is often a lack of clear thinking. I do not believe that we know as much as we ought to about the mental processes which take place in different individuals who are attempting to pass these tests. I have a strong suspicion that most investigators assume too readily that these processes in different persons are qualitatively similar and that their variation is merely quantitative. Our need of more knowledge concerning the ways in which the mind works, when solving mental tests, is particularly great in the case of tests applied to adults, whose minds have had so much time to develop differences, both in their contents and in their functions. In the neighbouring field of ethnology there are some who hold that the phrase "the similarity of the human mind" is but a snatch from a siren song. Its danger lies in its delusive simplicity. Human minds may appear similar if regarded from a distance sufficient to soften details and to interpose a pleasing mist between them and the observer. But while observation at this range has given us the inestimable charm of Corot's paintings and of the writings of some of his followers in the philosophical world, it must be sternly forbidden in the field-worker in ethnology or psychology unless he previously obtain leave of absence from his regular duties.

It is important that the general reader shall bear in mind that the results of intelligence tests indicate only one kind of mental capacity. A mental test attempts to provide a quantitative indication of some mental trait. Of these mental traits the ability to adapt oneself quickly and efficiently to a new situation is what many persons agree to call intelligence.

Now whether the tests which set out to measure intelligence can be considered successful obviously depends in part upon the way in which intelligence has been defined.¹ Obviously they indicate quantitatively the examinee's success in adapting him-

¹ Cf. P. B. Ballard, "*The Limit of the Growth of Intelligence*," *British Journal of Psychology*, 1921, XII., pp. 138-141.

self to the situation brought about by the particular test. Whether this test-situation is a miniature of its prototype in real life; whether it is a flat picture of a reality which itself is uncompromisingly tridimensional; whether it is a black-and-white sketch of something the most prominent feature of which is its colour—all these are questions which when stripped of their metaphorical clothing are emphatically “in order” here.

Mr. Burt has shown clearly that some so-called “miniature-situation” tests are certainly miniatures, but not of their alleged prototypes. His opinion is that Professor Münsterberg’s test for tram-drivers was a test of intelligence but not necessarily of the ability to drive trams, for the men who did best at it were not regular tram-drivers but Harvard graduates.¹ It omitted the affective and conative significance of the actual situation, and, maybe, smuggled in an effective and conative significance of quite an irrelevant kind.

Not only the mental and physical conditions imposed by the mental test but the way in which its results are scored must be considered here. Sometimes the marking is “all-or-none,” though most of the better systems involve discrimination and graduation. Yet an examination of most of the well-known tests suggest that the theory underlying them assumes success or failure to be quantitatively measurable and, moreover, on some kind of linear scale extending, let us say, from 100 to zero. Now, though the numerical mark which any individual eventually gets *may* measure the extent to which he has “made good” in that particular situation, it may cast only a narrow ray of light upon his total reaction. Often one’s reaction to a test cannot be fairly indicated by the little less or more. Admittedly, some failures to solve tests are so complete that they can be adequately indicated by a zero mark. Yet others may be but a fragmentary representation in external behaviour of the way in which the examinee approached the new situation, of the manner in which his mind came into contact with it or of the particular mental apparatus which was employed in the attempt. Even though on a linear scale of measurement his achievement-coefficient was zero, most of us have a fellow-feeling with the famous Indian student whose visiting card bore the words “Failed B.A.”

The chief factors in the field of mental tests to which, I submit, more attention should be paid, are those of “mental apparatus” and “mental attitude.”

MENTAL APPARATUS.

At the present day there are two methods of approaching

¹ *Industrial Administration* (edited by B. Muscio), London, 1920, p. 89f.

psychological facts, which might be but are not complementary. The first is clearly exemplified in Galton's *Inquiries into Human Faculty*. Its aim is to study the apparatus of the mind, to describe the characteristics of the various kinds of apparatus, and to estimate the frequency of their occurrence in different individuals. A method which is almost the antithesis of this describes the mind as a succession of inter-related functions. Now while the effect of undiluted structuralism upon psychology as upon any other biological study would be to render it dull and sterile, functional treatments run the risk of losing all contact with real facts by ignoring that differences of function are commonly found correlated with differences of structure. In some modern writings this avoidance of structural description seems to be carried to an extreme, and the corresponding penalty is paid.

Even in the comparatively short history of psychology, neglect of individual differences in mental make-up has led, time and again, to wearisome and fruitless discussions. Some of these have centred about æsthetic appreciation, some about imageless thinking, and others about behaviourism. It is characteristic of different species of animals that their members seldom mate; similar difficulties seem to be experienced by minds with well-marked image-types.

The mental tester often ignores the characteristic mental apparatus possessed by the examinee. Let us consider the test which requires the association of each letter of the alphabet with a code-symbol consisting of a particular angle or dot; the whole code representing an arrangement of the alphabet around certain simple frameworks of straight lines. How often does the examiner inquire whether the result was attained by the use of visual imagery, of kinæsthetic imagery, of verbal formulæ, or of imageless thinking? No matter, it may be answered, what mental apparatus the subject uses, provided that he gets the right result. Yet if we believe this of the test, it must be regarded as a mere statistical record of performance, and the psychologist might be pardoned if he adopted towards it the attitude of that Eastern monarch who declined to see the Derby run because he already knew that one horse ran faster than another. But what if the visual imagery employed is an apparatus more primitive, more closely related to the early life of the mind, than that which expresses itself through words and imageless thought? Here, surely, is a matter of first-rate psychological interest.

Let us next consider that form of "completion" test, in which the examinee is required to supply the blanks in a mutilated story. We may put aside as too involved the

problems raised by the actual differences in the thought-processes employed by different individuals in this task, and ask simpler questions. To what extent does ability to remember the common sequences of words in phrases, the usual adjectives which accompany certain nouns, everyday synonyms and antonyms, enable its possessor to fill in the blanks instantaneously, with the modicum of thought, and even that, telescoped and short-circuited?¹ How heavily does it handicap the visualiser to whom mental pictures often come first, while words to clothe them saunter up slowly and reluctantly?

Lastly we may consider the American Army's test of the kind of general knowledge of matters of everyday interest which the ordinarily observant man may be expected to possess.² Almost all such questions can be solved by one who remembers the advertisements in newspapers or on hoardings. To a visualiser the answers to this test may come almost automatically. Immediately he reads

"Pauline Frederick is a singer, sculptor, cinema actress, poet" a visual image of a magazine page, of a patch of hoarding, or of the outside of a theatre floats into his mental vision, and there remains nothing for him but to underline one of the four suggested words. Yet, in another test in the same series, one can quite imagine that success might be achieved as a result of a definite series of thought-processes. "Pepsodent," for example, would yield the secret of its identity to a scholar who had never seen its advertisements; all the same, his mind would have worked in a more intelligent way than the visile's.

MENTAL ATTITUDE.

Discussion of this subject may be simplified by the consideration of a criticism of mental tests like those contained in the alpha group, employed by the American Army. The opinion is sometimes expressed that the stereotyped nature of these tests did not allow many of the important subtler differences between minds to appear.³ Did they measure anything more than the kind of intelligence which in practical life is termed smartness;

¹ Mr. George Bernard Shaw writes: "... to me the whole vocabulary of English literature, from Shakespeare to the latest edition of the Encyclopædia Britannica, is so completely and instantaneously at my call that I have never had to consult even a thesaurus, except once or twice when for some reason I wanted a third or fourth synonym." (Preface to *Back to Methuselah*, pp. 26 and 27.)

² See C. S. Yoakum and R. M. Yerkes, *Mental Tests in the American Army*, London, 1920, p. 218.

³ In justice to these tests, which are taken here merely as a well-known example, it should be added that presumably this was never one of their aims.

the capacity to adjust oneself rapidly to the immediate circumstances? Even if this be true, such intelligence was obviously needed in the particular duties for which the successful examinees were destined. Yet is not one of Man's outstanding qualities his ability not only to adjust himself to external conditions, but to adjust them to himself?

Such a thought arises immediately one brings the conception of smartness alongside that of genius. They are an infusible pair. A genius is usually anything but smart. Moreover, by refusing to accept his material or social surroundings, by modifying them instead of passively allowing them to modify him he distinguishes himself from the merely smart man, whose aim is compliantly to live up to external demands.

It is, of course, true that mental tests are too recent for the results of their application to geniuses to be very extensive. Moreover in this field an ounce of experiment is worth a pound of speculation. Yet subject to contradiction from those who have had practical experience of testing geniuses, I believe that not a few would fail to achieve the topmost ranks in a good many mental tests. In Toulouse's account of his application of mental tests to the famous mathematician Poincaré, we learn that his distinguished subject fidgeted, was distracted by the apparatus, and did not obey instructions exactly. In the shallowest sense of that word he might have been described as "inattentive," this being an epithet which we apply to persons who persist in attending to something other than the thing we have chosen for them.

Now while misunderstanding of instructions may be due to stupidity, it may be an understanding of something other than, and perhaps more interesting and novel than, the problem set. Since a genius probably never sees any complex problem in quite the same light as an ordinary person, he may easily misunderstand instructions and so appear to be stupid. The number of geniuses with whom I am personally acquainted is unfortunately limited, but I believe that while every person's subjective experience, arising from the interpretation of a written description or set of instructions may be different, the difference between the genius's and the ordinary person's is probably very great. Highly intelligent subjects may sometimes do badly in a mental test where speed of performance is important because they see a "catch" in it where no catch was intended, while ordinary persons accept the situation unquestioningly. In minds of the former type there is a tendency to conceive the question in terms quite different from those intended by its framer: perhaps even to re-phrase it. It may be that this capacity to see

a problem in a different light from that in which it was understood by the person who originally described or invented it, is not conducive to success in some mental tests, yet it is one of the qualities which has altered the face of the world.

But this exemplifies the appearance, in the restricted field of mental tests, of one of the most important problems in the psychology of the future: that of *attitudes towards experience*. We have contrasted the behaviour of the person, who accepting his problem as he finds it, solves it quickly and perhaps with little reflection—whether in the best way or not he may care little—with that of the individual whose first reaction, like that of some lowly organisms, is to back away from the situation. Unlike them, however, he subsequently thinks about it, and perhaps even alters its terms. We all know some persons who go out to meet life with both hands, and others who on meeting every new situation first withdraw within themselves, whatever they may do later.

There have been many attempts to describe these two types of behaviour. The names for them which express best the characteristics which we have described above, are those used by Dr. C. G. Jung. He calls them *extrovert* and *introvert*. By the use of these terms he calls attention to the fact that the main interest, or as he calls it, the *libido*, of the extrovert is directed towards the outer world; this term, of course, including other people; while that of the introvert is directed towards the events occurring in his own personality. Jung believes that while complete extroversion and introversion respectively are attained only in pathological aberrations of the personality, the majority of a normal person's reactions conform to one of these types.

The use of this distinction here, does not imply that the present writer could apply it in all the various directions which are described in Dr. Jung's recent book *Psychologische Typen*.¹ But in earlier writings Jung describes clearly that backing-away from a problem, with subsequent thinking, which characterises the introvert, and the rapid flowing into action, with the minimum of thought, which the extrovert exhibits.

Now, at first glance it might seem that the mental test of the kind which demands an immediate adaptation to a practical problem places a premium upon extrovert behaviour. In many cases this is true: the American Army was not looking for introverts when it devised its tests. Yet what of the man who can solve a problem easily in the examination room but cannot

¹ Zürich, 1921.

"make good" in real life? Schoolmasters and others know him well. For his failures there may be several reasons acting singly or together. The concrete situation of the battlefield, the heated directors' meeting, and the "ragging" class demand rapid extroversion and instantaneous appropriate emotion. Your extrovert has won the V.C., made the appropriate answer or spotted and punished the ringleaders without clearly knowing why or how. But he may not know—or care—how to act in future if a slightly different situation should arise, and next time he may fail just as dramatically. Your introvert may not screw himself up to the pitch of appropriate action if the situation demands immediate adjustment, but if things can wait a week, by that time he may have devised a plan which will make such eventualities impossible or at least much less probable. For his temporary withdrawal from the situation gives him the opportunity of gaining perspective, of fitting the problem into its place in a larger scheme. Among first-class aeroplane fighters there are probably specimens of healthy extroverts as perfect as this age is likely to see. Perhaps some of the mathematicians who calculated the bases of their aeroplanes' stability were equally healthy introverts.

And it is just here that the question of mental tests becomes perplexing. It cannot easily be assumed that an infallible way to catch extroverts is to sally forth with an assortment of mental tests, for it seems quite certain that the bag would include some good samples of the other class. And the reason appears to be this. The problem in the mental test is a miniature of a situation in real life or of something closely resembling it. But while in some tests the problem itself is presented, in others, the very nature of the instructions already implies an abstraction, a backing-away from concrete reality.

Let us suppose that a test of practical ability, such as that involved in fitting together the component parts of a bicycle bell, be given to persons who are unfamiliar with it. The extrovert may dash in, fiddle about with the various parts, and eventually complete his task by a hit-or-miss procedure. The introvert withdrawing from the problem and thinking about it, will do badly if he cannot construct a mental scheme or schemes into which the bell's mechanism will fit. Yet on the other hand, since he is a man of schemes, he may already have one ready-made. In this case, then, he would be ranked as a person of practical ability, though a moment later he might fail miserably to build up a simple padlock. The first person who reacted to the situation "hidden submarine threatening ship" with the thought "uni-directional hydrophone" almost certainly did not

do so, when he was actually contiguous in space and time to the danger. Backing-away, both literally and metaphorically, was indispensable.

Let us now consider another type of test; that which asks what you would do in a complicated social situation. The introvert's reaction is unpredictable. He may back away, again. Yet, by offering him a verbal abstraction of the essential details of a concrete situation you have nearly presented his type of mind with the answer; you have yourself backed the situation away from him. By this kind act he is relieved of his chief difficulty in life's problems; the presence of the reality, for he often exemplifies the type of person, described so brilliantly by Professor Janet, who can give another excellent advice but cannot follow it himself.

Furthermore, since both introverts and extroverts are capable of becoming conscious, even though only to a slight degree, of their defects, and of compensating for them, some mental tests may offer just the kind of artificial situation in which a well-marked introvert has formed the habit of "extroverting" himself.

Intimately connected with these considerations is the problem of *stupidity*. A great deal of thought might profitably be given to the refining of the conception which we attach to this word. As commonly used, it is usually understood to apply to the cognitive aspect of mind. Yet psychiatrists recognise an *emotional* stupidity as well.

It seems possible to describe stupidity in an approximate way. It must not be, though often it is confused with mere ignorance. The adjective "stupid" may be fairly applied to a person who cannot understand, or grossly misunderstands, words, pictures, or other common mechanisms for conveying meaning, not because he has never known their meaning, but on account of some inner deficiency, whether intellectual or affective, which prevents him from realising their significance in any particular case.

What may we suppose to be lacking in an intellectually stupid mind? It would seem to be the relations which are normally formed between those of its memories which "ought to" be available at the time, and the perceptions or ideas present in consciousness. In this connection, it is interesting to notice that tests, the results of which correlate most highly with intelligence as estimated by the teacher, involve just this ability to see relations.

More difficult to describe is emotional stupidity. It seems to be characterised by the person's inability, in a particular situation, to enjoy the affective colouring which the majority of

people would naturally experience. Thus an intellectually eminent person may appear stupid if asked to perform some ordinary task which falls completely outside his usual sphere of activity. Obviously some brilliant scientists might make woefully bad hospital orderlies, district visitors, or managers of a household. The reason is not that they could not understand the problems involved, nor that they are physically or mentally incapacitated for the task. It seems to be that they cannot attune themselves affectively to the situation. Here again, this example must be distinguished from the simpler one, in which consciousness of an actual intellectual inability to see relationships may bring about embarrassment. This would simply be a secondary affective result of intellectual stupidity. In the typical case of emotional stupidity, however, there is inability to establish suitable affective relationships. The antithesis of this inability may be a kind of intelligence, though it appears, so far, to have eluded detection through tests.

In conclusion it should be remarked that this paper was intended to describe some of the aims which seem desirable in the development of mental tests. Its writer is well aware that in many places, both in this country and abroad, more progress has been made than would be gathered from this general treatment.¹ In bringing some points into sharp focus, it must inevitably have obscured others. For this, pardon is asked from those who understand.

¹ A paper on "The Study of Personality," read at the British Association's Edinburgh meeting in 1921 by Dr. H. S. Langfeld of Harvard University, indicated that several questions raised in the present article are receiving consideration there.

IMAGE AND THOUGHT.

BY RUDOLF ALLERS.

THE relations between images and thought are of some importance for many questions of psychology and psychopathology. Especially since the conception of "symbolic" functions has gained wider acceptance these relations ought to be studied with great care. An attempt, for example, to allow images to be substituted for thought-processes, as did Silberer¹ in his "functional phenomenon," is not really well founded unless it is preceded by a close examination of the nature of the psychic states concerned and their respective relations, i.e., of thoughts and images. But these questions are not only of interest to descriptive psychology; they are also of importance for epistemology, and they are, indeed, so closely interwoven with problems of this kind, that they cannot be treated from the psychological side without some general remarks of a more philosophical character.

Since Brentano,² many philosophers and psychologists have been inclined to find the only true and characteristic "moment" of psychical occurrences³ in the "meaning" of an object, the "intention" directed to it, the "*inexistentia intentionalis sive mentalis*" of the object in the mind, as the mediæval logicians used to say. We shall not discuss the question, whether to every psychical phenomenon an "intention" is to be ascribed in quite the same sense; but it may be remarked parenthetically that Meinong in his last work, and Husserl seem to believe it. Our theme refers only to psychic occurrences of an unquestionably intentional character, and we shall endeavour to describe this more precisely.

Twardowski, the renowned Polish philosopher, was perhaps the first to distinguish clearly between the three "moments": the objects intended or meant in or by the psychical occurrences; the content ("*Inhalt*"), the special psychical phenomenon, in which the object finds its "*inexistentia mentalis sive intentionalis*"; and the act, by which the subject, the ego, directs its activity—

¹ *Jahrbuch f. Psychoanalyse*, Vol. I., 1909.

² *Psychologie vom Empirischen Standpunkt*, Leipzig, 1874.

³ I chose this term "occurrence" because it seems not to prejudice any theory. If this and other terms are not altogether well chosen or are unused in scientific terminology, the author begs to be excused; the impossibility of keeping in touch with English literature during and after the war has prevented his acquiring a more extensive knowledge of current psychological and philosophical terminology.

to be understood in a metaphorical sense, and not as a volition, attention or such—to the object.

We may call the object the thing “presented” to the mind, and the psychic occurrence through which this presentation takes place the “presentant,” following therein the terminology of Meinong.

Some examples may illustrate this distinction. If I look at my table it may show different aspects. It looks differently, if contemplated from above or from the side, directly or at an angle, in daylight or in the dusk, attentively or only with a hasty glance. But in all these varying aspects, one and the same thing, the identical table of my own room, is “presented” to me and “meant” by me. The “presentants” are the different perceptive aspects. Then I may have a mental image of this same table; and the images also may vary a great deal. At one time the image may be well defined and rich in colour, at another it is blurred and indistinct; it may show the whole table or only a part of it, it may show it fore-shortened as in actual perception or without perspective as in a diagrammatic drawing. But all the different images still “present” the same table. Images as well as perceptions may act as “presentants” of the same thing “presented.”

My own attitude in these different occurrences varies too; it is different according to whether I am looking at the real table or only imagining it, but it is much the same, whatever the perspective aspect; and again the same, whether the image is clear or indistinct. This attitude is what we term the “act.” There are profound differences between the act of perceiving and the act of imagining; differences not to be described, but to be appreciated immediately the very moment one directs the attention to them. We may distinguish between a sphere of perceiving and one of imagining. The differences between perception and image, so often discussed, are certainly in principle only differences of acts, not of the “contents” or facts “presented.” It is true also that within any such sphere of homogenous acts—as in the one of imagining—the individual acts occurring are not quite identical; the act of perceiving while observing attentively and of perceiving “at a glance” surely differ one from the other in some respects, even if a description of their difference should prove impracticable. But everyone must agree that this kind of difference is quite of another sort than that between the acts of perceiving and of imagining, the latter being one of essential character, while the first only shews modifications of an unaltered principle.

We may extend these considerations also to thought-processes.

There, too, we have an object "meant" or intended, and a psychic occurrence presenting it. The thought—or object—expressing the relation between the sides of a right-angled triangle remains identically the same, whether it be formulated as $a^2 = b^2 + c^2$, or $a = \sqrt{b^2 + c^2}$, or in a verbal proposition of some sort. It is always the same object "presented" in or through the varying "presentants." The presentants may be of different natures. Usually they are words or signs equivalent to words. But there exist, surely, phases in the process of thinking, during which the object is somehow intended, "meant," aimed at, at least, if not defined in some way, without words or signs of a word-like function being present. These pre-verbal phases of thinking were perhaps first remarked in pathological cases by Hughlings Jackson, whose ideas were taken up and enlarged by A. Pick¹ (of Prague), and by H. Head.²

The main question now is: What sort of relation exists between those signs (including words) and thought? Are signs of every sort apt to serve as an expression of thought? Are such signs images in the true psychological sense of the word?

If, now, we try to answer these questions, we must naturally consider each of the three "moments" mentioned. But one more observation has first to be made. The thing presented—be it a real thing or an ideal one—is more or less independent of the presentant and of the act. The table perceived, imagined, thought of—or even desired, valued, liked—is always the same. It remains the same however much the presentants may change. In some sense the attaining of the object intended—if this formula may be permitted—is influenced by the presentant; it seems not quite the same object that we have before us, for example, in an exact scientific definition and in a crude, obviously incomplete and preliminary description; but is it not after all the very same? How could we, if it were not, be sure that the newly-found, exact formula refers to the same object as did previously the inexact and approximate description? We will leave these questions undiscussed for the present, although they bear on the subject-matter of this paper; they can only be answered in a later stage of the argument and after difficult inquiries.

While the thing presented may be considered to be essentially independent of later "presentant" and "act" the latter are themselves closely connected with each other. It is clearly impossible for example, that an act of imagining could "mean" its object

¹ Die agrammatischen Sprachstörungen, Berlin, 1913.

² On Aphasia. *Brain*, 1921.

otherwise than by or through a presentant of an image character. Therefore every change of our intention, our attitude towards the objects "meant," must be accompanied by a change in the psychical material constituting the presentants. If I begin by simply *imagining* my table, looking at it, as it were, with my mental eye, and then think *about* it, say of its use in every-day life, my inward attitude undergoes a change. It may be, as really is often the case, that while I am thinking about it, some images are still floating before my mental eye; but my inner behaviour to them is now altogether a different one. If we should say that in the process of imagining the images chiefly claimed my interest, that they were somehow the central psychic fact, and that now, in thinking about the table, they have become only of secondary importance, have been degraded to mere peripheral accessories, we should not point out the real difference. There are facts discrediting this view. It is known that we may have perceptions without noticing them; we pass below a window, some music is audible, but we do not notice it—after having walked on, maybe some twenty minutes, we remember the playing, we recall the tune, and do not doubt that we actually heard it. Certainly this music did not claim our interest, nor did it even occupy the centre of our psychic field. It cannot be the relative position of images by which their rôle in imagining or thinking is determined. We shall see later on that the relation of images to thoughts is a two-fold one.

But the simple descriptive or phenomenological consideration of "thought" as such, and "image" as such, makes it impossible that the first should ever evolve out of the second. Since the attitude of the ego in imagining and thinking is *toto genere* different, as is clear enough if one considers extensive cases of the one and the other, no act of thinking can be produced merely by transforming one of imagining. Nor can the presentant corresponding to the one become the presentant to the other. This is not a peculiarity of the particular psychic spheres mentioned here, but holds true for all spheres. It is impossible that an emotional, volitional, etc., phenomenon—the inter-correlated unity of act and content—should ever give birth to one belonging to a different category. No thought can evolve out of an emotion, no emotion can be transformed into a thought, not even by "sublimation."

The continuity of psychic life cannot be interpreted as a successive evolution of heterogeneous phenomena, one out of the other. They follow each other, but only seldom, if ever, does

¹ Cp. also M. Scheler *Über Sympathiegefühle* Halle, 1912.

the preceding state contain the subsequent one, as the bud contains the flower or the egg the chicken. The germ of the thought is not enclosed in an image or even a series of images. Both thoughts and images arise from the common ground in which all psychic states or occurrences are embedded, the profound and unaltered ego, whose central and most deeply buried kernel gives birth to one and all. This all-enclosing ground guarantees the continuity; but thoughts are always distinct from images, as are all occurrences of heterogeneous spheres from each other.

These deductions, to which consideration of the essence of thought and image as such necessarily lead, can be to some extent verified by experimental work.

Association-experiments, though originally proposed for the solution of quite other problems, can give some evidence, if one instructs the subjects to describe as minutely as possible the imagery and all other occurrences observed during the reaction time. Most persons learn very quickly to give an account of those occurrences without difficulty, so that the reaction time remains unaltered.

The relation of the reaction word to the imagery preceding it allows us to distinguish five cases:—

1. The image, or if there are several then one image, usually the last one, evokes a strong tendency to produce a word, *i.e.*, to be named and so to produce the reaction-word. Also, under normal conditions we may observe that some images (and perceptions also) are nearer to the words, more easily named, than others; one knows the man who cannot “find a word” and so is apt to repeat the same word again and again in the course of a test, not unlike some cases of aphasia. What factors determine the nearness of an image to its name is not easy to say, nor are they of importance in this context. The distance from image to word sometimes influences the length of the reaction time, the subject waiting until an image, having a readily accessible word attached so to speak, appears. It is to be noted also that the images, which could not be *named* at once or even afterwards, can be *described* quite easily and with great precision.

Scissors—paper, 2 3/5 sec.¹ “Saw first small scissors, such as my mother used to have, very distinctly, then less distinctly her sewing table with many things on it; suddenly a pocket-knife and also a second pair of scissors, lying on a writing desk. The scissors were of the sort one cuts paper with. Then

¹ Only some typical examples are reproduced out of a great number of experiments done in the summer of 1921 in the psychological laboratory of the Physiological Institute of Vienna.

I said 'paper.''' Asked why he did not answer knife or table, he answered, "I don't know, there were no words."

2. One image out of a number, or one detail of an image of greater complexity is more or less voluntarily chosen and named. The total attitude differs from the one observed in the former cases. There an expectant, passive attitude, waiting for the image which brings a word; a more indifferent, contemplative overlooking of the images and the feeling that one chooses freely.

Lake—sail, $4/5$ sec. "Saw the lake of A. as one sees it from the pier at H. The sun shining on the water. A steamer just arriving; on the right and left some indistinct green matter. On the lake distant boats with oars and sails. One had a triangular sail, shining white in the sun. I looked at the whole picture and my eye was fixed by this sail. Then I said, 'Sail.' But I could have named one of the other things as well. It was like actually looking over the lake and saying, 'Oh, look at the beautiful sail.'"

3. The reaction-word does not name any of the images seen nor any detail of them; it has no conceivable connection with them. Two cases are to be distinguished. The imagery either shows a connection with the stimulus word or not.

Sensual—non-sensual ("unsamlich") $1\ 2/5$ sec. "Two visions overlapping. The one above is transparent; the cross-section of two human beings, as drawn by Leonardo and reproduced by Freud. Below and seen through the first image a nude female torso, only partially visible, the rest disappearing in a brownish background—possibly cloth. Simultaneously the thought of the meaning of the word 'sensual' in 'Kant.'" The reaction-word springs to the tongue without my doing anything; I am surprised myself in uttering it."

Harp—guitar, $1\ 3/5$ sec. "Only saw a harp very clearly."

Sky—earth, $4/5$ sec. "Saw a somewhat artificial-looking sky."

The latter case, in which only the stimulus word is illustrated by an image, is very common. The longer extract given above seems to be only the description of a more elaborate reaction of the same type.

The other case is illustrated by the following example:—

Make—shrine, $4\ 1/5$ sec. "Feeling of running about as in 'Blind man's buff' to look for a word. No word will come, the time is passing; feeling anxious. An image of something fluttering through endless indistinct vaults. Suddenly the word."

¹ The occurrence of this imageless and wordless thought shall be touched upon later.

Here the imagery does not show any connection with the words themselves or any "sense" they may indicate; it is an illustration of an emotional process or of an activity of the subject.

It ought to be pointed out that reactions which show only an image connected with the stimulus word are not necessarily purely determined by common verbal connections. Though this may be the case in Sky-earth, it is surely not true for Harp-guitar. The fact that so-called "inner" associations, representing a certain amount of intellectual activity may also be accompanied by images only corresponding to the first word, is not without importance for our further argument. The images may even lack any connection with either of the words.

Bottle—mug, 2 $\frac{4}{5}$ sec. "Saw only the figure of the scientist, Dr. N."

Lamp—stool, 1 $\frac{1}{5}$ sec. "Saw some geometrical drawings out of a treatise on acoustics."

4. An image corresponding to the reaction-word appears simultaneously with the word. This is a common case if images are seen at all. Often it is rather difficult to know whether the image did not really appear after uttering the word. This case is not identical with the first one described above. Here word and image are linked together; if one of the two elements "produces" the other, it is surely the word. Whereas in the other case one feels strongly how the word is drawn out by the image, one waits for an image capable of evoking a word. None of these descriptions, of course, can give the essential feature of the phenomenon; they can only indicate the direction in which to look for it.

5. No image is seen, nor can any thought process be ascertained. The subjects tell us that there was "nothing"; it was like a hole, a void through which the word suddenly shot up; the word was not thought or spoken internally before uttering it; one is surprised by the answer. "It is as if one was looking in an empty room, not seeing it really, and waiting for something to come out or to show itself there." Such an emptiness can last even through a prolonged reaction time. If the occurrence of imagery should be thought to be indispensable to the reaction, one may assume in these cases some "unconscious imagery" analogous to the "unconscious phantasies" of Psychoanalysis. We shall consider later on the value of such an assumption.

Surely we are entitled to say that a reaction-word may arise without a corresponding, or any, image being present? It is

¹ Very often the subjects saw only the stimulus-word in printed or written letters which persisted without any change until the reaction word was pronounced.

improbable that images or thoughts should have passed unnoticed by the subjects. It is true that most persons do not know anything about their images (or even their thoughts if they are not neatly formulated in words), and that even those who know something do not notice these occurrences in normal thinking. Our subjects, however, were accustomed to introspection, and, moreover, were instructed to direct their attention to these phenomena. It may therefore be assumed that they did not as a rule overlook very much. But they would be even less likely to have remarked images not connected with the reaction-word, and overlooked others showing an immediate connection.

Words and thoughts are not to be compared. In some exceptional cases a single word may contain or even express a thought; but generally finding a word and finding a thought are quite different processes, which may evolve quite independently from each other. But in one way or another thoughts always show a tendency towards word-formation. The final phase of thought-production or thought-evolution seems to be necessarily the finding of the appropriate words; and even in the preparatory and pre-verbal phases the tendency towards a final verbal formula is in some way efficient. The very complex relations of words and thoughts cannot be discussed here; it must suffice to point out that the excogitation of a thought's definite formulation and the finding of words are in certain respects identical processes. We shall see that the observations made in association-experiments may throw some light on the problem under discussion, viz., the relation of image and thought.

Direct experiments on thoughts were made first by presenting to the subject a bit of paper whereupon a word was written. The instructions were that the word was to be read and understood, and that the subject should then wait until a thought should present itself, that he should then answer "Yes," and give a description of the occurrences noticed. Without giving very satisfactory results the experiments showed that (1) thoughts may arise without the presence of images of any sort whatever, and that (2) the images may be altogether foreign to the thoughts. The last case is already realised by the association-experiment mentioned above (sensual), the Kantian meaning being in no way indicated by or connected with the images. Another example:—

"Ornat,"¹ 6 1/5 sec. "I saw a priest, clothed for service, standing immediately before me, but turning his back on me, in a church; the altar, however, was very far away in the

¹ Robes.

background. I thought of Schiller's poem, *The Count of Habsburg*, without any of the words being present. This thought came during my looking about in the church."

In both cases the thought is connected with the meaning of the stimulus word, whereas the following occurrences do not contain anything related in any way to the meaning of the thought. In the case "Ornat," even the direct connection with the word is missing, since it does not appear in the poem; there is only a connection of meaning, since in German the same word is used for the priest's clothes and the apparel of the emperor to be crowned.

But a thought may also present itself precisely in the form of an image, giving a complete illustration of the thought. It is doubtful whether this is possible in cases where the verbal formulation gives no clue as to how to arrive at an illustration.

"Cat," 3 4/5 sec. "The cat may look at the king." Before the thought found its formula the subject saw a King of Hearts in the foreground—rather large—and far off a grey cat looking at the King. The whole image was like a picture, flat and contrasting with a dark background.

Other experiments were tried, using the method of Selz, and exposing pairs of words. The Selz method consists in presenting on a piece of cardboard a word, and—below or above—another indicating a task (*e.g.*, Wound—cause?; Work—significances?; Church—parts?; etc.) Here again we see, just as in the association-experiments, that only the image corresponding to the stimulus-word may be present, whereas any image connected with the task is omitted.

"Barometer—genus proximum," 4 sec. "Instrument for measuring. Saw during the whole time only an image of a barometer."

The voluntary choosing of the reaction-word also finds an analogy here; this allows us to hope that the former experiments may really furnish material for answering our question.

"Dance—genus proximum," 7 3/5 sec. "Bodily movement."

Immediately the image of a dance was seen; a girl, dancing, inclined, a long veil surrounding her. "I found the word by voluntary and conscious abstraction."

The situation is therefore not such that the images must be supposed to enter somehow into the thought or that the thought must be supposed to evolve out of the images: a new process takes place, the present image-material being worked up to a fresh result.

We may, it seems to me, distinguish two cases of the elaboration of a thought from image-material. The images may be

either instrumental to the producing of the thought or they may be its raw material. In the first case the thought "evolves," using the images in some way or other: thinking *with* the images; in the second the images furnish the raw material out of which the texture of the thought is woven: thinking *about* the images. The contrast, indeed, is not so well defined as it may appear at first sight, because in the "thinking with" process the images themselves are made use of, but in the "thinking about" process it is not the image itself but the thing presented through it, which is used as raw material.

Some cases have been noticed in which images are found which illustrate the stimulus-word and the task, without undergoing any linking together or including the thought within or between themselves.

Other experiments were made by exposing two words, which were to be connected in a thought, but without active co-operation on the part of the subject. In most cases—if the words gave rise to images—the subjects could not get away from the images and no thought was formed. In the positive cases it was again noticeable that occasionally the images did not show any connection with the thought—or only a very loose one—so that one cannot speak of an evolution of thought out of the images.

Shakespeare—Schiller, 2 1/5 sec. "Immediately after reading the first word I saw an edition of Shakespeare which I am used to; this persisted both while reading the word Schiller and afterwards, when after a short interval a bust of Schiller appeared in front of the backs of the books. Then came the thought about the value of first editions."

The method of Bühler¹ seemed to promise yet better results. If one presents already formulated thoughts to the subject, the fact becomes strikingly evident that between the imagery and thought only a quite loose and superficial connection having nothing to do with the "sense," may exist, or none at all. This method was used by the present writer, and the instructions were the same as in Bühler's work.

Do you understand: "La théorie de la connaissance doit être suspendue à la métaphysique"? Immediately after hearing the word "suspendue" was seen the image of an arm extended, holding a thread between the fingers with a ball hanging down, and the indistinct impression that the ball was hanging over a table. The word "métaphysique" produced the fugitive vision of a thick book. I again represented the

¹ *Archiv f. d. ges. Psychol.*, IX., 1907.

proposition, articulating it internally, the imagery persisting first and then disappearing. I thought, "epistemology, psychology too, every science"; a reminiscence of Hilbert's work on geometric axioms passed through my mind.

This example may suffice; it represents a type occurring very often in Bühler's records. Schiller¹ thinks, referring to a similar case of Bühler's, that we should consider the imagery as a symbolic representation of the meaning or the significance which would be followed by the thought or the apprehension of the meaning through the thought. But if I look at a description like the one given above I cannot see that the imagery is really a symbol for the meaning of the thought presented, because not the true meaning of the thought is symbolized by it but only an accessory and accidental element of its formation. The subjects, too, do not feel as if the images were an essential constituent of the act of apprehending and understanding the thought, but only a sort of by-product. The same thought was proposed to the same subject in another formulation.

Do you understand: "The building of epistemology must be erected on the ground of metaphysics"? The subject saw a Gothic church-tower, whose lower parts were immersed like the church itself in a grey and misty indistinctness. First, he was wholly occupied by this picture; he had to wonder whether the church could be St. Stephen's. Detached himself somewhat energetically from it; understood the proposition; the image then disappeared at the same time.

In this case the interpretation of the imagery as a symbolic representation of the significance or meaning would be manifestly untrue, at least so long as one takes the facts as they are without using any interpretative arts.

All the experiments permit me to draw this conclusion: it is not necessary that the imagery should in any way show a connection with the thought; it may be quite incidental, even a hindrance to its apprehension. Very often, of course, the images do show an immediate connection with the thought; just as we saw an image appearing as an illustration of the reaction-word, so a thought may find an illustration too. But it is doubtful whether this imagery is in any sense to be considered as *essential* for the production or "evolution" of thought.

Thought can arise quite independently of any precedent representations or images. It is not enclosed by them, does not evolve itself out of them. The same view holds true also for single representations. If we consider the *process of searching*

¹ Zeitschr. f. d. ges. Neurol. and Psychiatrie, LIX., 1920.

for a forgotten word we find again that the thing looked for is not contained by the words, ideas, etc., presenting themselves first and rejected as false. In the beginning we have only a general direction in which to look for the thing forgotten (a melody, the name of a poet, etc.) This region, wherein the aim is located, is not as a rule given to us in any image; it is a pure, imageless "knowing about"; even this may be absent, as in the case: "What is it that I am just intending to say?" The direction of the search is somewhat more narrowly or better defined, the search is more definitely directed by a curious sort of attraction proceeding from the thing sought but not yet found; there is an "active gap" as William James said, attracting as it were our energy, demanding to be closed or filled up. One feels that this active void is more than a mere gap, that in its depths the thing looked for is really present, one perceives it somehow without being able to get a clear view of it. One could perhaps say that it is given as existent, but not in its "suchness."¹ This thing may emerge suddenly, but it may also be preceded by messengers, so to speak, which are rejected, because the gap remains open until the true thing has come forward. Sometimes the "messengers" give us some clue whereby we may induce the true thing to come out of its hole; the words, melodies, etc., bring one "part" or the other with them—nevertheless they are not accepted. The thing looked for is never contained or enclosed in these "messengers," it remains where it was, it is transcendent to all its precursors. The same description may be applied both to the remembering of old thoughts and to the finding of new thoughts, which is of special importance. The processes of a new thought crystallizing in our mind and of remembering a thought which has once been there are essentially the same; perhaps this fact is the psychological basis of Plato's theory of *ἀναμνησις*. Here, too, the definite thought, the accepted synthesis of a new relation, is preceded by defective formulations; they do not "contain" the thought to be expressed.

If we put now the question of the relation between image and thought we must take into consideration the fact that images are but a part of the total phenomenon of representation. The object presented by a representation is not presented by the image—visual, auditory, tactile—alone, but also by imageless elements, knowledge about, etc. Thought certainly is founded not only logically but also in its actual genesis by representations;

¹This process of searching ought to be studied more closely; for the purposes of the present argument the few remarks made above must suffice.

in any event the latter enter into thought. What, then, is exactly the rôle of the images? We distinguish above a "thinking with" and a "thinking about." I may think about the properties of geometrical figures, the figures being the representative material linked together and fused into a unity in thought; this is possible without any image being present, *e.g.*, if I think about the properties of a space of n dimensions. I may conceive the thought of Pythagoras' theorem and illustrate it by images of triangles, etc., and may put them together, like the parts of a puzzle. In neither case is the thinking truly "symbolic," because the images never present the meaning of the thought: this is completed only by the synthesis of the discrete images to a new totality, a synthesis never to be "seen" immediately in the images. On the other side, images "symbolizing" the thought in its general outlines (see "suspendue" above) give only the relation as such, and no sort of indication of the special terms connected in the thought. A true symbolic representation of thought is only possible if the synthesis is first completed. Whether indeed such representation exists may seem doubtful, though Silberer advocates this view; but, it seems to me, that even in his cases it was always some general relation or some accessory "moment" which found a concrete illustration.

We cannot consider images or even the full representations to be the germs of thoughts. The thought-process makes use of them, is indeed impossible without them; but it is not as it were a refined process of imagining—it is something totally new. The thought does not evolve out of the images; it feeds on them, but arises out of some deeper layer of personality. It is ever transcendent to imagery.

Perhaps it is a general feature of psychic life, that the different processes are related to each other without ever transforming themselves into each other. Representation in its full significance may "contain" images, but it does not evolve out of them, since its other elements—imageless knowledge, *e.g.*—are of a heterogeneous nature. Thought again seems to synthesize representations, but it is evolved out of them—not "hatched out" as it were. A new element, a new sort of activity characterises thinking; it is an act *sui generis*, therefore it has presentants of its own. A thought can only be apprehended in thinking; even its most unsatisfactory and incomplete forms are yet to be *thought of* and not to be seen in images. Schilder's view that the visions and hallucinations of schizophrenic patients (dementia praecox) are to be interpreted as thoughts incom-

pletely evolved, does not, so far as I can see, find sufficient proof in experimental and descriptive psychology.

The problems touched upon in this paper are naturally much too numerous and of too complex a nature to permit more than some suggestions towards their solution. A great deal of work will be necessary to obtain reliable knowledge about these things. I can only hope that the view here outlined may prove of some help in further enquiries into these matters.¹

¹ Some papers on Imagery and Thought have recently been published in the *American Journal of Psychology*; but I have been unable to obtain copies. The work of Crosland (*Psychol. Monographs*, Vol. XXIX., No. 1) has just come into my hands, too late to be used here. I should only like to remark that I do not suggest that imagery is altogether without importance for thought; only I think that thought may occur without preceding or accompanying images, and that it never evolves out of the images.

DREAMS OF FEAR.

By JOSHUA C. GREGORY.

A GOURMAND put on his spectacles when he ate plums, to make them look larger; a microphone makes inaudible sounds audible: there is a physical magnification. There is also a psychical magnification. Hartley thought that human society acted as a psychical magnifier, or multiplier, to the emotions of individuals. "The first occasion of laughter in the child," he writes, "seems to be a surprise which brings on a momentary fear first, and then a momentary joy in consequence of the removal of that fear," and this "may appear probable, inasmuch as laughter is a nascent cry, stopped of a sudden; also because if the same surprise, which makes young children laugh, be a very little increased, they will cry." He adds: "This is the original of laughter in children, in general; but the progress of each particular is much accelerated, and the *occasions multiplied* by imitation. They learn to laugh, as they learn to talk and walk; and are most apt to laugh profusely, when they see others laugh." The occasions of their laughter, few at first, are multiplied by their social surroundings, because they imitate others who smile and laugh on so many occasions. Hartley, generalising from the emotions associated with laughter and describing society as a psychical magnifier or multiplier, adds: "For whatever can be shewn to take place at all in human nature, must take place in a much higher degree, than according to the original causes, from our great disposition to imitate one another."¹

This psychical magnification is imposed from without; psychical magnification also occurs from within. Dreams frequently contain such psychical magnification. A dream of being scalped by Indians exaggerated the burn of a mustard plaster on the head; when the pleasant warmth of the morning sun streamed into Scherner's room he dreamed that fiery dragons were rushing upon him. Megalomania, Havelock Ellis remarks, is normal in dreaming.² "Dreamers," wrote Tchekov, "express their moods in outbursts of an acute kind, with childish genuineness, like Karelin."³ De Quincey recorded of his dreams that

¹ Priestley: *Theory of the Human Mind*, pp. 271-2.

² *The World of Dreams*.

³ *Letters of Anton Tchekov*: Eng. Trans., p., 78.

"space swelled, and was amplified to an extent of unutterable and self-repeating infinity . . ." and that they suffered a "vast expansion of time." Since dreaming usually excites us and if, as Bergson affirms, insignificant incidents are most likely to appear in dreams,¹ dreaming seems to be a normal method of emotional magnification. Macnish thought that "whatever has much interested us during the day, is apt to resolve itself into a dream . . ." but also that "the province of dreams is one of intense exaggeration."² Sir Thomas Browne regarded psychical magnification as a quality of dreaming: "to add to the delusions of dreams, the fantastical objects seem greater than they are; and being beheld in the vapourous state of sleep, enlarge their diameters to us. . ."³ Tarde hints at psychical magnification in dreaming when he remarks that dream images, though often very feeble, may produce strong emotion.⁴ There is another hint in Leigh Hunt's essay "Of Dreams": an "excellent reasoner," when he said he was not fond of the wilder parts of the *Arabian Nights*, was told that he did not dream. The remark implied a wildness or megalomaniac element in dreams. "The doctors of medicine," wrote Yeats, "have discovered that certain dreams of the night, for I do not grant them all, are the day's unfulfilled desire, and that our terror of desires condemned by the conscience has distorted and disturbed our dreams."⁵ This also suggests, though it may not expressly affirm, an emotional expansion during the "imagination of those in sleep."

Psychical magnification of emotion, though swelling of space, time or objects may be also present, is a characteristic of dreaming. Rignano regards their emotional state as the essential and determining character of most, if not of all, dreams. A dream, in his view, is often a scene or incident so forcibly presented by imagination as to seem real and selected by the dreamer to explain why he feels happy or sad or afraid.⁶ Now a nightmare seems to be a dream in which the psychical magnification of a fear is very great. Macnish describes a nightmare very moderately as "a painful dream,"⁷ but many of its victims would choose a heavier adjective and agree with Coleridge that it may contain "the most dreadful images which during the dream were

¹ *Confessions*, pt. 3.

² *Mind-Energy*: Carr's Trans., p. 107.

³ *The Philosophy of Sleep*, pp. 60 and 62.

⁴ *On Dreams*.

⁵ *La Logique Sociale*.

⁶ *Per Amica Silentia Lunæ*, sect. 12.

⁷ *Mind*, July, 1920: *A New Theory of Sleep and Dreams*.

⁸ *The Philosophy of Sleep*, p. 166.

accompanied with agonies of terror.”¹ It seems probable that in many nightmares these “agonies of terror” are fears psychically magnified by dreaming. These fears may be originally very mild, they may be little more than subdued apprehensions, they may even require thought to discover that they had previously existed at all. Fear dreams, whether intense enough or not to be called nightmares, which are simply exaggerated fear dreams, frequently express dreads or apprehensions obviously present in waking life. The girl who dreamed, during the war, of her brother at sea, her mother’s tears, and her brother’s funeral in successive scenes,² simply feared in her dream what she feared when awake. Many nightmares or lesser fear dreams are obviously fears present in the dreamer’s waking mind, and they frequently exaggerate into terror a fear originally quite mild. Sometimes they restore, during the moment of the dream, a fright experienced and forgotten. Sometimes, it is suggested in what follows, they magnify an apprehension, or general state of apprehensiveness, almost unsuspected or imperceptible either by the dreamer or his friends, into a dread which may be described as a dream of fear or into a terror which may be defined as a nightmare.

Every emotion as it arises, according to Watson, throws the organism into chaos, though the chaos may last only for a moment.³ This moment of chaos is often expanded in fear, which, of all the emotions, perhaps reveals most clearly their initial stunning effect. Fear often stuns into powerlessness, and is often observed, among animals, to paralyse so permanently that the victim becomes an unresisting prey. Since fear is probably one of the most fundamental emotions, appearing in the beginnings of conscious life and persisting throughout mental evolution as a fundamental quality of the mind, and since, by impelling to flight, it seems to be designed to save the organism from dangers, it is somewhat perplexing to discover in it this marked tendency to paralyse. So ancient a method of salvation should, it would seem, have been more perfectly adapted to its task. There is less difficulty in this if it is a necessary condition for experiencing emotion to suffer an initial chaos or moment of paralysis. Fear is a strong emotion, perhaps the strongest of all, and if the purpose of any emotion is ever to be defeated by inability to escape from the primary paralysis which it must produce in order to exist this defeat might be expected in fear.

¹ *Lectures of 1818: Mythology, Imagination and Superstition.*

² *Kimmins: Children's Dreams*, pp. 63-4.

³ *Psychology from the Standpoint of a Behaviorist*, p. 196.

Emotion, because temporary stunning is a condition of its origin, must always accept the risk of a purpose defeated by prolonged paralysis. In such a powerful emotion as fear this risk is at a maximum, and is often not only run but fulfilled. If feigned death sometimes saves animals from real death, paralysis by fear may sometimes save as effectively as flight—perhaps more effectively if the pursued is outmatched by the pursuer. It seems, however, probable on the whole that the disintegrative effects of fear are an intensification of an element in all emotion which permanently disables the organism instead of being merely evanescent.

Discipline, right discipline, uses fear as a stimulus to effort; tyranny uses it to crush into submission. Moralists warn us, and rightly warn us, that our private fears may become our internal, self-appointed tyrants. Tyranny constantly exerted and constantly submitted to, drives out all vigour from the lives of the tyrannised. Continual fear of the future, continual dread of poverty, of failure, of disease, of the vagaries of fate, makes of mind and life the chaos which Watson detects momentarily in every onset of fear. When excess of fear follows life as the shadow follows the body the moralist cannot warn us too often or too solemnly against its disintegrative effect upon personality. But, though great fears kill, small fears may invigorate, just as a large dose of strychnine means death and small doses are a tonic. If some fear did not accompany life as persistently as the body is followed by its shadow there would be, it seems quite plausible to argue, no vigour and perhaps no activity at all. Under all our actions, or under many of them, there seems to be a continual state of subdued apprehension. We rise when the clock strikes because we fear to be late for business; we dress because we fear the cold or the attentions of the police; we study because we fear ignorance. We are drawn by desire as well as prompted by fear, but a continued subdued apprehension does seem to accompany all our life and to provide one of its constant and necessary "springs of action." If a needle pierces the hand it wounds and gives pain, if its point just touches the skin it stimulates and the feeling is more pleasant than painful. Fear or dread is like the needle when it pierces, our subdued apprehension is like the needle when it merely touches. When the needle presses lightly on the skin a thrust will make it pierce; subdued apprehension can be psychically magnified into a poignant fear or dread. If dreams magnify emotions fear dreams may be expected, from time to time, which simply magnify into dreads our ever-present subdued apprehensions. Most fear dreams probably magnify some fear—some few, of

course, may merely repeat a fear of the day. The sources of fear dreams which repeat fears without magnifying them or magnify fears that have obviously been in the mind, are usually fairly obvious. The source of a nightmare which has magnified a subdued apprehension is not obvious, and may not be easily discoverable. The contrast between the terror of the dream and the mere tinge of apprehensiveness from which it was developed confuse the enquirer. The hypothesis then, here proposed as a candidate for criticism, suggests a source of many fear dreams in a subdued apprehension underlying mental life, and a mechanism for their production in the psychical magnification of emotions during dreaming.

If fear dreams are ever subdued apprehensions magnified by the general mechanism of dreaming, they will probably be most evident and most frequent in the dreams of children. Children, doubtless because their mental life is simpler, express their thoughts and emotions much more directly in their dreams than their elders. Dr. Kimmins remarks that adult worries do not seem to overflow so freely into dreams as children's experiences of the day.¹ Young children often distinguish with difficulty between dreaming and waking; a boy of six who had dreamed of a threepenny bit searched his bed for it.² Simple relations between waking and dreaming probably account, in part at any rate, for this difficulty, for children soon learn that there are such things as dreams. Kimmins also observed that the age of eighteen divides very distinctly the more naïve dreams of childhood from the more obscure dreams of adolescence. The child's dreams, he remarks, contrast sharply with the more "heavily camouflaged" dreams of the student between eighteen and twenty-two.³ But the child will not be more liable to fear dreams than his elders only because his fears overflow more easily into his dreaming. He seems to have some special subdued apprehensions which offer themselves for magnification into fears.

Some of the data collected by Kimmins, more especially in connection with fear dreams, suggest that children are liable to certain very definite subdued apprehensions. Generally speaking, children's fear dreams, according to his statistics, centre on animals and on strange men or women.⁴ A child who has been frightened by an animal or badly treated or foolishly threatened with ghosts or ogres, will be liable to fear dreams. Frights,

¹ *Children's Dreams*, p. 21.

² *Loc. cit.*, pp. 36 and 42.

³ *Loc. cit.*, p. 18.

⁴ *Loc. cit.*, *Fear Dreams*.

which the child has forgotten or seems to forget, are responsible for many; such fear dreams may persist into adult life. In good homes children are no longer frightened by threats of ghosts or ogres or policemen. (Kimmins notes that the fairy has displaced the ghost in little children's dreams.) They expect no blows nor cuffs nor cruelty, and they have, generally speaking, nothing to *fear*. Tendence cannot always keep fear from the heart of the child; its father may die and it may fear that its mother will leave it too; it may see an accident; a dog may frighten it. But, though normally the child in a good home has no *fears*, certain subdued apprehensions relating to animals and human beings are natural to it.

Freud suggests that when gigantic persons appear in a dream they denote a reference to experiences of childhood.¹ Such gigantism, whether of persons or animals, represents the child's perspective. Grown men or women, large animals and even some smaller ones, are formidable beings in its eyes. Shyness and actual fear of animals, as when a small maiden dreads cows, may represent a realisation of the superior strength of these formidable things. A child in a good home does not *fear* its parents: it may even sound like exaggeration to say that they impress upon it a subdued apprehension. But, apart, from actual discipline or punishment, the parents are bigger and stronger than the child, they are obviously able to impose their will upon it; they do from time to time enforce obedience. The child's perspective, its realisation of beings who, though kind, are formidable because they are big and strong, may result in a subdued apprehension which, though not *fear*, has the same nature and can be magnified into dread. A child who has been naughty will fear its mother's anger and perhaps her punishment. Its dream may magnify, after the manner of dreams, a subdued apprehension into a great fear. It seems quite reasonable for the child's perspective to induce in it a subdued apprehension of adults or of animals, just as we might feel an awe in the presence even of a very friendly giant. The child is not *afraid*, when childish shyness has passed it moves freely and easily among its elders, it loses even its overt fear of animals; but there remains an apprehensive tinge, such as the Lilliputians doubtless retained towards Gulliver, to mark its childish perspective. The child has *dealings* with people and animals which are impossible with things. Children probably do not realise even the formidableness of fire, though fire occurs in

¹ *Loc. cit.*, p. 39.

² *The Interpretation of Dreams*: Brill's Trans., ch. 1.

some of their fear dreams, as they realise the formidableness of living things. If there is this childish perspective, if there is this subdued apprehension towards the *inhabitants* of the child's world, it is natural for men, women and animals to appear in its fear dreams. It is also natural for its dream fears to centre round *strange* men and women. Even in highly civilised life an increased caution and restraint towards strangers remains as a memento of those early days when strangers were feared. Strange men and women appear formidable in the child's perspective; it may not FEAR them but it has an apprehension, subdued like its apprehension of its big friends, less subdued, however, because they are strange, which may swell into a momentary fear under the magnification of a dream.

It is convenient to distinguish between the sources and causes of dreams. In the sense of this distinction, as it is made here, a heavy supper may cause a dream but cannot be its source. No child, however stuffed with tarts, could dream of terrible old men if it had never lived with human beings: its dreams come from its experiences of life. This experience, in a final analysis, is the cause of its dreams, but can be conveniently distinguished as "source" from dietetic influence as "cause." The "source" of the tune played by a gramophone, in this sense, is the record and machinery; the "cause" is the release of the catch. When Sir Thomas Browne connected different kinds of dreams with different kinds of foods¹ he argued very similarly to a child who thinks that a gramophone plays differently as the catch is slowly or sharply released. A full stomach causes a fear dream much as the release of the catch makes the gramophone play: both touch off a performance otherwise prepared. We habitually speak of immediate circumstances directly under our control as causes: we say pulling the switch puts on the electric light, though it is a very minor item in the total cause. Since it is easier to prevent a child from stuffing itself with tarts before it goes to bed than to remove from its mind any subdued apprehensions wrought into it by its daily life, it is practically legitimate to call the tarts the cause of its nightmare. Hygienic precautions can protect both adults and children from nightmares, as fixing the catch can protect the household from the gramophone's screech. The medical, dietetic or hygienic estimate of the causes of fear dreams is practically effective and quite legitimate. But the main or ultimate source of dreams of fear is in the minds that dream them, as water runs into a basin from a reservoir

¹ *Essay on Dreams.*

among the hills, though the turn of a tap decides whether it is to flow or stop.

Nicoll suggests that typical menaces for typical ages express themselves in dreams of fear.¹ Remembering that the more sinister "menace" may be the more moderate "subdued apprehension" which is the germ of the fear dreams under discussion, the "typical menace" of the child is the superior power of adult human beings and the apprehensions excited by animals. When the girl is becoming a woman, when she experiences those physiological and psychical changes which mark this creative period of life, the male menace connected with the quickening of her feminine instincts may be expressed in her dreams. Nicoll interprets a girl's dream, during the war, of enemy soldiers from whom she fled and hid as an expression of her "private menace" in symbolism drawn from the "general situation."² Now "he that understands upon what natural fundamental every notional dependeth, may, by symbolical adaptation, hold a ready way to read the characters of Morpheus." He may—if he does know on what "EVERY notional dependeth"; but "sagacious exposition" is liable to be resourceful ingenuity and to conform "symbolical adaptation" to its preconceived ideas. "Symbolical adaptation" is too plastic to be trusted as David trusted Jonathan. It is so possible to extract the required allegorical meaning. The girl's dream can be as obviously interpreted as a "war fear" as a "private menace" and quite as naturally. In many analogous dreams the alternatives in "sagacious exposition" are equally obvious and natural. But Kimmins did discover, by statistical enquiry, an increase in girls' fear dreams at the age of sixteen. This increase included a special increase in fears of animals and strange men or women.³ If we suppose that the male menace to the maturing girl connects itself with, or develops out of, the child's general menace from men, women and animals, this increase may indicate that a fear, natural to the maiden as she becomes a woman, may record itself in fear dreams. Such a fear of the male menace may be little or nothing more than a subdued apprehension in a good girl in a good home. Kimmin's figures support, if they support but lightly, the suggestion that a subdued apprehension, appropriate to the woman in process of creation, may be magnified by the mechanism of dreaming into a dream of fear.

¹ *Dream Psychology*, ch. 5.

² *Ibid.*

³ Sir Thomas Browne: *Essay on Dreams*.

⁴ *Children's Dreams*, p. 80.

An assortment of subdued apprehensions is scattered through the routine of life. We wonder whether the portmanteau will hold everything, whether the clock is right as the train becomes due, or whether there will be room in the cinema. The lecturer feels in his pocket for his notes; the nightfarer suddenly thinks of his latchkey, the bather peeps under his towel for his costume. The light touch of fear, now virtually imperceptible and now a mere tinge of apprehension, is upon many of our actions. Now Hutchinson discovered, in answer to a questionnaire on dreaming, a definitely marked type of dream which he called "trivial inconvenience."¹ The portmanteau will not close; the key will not fit the lock; the train leaves as we reach the platform; the clergyman's bible opens persistently at the wrong place; the lecturer finds his audience but cannot find his notes. Many dreams are obviously "fulfilled wishes": Hutchinson discovered them in adult dreams,² Kimmins discovered them in much larger proportion in the dreams of children.³ Dreams of "trivial inconvenience," and often, perhaps, of inconveniences which are more than trivial, seem to be frequently fulfilled fears. A subdued apprehension swells into a fear which is justified by a dream of failure. The mild apprehension which usually keeps the lecturer's notes safely in his pocket, which sends his hand to feel for them before he leaves his home, expands, during his dreaming moment, into a fear that they are lost, and produces a dream in which he faces his audience and is unable to say a word.

Travelling dreams are appropriate to an age when there is so much travel and they seem to be numerous. Much modern travel is by train so that dealings with trains are appropriate to modern dreams, and most people seem, at one time or another, to dream of them. A western community, indeed, might be said to live with a permanent subdued apprehension of missing trains. In some very anxious dreams, when the train rushes on and the dreamer hurries, this subdued apprehension magnifies into a great fear. In others the fear is realised and the traveller is left lamenting. In a sense the modern railway train is a "typical menace" to the citizen's comfort. It makes him hurry, it makes him punctual, it makes him wind up his watch, it makes him keep to times. It stimulates him (for his good) by a constant subdued apprehension, and it occasionally, if our hypothesis is correct, works up his apprehensiveness into a dream

¹ *Dreams and their Meanings*.

² *Ibid.*

³ *Children's Dreams: Fulfilled Wish Dreams*.

of fear. A wild and ranging eye might observe "typical menaces," with their own peculiar subdued apprehensions ready for dream magnification, in almost every act of life; the alarm clock, the broken stud, the refractory or loosened button, the lost umbrella, the shrill telephone bell. It would be, perhaps, grandiose to call these menaces, but they do provide us with subdued apprehensions, and these provide us, in their turn, with dreams which, though they may refer to trivial inconveniences, are often, after the exaggerated manner of the dream world, real dreams of fear.

Such dreams of trivial matters, if trivial they be, may reveal principles less trivial. Triviality is a matter of context. Hundreds of years ago a Philistine woman dropped her pitcher on the stones where it broke into pieces. She left them lying, for they were now useless to her. The busy centuries covered them with dust and earth and rubble. Then an explorer bored to them through the earth, carefully noted where they were found and treasured them. They were carefully labelled, carefully preserved, and carefully studied. The despised fragments of the broken pot played a part in reconstructing a forgotten civilisation. So dreams of trivial matters, laughed over when the moment of fear has passed, by revealing the light touch of apprehensive fear which underlies all human activity and is perhaps its necessary condition, cease to be trivial. If the minor items of life lie lightly on apprehension, so may life's major items. If some fear dreams are minor subdued apprehensions magnified, others may be major subdued apprehensions, also magnified. Our dreams of death, for example, may be apprehensions for the living magnified into great fears. It seems a reasonable hypothesis, whether confirmed by experience and enquiry or not, that subdued apprehensions underlie all life, and that, from time to time, they are swollen into active fears, which may be fearful terrors, by the magnifying mechanism of dreams.

There are real fears in life as well as subdued apprehensions. These real fears enter into dreams and may be magnified by entering. Subdued apprehensions are no more the sole material of dreams than the exaggeration of fears is the sole principle of dream production. But one cue to the study of dreams is provided, according to the present hypothesis, by the exaggeration of subdued apprehensions into dreams of fear or dread.

THE CAUSES AND TREATMENT OF JUVENILE DELINQUENCY.

BY CYRIL BURT.

I.—INTELLECTUAL CONDITIONS (*Continued*).

4. SUPERNORMAL ABILITY.

Supernormal intelligence is not incompatible with delinquency; but well marked degrees of supernormality are conspicuously rare among delinquents. In my list of cases about 4 per cent. are distinctly above average in general intelligence; but less than 1 per cent. are equally advanced in educational attainments.

To these one should perhaps add those cases where, not general intelligence, but some special ability, is supernormally developed—most frequently, perhaps either manual and motor dexterity, or a vivid capacity for visualisation, or (what seems particularly common among delinquent children) a rich endowment of verbal fluency, the gift of facile arguing, and glib and plausible speech.

Treatment. In most of these cases, the child's own intelligence is sufficient to enable him to recover spontaneously. Few of us—however brilliant and however righteous we now take ourselves to be—have never perpetrated a criminal act, and never experienced a criminal temptation. We view them as exceptional lapses; or think we have grown out of them with the growth of wisdom and experience. In a women's training college, famous for its high moral character (the country and the place I need not name), a recent chance investigation, through anonymous replies to a general questionnaire, showed that, on their own admission, nearly 70 per cent. of the inmates had in their earlier days committed at least one theft. A first delinquency, therefore, in an over-intelligent child may sometimes be too anxiously considered by its over-intelligent parent. As a rule, the question that confronts the consulting psychologist, when examining the clever offender, is not: "Why has he committed a crime?" but "Why has he persisted in his delinquencies so long that he has at length been discovered?" or "Why has his first outbreak assumed a shape so desperate that an appeal to the police or other officials has seemed immediately essential?"

Where a supernormal child takes to a career of persistent delinquency, or suddenly plunges into flagrant crime, there is usually to be discovered in the background some deep emotional disturbance. And the true cause is not his high intellectual ability, but some distressing experience, some environmental disturbance, or some hidden temperamental complication.

Often a want of adjustment is to be found in the school, in the home, or in his place of business. Just as the backward child may be working in a class too high for his real capacity, so the forward child may be left in a class too low; the lessons and tasks set before him are not hard enough to use up the excess of an over-lively intelligence. Here, too, he may frequently form vicious associations with older but duller companions; and, infected with their own low moral standards, he will play the hero to them, and revel in the startled admiration which his daring and ingenious feats command. In such a case, there is an obvious remedy. Often the mere promotion of the bright delinquent to a class more closely answering to his actual talents, with the addition it may be of extra but still interesting homework, will suffice to sever his connection with the little gang of which he was the leading spirit, and to absorb in more legitimate pursuits his own superabundant energy and misdirected wits.

A most common case is where the child's intelligence is superior to that of his controlling parent. The trouble may have had its first origin in some petty domestic friction, some reproof perhaps which was unjustified, some punishment which the child is quick enough to see was misplaced, but which the father or mother was too slow to amend. If an argument followed, probably the child had the best of it; and the parent retired unwisely behind the bulwark of his *patria potestas*. The child retaliates by re-asserting, in deeds as well as in words, his own superiority of mind: and every effort to control him is received as a stimulating challenge to outwit the control. Sooner or later he may drift into the error, shared by so many geniuses, of assuming that the outside world in general is as inferior to him in wisdom as the tinier world of his own little home. He becomes an avowed and reasoned revolutionary.

Here it is useless to ask from the parent anything more than a patient and passive attitude. We must rely upon an intelligent appeal to the child's own intelligent mind for effecting a self-reformation: we must be as rational as he is rational, and meet him and beat him upon his chosen battleground. A bright adolescent is usually equal to, and often interested in, the philosophical discussion of ethical problems. He will respond, sometimes with great readiness, to questions put sympathetically to him in the spirit of Socrates, questions that raise the big fundamental moral issues. In secret he has probably been broaching these questions himself: and will be amazed to learn that his own assumed philosophy—usually some form of hedonism, more or less crudely half thought out by the aid of current catchwords—conforms to a recognised historical position, whose merits and defects were long ago debated, and still remain open to dispute. With the reflecting child this abstract line is far more profitable than taxing him with concrete petty misdemeanours of his own. This, indeed, is the only type of case where that favourite weapon of the children's counsellor—logical or would? be logical argument—is ever likely to succeed. If, however, external discipline and sharp correction also seem necessary, arguments had better be postponed. But usually the child is better left to discipline and correct himself. In any case, prohibitions and reprovals should be limited to the very minimum. If a justification of them to the child be thought desirable, the appeal should be based not upon the immoral or the irreligious character of his actions, but upon their ultimate foolishness from his own worldly standpoint. And, whether a reason be given or whether it be withheld, the few restrictions imposed and the few penalties foreshadowed should be firmly, consistently, and unfailingly followed up.

Where the maladjustment lies not in the home but in the vocation, the trouble is less easy to remedy. Thwarted ambition is a common foundation upon which an anti-social attitude is slowly but strongly built up. With good fortune it may be possible to procure for the youth some fresh and more fitting occupation, where his abilities may find fuller scope and play. More frequently one is forced to be content with re-directing his talents into some non-vocational hobby, some congenial interest that may be pursued in leisure hours.

There come, however, from time to time, cases and occasions when the most vigorous steps are needful. When at length a clever delinquent has been detected and brought for examination, it can often be inferred from the simple fact of his high intelligence, that he has enjoyed an unusually long history of successful crime; and that he is, therefore, by now in the grip of habits as obstinate as they are old.

Further, if these habits persist into adult life, he becomes one of the most dangerous menaces to the community; for, of all delinquents, the adult of supernormal ability is by far the most destructive, as he is by far the most difficult to detect. He must, therefore, be checked while young. Drastic discipline, and prolonged and graded exercises, may first of all be necessary to break and obliterate the habits that have become chronic; and, later, a

penetrating enquiry into motives and temperament, following, it may be, the methods of a full psychoanalysis, will probably be requisite before the character can be reformed.

Once again, then, it becomes manifest that the assessment of intelligence is only the beginning, never the conclusion, of the psychological study of the criminal. We must analyse and educate their emotional qualities as well as the intellectual. And it will be with the emotional forces making for delinquency that the second part of my paper will be concerned.

II.—EMOTIONAL CONDITIONS.

I now pass to what may be loosely termed the emotional factors conducing to crime. In this broad phrase I include all those mental qualities which are non-intellectual in their nature, and which are popularly grouped together under the appellations of character or temperament—in a word, what, in technical language, are called the affective and conative tendencies as distinguished from the cognitive.

The temperamental aspect of the mind, like the intellectual, may be conveniently discussed under two separate headings. We may consider, first, the lower or inborn levels, and, secondly, the higher or acquired levels. In describing the several grades of intellectual ability, we distinguished a primary deficiency in native intelligence from a secondary backwardness in acquired educational attainments; so, too, in dealing with temperament, we may distinguish a primary defect in the hereditary constituents of character from a secondary defect in those overlying qualities of moral control which are built up during the years of mental growth, and slowly superimposed, layer after layer, by experience, by social training, and by all the manifold influences of the cultural environment. The former—the inborn bases of temperament and character—are to be sought in the fundamental human instincts and their correlated emotions. The latter—the acquired mental structures erected upon this inherited foundation—may be named (with Shand and his followers) “sentiments,” or (with Freud and his followers) “complexes.” Criminal conduct, therefore, can have its origin either in the instincts and emotions, or in the sentiments and complexes, of the individual delinquents. Most commonly it is traceable to both.

(a) INSTINCTS AND EMOTIONS.

An instinct may be regarded as an inherited physiological mechanism which is common to all members of the race, and which was originally formed to meet the primitive conditions under which the species was evolved. It consists in a natural tendency to pay attention to, to take interest in, and become pleasurably or unpleasurably excited about, certain objects or situations of vital importance in uncivilised life to the individual and his species. Inasmuch as the innate constitution of mankind appears to have undergone no change since it first

emerged from barbarism, the instincts which we inherit to-day are identical with those that served our forefathers half a million years ago on the Asiatic steppes or by the European swamps. The same things rouse us; the same movements relieve us. We are all, savage and civilised, sinner and saint, tugged by the same simple strings. The opposite sex, the young of our kind, our natural prey and our natural foes, these still awaken the emotions of the cultivated citizen, precisely as they stirred the feelings of the pre-historic bushman; and, until self-control and moral tuition have subdued afresh the earliest impulses of the growing child, these primitive thrills tend each to provoke some crudely appropriate reaction—cuddling, nursing, snatching, swallowing, hitting, kicking, running away—all types and patterns of behaviour, which, however indelicate in the class-room or the parlour, had obviously a rough and ready value in the forest or the cave.

What, then, is the relation of these instincts to delinquency, of the physical needs of a bygone era to the crimes of the modern city child?

TABLE I.

CLASSIFIED LIST OF OFFENCES.

Showing number in each category per 100 delinquents of either sex.

1. Sex.	Boys.	Girls.
(a) Offences with Opposite Sex—		
(i.) Of similar age and willing (including soliciting) ...	11.4	36.5
(ii.) Of younger age or unwilling (assault)	2.4	0.0
(b) Perversions—		
(i.) Offences with same sex	3.3	1.4
(ii.) Masturbation (excessive)	4.1	2.7
(iii.) Indecent exposure	0.8	1.4
(c) Obscenity (excessive, including "corrupting others" by talk)	2.4	7.6
2. ANGER.		
(a) Bodily Violence to Persons—		
(i.) Murder	0.8	0.0
(ii.) Wounding	6.5	2.7
(iii.) Violence without weapons: fighting, blows (excessive) ...	8.1	5.7
(iv.) Cruelty to children or animals (with bodily injury) ...	4.1	0.0
(b) Angry Reactions without Violence—		
(i.) Bad temper (excessive)	3.3	6.3
(ii.) Incurability, being beyond control	15.5	12.2
(iii.) False and dangerous accusations	0.0	4.1
(iv.) Insult; and other forms of mental nuisance	0.8	1.4
(v.) Cruelty to children or animals (without bodily injury) ...	1.6	2.7
(c) Violence to Property—		
(i.) Malicious damage or destruction	3.3	1.4
(ii.) Mischievous damage or destruction	6.5	0.0
(iii.) Damage by fire	0.8	0.0
3. ACQUISITIVENESS.		
(i.) Stealing	78.9	43.3
(ii.) Burglary	3.3	0.0
(iii.) Begging	7.3	2.7
(iv.) Swindling and Forging	2.4	0.0

4. WANDERING.

(i.) Truancy from school (persistent)	17.1	4.1
(ii.) Truancy from home (persistent)	12.2	7.6
(iii.) Sleeping away from home	4.1	2.7
(iv.) Running away (with intent to remain away) ...	6.5	5.4

5. GRIEF.

(i.) Attempted suicide	0.0	1.4
(ii.) Threatened suicide (persistent)	0.0	2.7

6. SECRETIVENESS.

(i.) Lying (persistent and excessive; and apart from the concealment of other delinquencies)	4.9	13.6
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I have tabulated the chief complaints and charges alleged against the young offenders who have been referred to me for study. It will be seen that, according to the apparent nature of the precipitating motive, the offences fall naturally into well-marked categories; and that, further, these several categories, one after another, betray a close and curious correspondence with the accredited classifications of the primordial instincts of mankind.¹

This unexpected parallel suggests at once a pregnant inference, a working generalisation which I believe to be of the utmost importance and of the greatest use in the understanding and treatment of juvenile crime. It may be formulated thus:—*The commoner delinquencies committed by the young consist essentially, in almost every case, either of the hereditary reactions which constitute the universal human instincts, or else of slightly modified reactions elaborated out of, but still evidently springing from, these aboriginal modes of response.*² From this it follows that there can be no such thing as a special and distinct condition to be named inborn criminality; unless completely re-fashioned or effectively restrained, almost every native impulse may, in a civilised community, become criminal. It is not immorality that is instinctive in some; it is the instincts of all that unchecked seem immoral. Here, then, is the key to the outer gates of

¹ The cases analysed in this article consist of 123 boys and 74 girls, ranging in age from six to seventeen, the majority being over twelve and under fifteen. The headings include, not only the offences for which the children were committed for examination or detention, but also those which were disclosed by later information. Often different offences had been perpetrated by the same individual. Hence, the total number of offences exceeds the total number of cases.

It should be remarked that the headings do not necessarily indicate the ulterior or predominant motive, but only what I have termed the precipitating instinct. Thus "soliciting" (classed here as a sexual offence) might be partly or even wholly due to a need for money; the need for money in turn to truancy from home; the truancy from home to an angry outburst; and the angry outburst at bottom to grief or fear. The ultimate factors, so far as they are disclosed by prolonged analysis, whether predominating causes or contributing conditions, I shall endeavour to exhibit in a later table.

Nor can the crimes of adults be forced completely into the above scheme. Many counts may be entered upon an indictment which are of a purely political or technical complexion; and even with younger persons such common offences as gambling and drunkenness can hardly be based directly upon a specific instinct. Delinquents of this kind, however, are seldom brought to the school-psychologist for special examination.

² It should be noted that, besides the natural action to which the instinct originally prompts, there are secondary actions which are somewhat more removed from the primary responses; of these the simplest and commonest seem to be reactions that involve the use of speech or of special instruments. Thus, in the case of anger, instead of the simple assault with hands and legs and teeth, characteristic of the tiny infant, the victim may be attacked with a knife, a revolver, or a dose of poison; or he may be simply assailed with words of abuse or with slanderous reports. The same modifications are observable in the sex-instinct, where obscene language or lascivious pictures may serve to excite a gratification, similar in character, though milder in degree, to that which would be obtainable by the natural exercise of the primitive instinct.

Where the overt movements to which nature prompts are wholly or partly suppressed (as, indeed, they are in almost every civilised adult), the internal excitement—the disturbance of the glands, the lungs, the heart, and other viscera—being beyond voluntary control, still irrepressibly persist; it is the feeling of this specific inner perturbation that we name the emotion. An emotion, therefore, may be defined as the conscious aspect of a curtailed instinct; and, broadly speaking, to each particular instinct a peculiar emotion corresponds. Hence, in the older criminal it is the primitive emotion rather than the primitive instinct that provides the motive and the energy for crime.

the problem. And the first step towards penetrating the motives of the young offender must be a survey, one by one, of the principal instincts that make human nature what it is.

In the number and names of the instincts which may be distinguished, psychologists differ somewhat one from the other; and without doubt it is erroneous to conceive these tendencies as sharply marked off by clear-cut lines.¹ For practical purposes, however, they may be treated as separate and independent; and the lists drawn up by James, McDougall, and Shand are perhaps the most convenient to adopt.

1. SPECIFIC INSTINCTS.

There is some evidence that most instincts are inherited, or tend to be inherited,² as unit qualities. If this be so, the intensity with which each is born in us may vary widely from man to man. It becomes, accordingly, conceivable that the mere hereditary development of an ordinary emotion to an extraordinary degree may be sufficient to drive a young person into crime. The violent-tempered child will commit assaults, the over-sexed child will commit sex-offences, solely as a result of his unusual temperamental constitution. Each is overpowered by the strong current of his stoutest instinct. This simple and direct causation, it is true, occurs only in a few easily analysed types, such as are presented in the main by very young or conspicuously defective delinquents. But what happens in the simpler instances will help us to unravel, at least in part, the mingled strands and tangled threads that run through cases that are commoner and more complex.

(i.) *Sex*.—Of the view that I am now putting forward, by far the clearest illustration is to be discovered in the records of sexual vice and crime. Sexual activities are ascribed almost universally to the working of a specific animal instinct, an instinct with which every man or woman, however chaste or civilised, is irrevocably equipped. In the strength with which they inherit this instinct, races differ, families differ, and individuals differ. In one it is the most frigid of all his feelings. In another it is an urgent and imperious appetite, as undeniable as thirst or the necessity for sleep. With persons of this latter class—particularly with over-developed adolescent girls—the physiological predisposition is hardly to be mistaken, legible often at a glance from the typical characteristics in bodily figure and pose;³ very commonly, too, there is a tale of similar misconduct in different members of the same family. External factors may, of course, be contributory; and the influence of negative conditions—unsatisfied affections at home or inadequate control during leisure—should never escape the examiner. But of the inner working of the delinquent's own mind no further explanation is needed. It is a part of his physical nature, of his inborn animal

¹ All subdivisions of human instincts are more or less arbitrary, and are to be followed for their practical utility alone. Thus, what for certain purposes may be usefully spoken of as a single or unitary instinct—such as sex, anger, curiosity, or fear—becomes, on closer analysis, a miscellaneous bundle of several subordinate instincts, each more or less independent: often the splitting off of some one partial instinct becomes regarded by society as a distinct vice or perversion, as is seen in certain sexual practices and certain habits of ill-temper. Further, the subordinate responses of one instinct—e.g., the tender reactions of the maternal instinct—may subserve another, such as sex. McDougall's lucid classification has both the advantages and the defects of a too definite differentiation. The partitions of his pigeon-holes thus seem a little too rigid and impermeable.

² To one who like myself holds the theory of "general emotionality" this qualification is essential. Its meaning will emerge in a later paragraph.

³ Premature puberty and an over-developed physique—occasionally (it would now seem) remediable by treatment with glandular extracts, but always a cause for concern until an expanding intelligence and accumulating experience have once more caught up with bodily growth—are by no means the only physical factors in the intensification of this instinct. Local irritations, like *herpes praeputialis* and *pruritus vaginae*, so often overlooked, but so stubborn in their baleful consequences, have often to be removed before the old habits can be checked.

Proposing, however, in this paper to trace psychological causes alone, I am compelled to pass cursorily by all physical and environmental accessories.

and mental constitution, so to crave and so to act. An exaggerated sexual instinct suffices to account for all.

It must not be forgotten, however, that the popular psychology of this instinct is in its details grossly incomplete and inaccurate. In the first place, the traditional doctrine that the sex-instinct never emerges till the crisis of puberty is demonstrably wrong.

Freud, as is now notorious, has drawn attention to immature manifestations existing from the earliest years of infancy. And even Freud himself seems to slip into error when he implies that, during the so-called "period of latency"—a period roughly coterminous with the elementary school career—the sex instinct lies dormant and inactive. Some of the most striking and most spontaneous outbreaks, alike in boys and in girls, occur in children who are well under the age of puberty and have scarcely quitted the infants' department. A second misconception has equal currency. The sex-instinct is supposed to burst abruptly forth, already perfect and precise, a single simple procedure for the sole purpose of propagating the race. It is, on the contrary, at any rate in man, a thing singularly vague and heterogeneous. In the infant, habits described as unnatural are just as natural as those that are acknowledged to be such. As a bare enumeration of sexual delinquency is of itself enough to indicate, this so-called instinct is a cluster of instincts, covering much besides the mere semi-reflex act of mating; it unfolds, more especially during the younger stages, into an incongruous series of partial and subordinate tendencies—variously excited, and differently expressed—each of which may lead to a distinct misdemeanour.

(ii.) *Anger*.—Pugnacity and ill-temper, the first representing an excessive reaction upon the instinctive side, and the second an excessive reaction upon the emotional side, of one and the same mental mechanism, seem very frequently to run in certain families; and to the hereditary impetus of these various forms of anger may be referred the many offences enumerated under this heading in my schedule—fighting, wounding, killing, damage and destruction, stubborn incorrigibility, and the many forms of battery and assault.

With anger the influence of collateral factors is far more usual than with sex. Anger itself is very largely derivative or dependent in its nature.¹ In general, it presupposes some other instinct whose free exercise is thwarted or opposed: unappeased hunger, an unsatisfying occupation, a stifled love for an austere parent, the inner suffocation of sexual, recreative, or ambitious impulses—these easily produce a fermenting mood of resentful discontent. Again, just as certain physical states make sex or hunger irresistible, so other physical states predispose to an irascible or querulous temper. The petty petulance, the peevish irritability, which are so constant a background, not only for exasperated outbursts, but for anti-social eruptions of every kind, nearly always grow up on sub-soil of bodily debility or discomfort; the meekest nature is eventually strained by recurring headache, recurrent toothache, eyestrain, tubercular conditions, anæmic conditions, or general ill-health. Sometimes the cause seems quite specific: the "brain-storms," as they are sometimes termed, seen chiefly in subnormal girls of about seven or eight—paroxysms of passion in which the child upon the smallest provocation flings herself convulsed to the floor, kicking, struggling, and screaming—these often suggest, and sometimes possess, a basis or a history of epilepsy.²

¹ I cannot quite agree with McDougall that anger is wholly a secondary instinct, possessing no original stimulus of its own: a blow, a visible threat, the mere restriction of the body even when not engaged in exercise of an instinct, suffice to provoke it directly. Internal discomfort, too, may sometimes operate like external injury. As a rule, however, the psychologist does well always to explore for some primary desire whose obstruction causes the outburst.

² The diagnosis of "psychic" or "masked" epilepsy is in such cases frequently made (and, in my opinion, then made unwarrantably) without any further evidence of epileptic fits, either in the child or his family. Indeed, an epileptic pre-disposition (whatever such a term may include), though always to be investigated, is demonstrable in such cases far less commonly than is currently supposed.

The age, the size, and the sex of the child, are not without an influence on the ebullitions of this impulse. The angry displays, which from the second month onwards every tiny infant makes, are by all accepted as instinctive; and treated as devoid of much ethical significance. We condone them as "temper," or correct them as "naughtiness." We do not term them as criminal. But at a very early age these combative proclivities may take a criminal turn. One of the youngest of my delinquents—an illegitimate boy of seven-and-a-half with a mental age of five-and-a-half—was a murderer; quite deliberately, by his account and that of an older playmate, after threatening another boy with "drahning" if a paltry toy was not at once surrendered, he pushed the uncompliant owner into the canal, and abused and triumphed over him as he shrieked and sank—afterwards telling his own relatives and the coroner that the child had slipped in backwards while attempting to throw a stone into the water. Such a case is exceptional. But it is by no means uncommon for boys of six or seven to evince alarming habits of cruelty,¹ and to make dangerous attempts at wounding, while still in the infants' school; at the later age of ten and eleven criminal malice and mischief are directed more against property than against persons; and against persons anger appears rather as a defensive and reinforcing instinct—resulting in so-called "incurability"—than as an immediate stimulus to aggressive assault; as adolescence supervenes, the pugilistic side of the instinct reappears in a well-marked form, although, through intelligence and self-control, only a small proportion of the actual fighting now leads to vicious injury or to the use of weapons of attack; as adolescence is completed, it is largely as the chief component in sexual jealousy that anger becomes once more a powerful instigator of dangerous assault. Among children smaller or weaker than their fellows, and among girls, particularly girls at the older ages, animosity finds a subtler and a safer outlet. It vents itself in the modified form of hostile speech and mental persecution, rather than by the innate physical method of direct destruction or dismemberment. They wound through the feelings, not with the fist. Taunts, insults, false insinuations, all the vexatious slanders that a malevolent volubility can devise, become now the chosen means of aggression or revenge.²

(iii.) *Acquisitiveness*.—The acquisitive impulse does not always find a place in the catalogue of instincts. And, unless we regard the pangs of covetousness, the lukewarm passion to possess, as a dim but definite emotion, there seems to be no strong change in the accompanying feelings, coupled with the exercise of this meeker propensity. Such cautious exponents, however, as James, McDougall, and Rivers have expressly recognised acquisition as an independent human instinct: and, applying his two customary tests,³ McDougall points out that the impulse to appropriate, to collect, and to hoard, is found in a pre-human form among such creatures as the jackdaw and the squirrel, and in a pathological form

¹ The psychology of cruelty is far too complex to enter into here. Two facts, however, should always be borne in mind: first, what to our view seems so obviously cruel and heartless is not necessarily cruel to the view of the young, unwitting child; secondly, cruelty and the pleasure of cruelty has often a subsidiary component which can only be denominated—even in the child of tenderest years—as sexual.

² This seems assignable, not so much to the proverbial and well-established linguistic tendencies of the feminine sex, as to its inferior size and muscular strength. That complaints of obscene language are more frequently preferred against girls might seem at first to support the former alternative. But I imagine that sex difference is apparent only. The mothers and women-teachers who have the oversight of girls are far more likely to be anxious about such offences than are men; and both men and women consider such offences—and rightly so—as a greater ground for solicitude when occurring among girls.

³ We might add that, if popular psychology is to be trusted, certain peoples, as the Jewish and the Scottish, seem endowed with an acquisitive disposition in an unusually high degree; and evidence, less familiar but more worthy of credence, appears to show that some primitive races—such as the hunting and pastoral nomads—neither possess, nor yet can cultivate, a tendency which is so necessary for the simplest commercial civilisation.

among asylum kleptomaniacs.¹ Here, then, we are not fallaciously inventing an abstract faculty to explain a concrete fact, a hypothetical propensity to steal to account for the act of stealing; we seem incontestably confronted with a demonstrable biological tendency, and a definite physiological mechanism.

In his history of the growing child, Preyer, one of the earliest and most scientific observers of infancy, describes how, before five months old, his infant would grasp, and convey to its mouth, any small attractive object (a scrap of meat on a fork, for example) that was within the reach of its hand and the range of its eyes; he insists on the instinctive character of the movement, describing its gradual growth from simpler reflexes, and its later incorporation into more composite reactions. He adds: "Years pass before this act of seizing, so indispensable for early intellectual development, can become fully perfected, and before it can be seasonably inhibited by new, and chiefly inculcated ideas." This, therefore, is the germ, or at least the earliest constituent, of what we may take to be a primary and hereditary instinct to acquire.

In young defectives little more than this almost reflex tendency seems operative in their petty robberies. I have, in fact, examined several cases of children, aged chronologically seven or eight, but mentally only four or five, who had been charged with theft, but who seemed simply to have been picking up, with a reaction as automatic and as invincible as sneezing, the pretty, glittering, pocketable coins that they saw lying conspicuously about. Of the use or relative value of the pieces they had no notion; and in some instances never even attempted to spend their plunder upon sweets or toys. A big and bright new penny they would prefer to a dull and smaller sixpence; and would often appropriate, with an impish smile, my coins, my pictures, and my testing-boxes beneath my very eyes.

Such simplicity, however, is unusual. A child who is old enough to steal is generally old enough to form a desire for the object stolen, or for the object to be purchased with the stolen cash, and, moreover, to realise that the stealing is wrong. Here, therefore, we may have to do with a dependent or derivative impulse, one instinct working in the service of another. The child steals to satisfy an instinctive hunger for sweets, an instinctive vanity with gems and finery, an instinctive vindictiveness by the petty annoyance of the victim of the loss. Even in the intelligent, however, it is not to be assumed that the article stolen is necessarily an article wanted. It may have, as we shall see later, a value purely subjective, perhaps some quaint symbolical significance.

In a large number of such instances stealing commences simply as a substitutional reaction for other balked or obstructed impulsions. But how is this singular transposition to be explained? Why should a boy, who is furious with his mother for loving the baby better than himself, incontinently start filching from counters and barrows, with money all the time in his waistcoat for a straight and honest purchase? There is in this strange inconsequence one of the many enigmas of criminal psychology. The problem is—not why does one mischievous outlet serve for another that is blocked; but why is the substituted safety-valve almost inevitably that of theft? Of all the available instincts, why should acquisition in particular appear so repeatedly as the vicarious offshoot of mental

¹ Outside the asylum the diagnosis of "manias" had better be abolished. Like so much criminological jargon such terms as "kleptomania," "pyromania," "homicidal mania," and the like, profess to give an adequate explanation, while supplying only a high-sounding descriptive name. Their great danger is that they seem to dispense with the need for further analysis. As used by the unpsychological—whether journalist, teacher, doctor, or police—kleptomania seems to cover all tendencies to repeated and irrational theft, the theft appearing irrational either because, in the view of the rational observer, the articles stolen cannot be needed, or because the pleasure of their enjoyment must be entirely outweighed by the pain of inevitable punishment. Such irrationality, of course, points not to a mania but to an emotion. And cases of apparent "pathological stealing" (to adopt a useful translation of the pseudo-scientific Greek) may be due to one or more of an innumerable list of causes—feeble-mindedness, substitutional compulsions, strong but blind acquisitive instincts, or sheer force of habit.

perturbations of a totally different order? I can only throw out as a suggested solution an analogy from other derivative or dependent impulses. Any emotion that is once set going, if it have no object or have lost its object, tends always to find for itself some object of its own, to get as it were some workable point of application, some channel through which it may discharge. Now acquisition, like anger, is essentially an instinct for coping with an obstacle; it is nature's device for procuring what one needs but does not possess. Thus, like anger, it easily appears as secondary to some other desire. Once, however, it is launched fully with its own momentum, it behaves like other more emotional moods—like grief, or ill-temper, or anxious apprehension; it is then apt to break loose from its real root or origin; and, like a floating weed, to fix and fasten itself parasitically upon almost any concrete substitute, however irrelevant, however illogical, that may chance to offer a palpable hold.

In the older thief, whose intelligence is average or nearly so, cupidity may have a still more complex machinery behind it. It is peculiar to the acquisitive instinct that its workings are essentially progressive. Fear, rage, sorrow, and sex, all the emotions, indeed, except perhaps curiosity, rise swiftly to their point of saturation. They then suddenly sink down, like a punctured bubble; or, at most, go circulating time after time along the old unwidening groove. With acquisition it is different. The very nature of acquisition is a cumulative process. It touches no limit; it knows no satiety. Here lies its greatest social value and its greatest social danger. It is seemingly this unique expanding character, together with the derivative origin already remarked upon, that conspires to make the acquisitive instinct responsible for ninety per cent. of human crime.

It can, therefore, be no matter for surprise that the case-history of the thoroughgoing thief is, almost invariably, long and elaborate. As a rule, the escapade which has at length unmasked him, proves but the last item in a long tale of similar but more successful ventures. His secret career, under close analysis, pulls out, like a telescope, into successive stretches of unsuspected pilferings, each a little bolder than the last. He began, perhaps, at the age of six with the uncorrected filching of food from the pantry; he advanced by gradual and well-defined stages to the purloining of pennies at home, the looting of stalls in the street, the lifting of goods from shops; and his exploits culminate, perhaps now with an accomplice, in a set of methodically-planned depredations—pawning household furniture, burgling houses or schools, and forging bank-books and cheques. The type of theft to which the delinquent is at the moment addicted is of great diagnostic import. It indicates the stage so far attained on the progressive ladder of crime. To steal from school is graver than to steal from home; to steal money than to steal oranges or ribbons; to steal from a purse more serious than to steal from the mantelpiece or table, and to steal from a shop-keeper's till more heinous than either. One can thus judge whether the habit is recent or long-standing, whether the instinct has become more or less systematised into a firm sentiment or passion, and whether the impulsive pilferer is now in the way of a confirmed professional thief.

(iv.) *Wandering*.—Next to theft truancy is the commonest of all juvenile offences. Usually it is thought little of. In actual fact it is very frequently the first beginning and the earliest sign of a disposition towards far more serious misdemeanours. Truancy, in the technical sense of mere non-attendance at school, has during recent years greatly diminished. But running away, whether from school or from home, is still a prevalent offence; and the youthful wanderer, like the respectable tourist at a foreign resort, falls easily before temptations he would recoil from in his own house. In the most characteristic cases it seems the simple result of a strong impulse to roam and explore, of a hunger for new scenes, so spontaneous, so urgent, so unreasoning, as to remind us of the strange migratory habits of certain animals and birds, and of the nomadic ways of primitive

peoples.¹ Some of the least complicated but most obstinate of these periodic vagrants are children whose parents were themselves gipsies or vagabonds. But in almost every healthy child the first faint promptings of this roving impulse can be traced. So soon as the infant has perfected the upright mode of progress, it will start off with a chuckle, tempted by an open door, or by a disappearing animal or cart—much as a newly-hatched chick will follow almost any receding object—and toddle gleefully off, going just for the sake of going. Locking it indoors, or tethering it to a seat, augments rather than removes this locomotor restlessness. Even at school age wandering in the open remains for every child a far more natural state than sitting indoors.²

How far I am justified in assuming the existence of an original nomadic instinct³ I cannot here discuss. McDougall, in his catalogue, includes an instinct of curiosity correlated with the emotion of wonder; and, indeed, delinquents of this class are often inquisitive personages, prying into life, experimenting with existence, eager to see the wide world and its ways. With them—perhaps with all of us—wondering and wandering are closely akin.⁴

Doubtless another primitive instinct (or, it may be, another aspect of the same instinct), often associated with delinquent wandering, is the hunting impulse. In villages, and in those suburban districts of the larger towns which either border on the country or lie near heaths and parks and open spaces—particularly those alluring spots that abound with trees and bushes, or with lakes and ponds and streams—the predatory motive seems definite and plain: the origin of the truant expedition is quite evidently not merely a blind inclination towards an aimless ramble, but a formulated purpose to track down some primitive prey—to course rabbits, rifle birds' nests, fish for minnows, or gather flowers and fruit. Probably a modified form of the same impulse inspires those acts of petty larceny, which are forays rather than thefts, where the excitement of the pursuit is more than the pleasure of attainment, and where the joy is got rather from the skilled and circuitous process of acquiring than from the use or the value of the quarry so acquired.

With truancy, as with previous offences, it is again important to discriminate the simple straightforward cases, where the trouble springs directly out of the naïve operation of a nomadic instinct, from the deeper and more complex, where the mental disturbance is intricate and involved. In the latter the running away may be ultimately due to some totally different impulse; most commonly perhaps it represents a flight from some uncomfortable home situation: so that here the reaction is more nearly allied to the instinct of panic-fear than to that of migration or the chase.

(v.) *Fear*.—Fear, according to McDougall, embraces at least two separate tendencies, the impulse to flee and the impulse to conceal oneself. The latter tendency, secretiveness, is naturally developed to a high art in most delinquents, especially in the sly offender of the timorous type. To be successful, the furtive culprit must not only hide his own person during and perhaps after the delinquent act; he must not only disguise the existence of damage unlawfully done or of

¹ As in these lowlier analogies, the childish impulse is largely seasonal: runaways indulge their propensities more during months of spring and early summer than in all the rest of the year put together.

² In London a common form of apparently purposeless wandering is the perpetual riding for long distances on trams or 'buses or trains. Here again we see how a primeval instinct quickly attaches to itself a portion of the apparatus of modern civilisation—riding being here substituted for walking, while the total process remains just as blind and mechanical as before.

³ Stanley Hall recognises it as such (*Psychology of Adolescence*, I. 348, II. 376); but other writers pass it by.

⁴ Curiosity itself may be the real motive of a crime which on the surface seems assignable to another instinct. I have met with at least two cases—girls whom I regard as under-sexed rather than over-sexed, and that not on the ground of repression but of physiological constitution—in whom a grave sex-delinquency appeared to have originated in pure unimpassioned curiosity.

property unlawfully obtained; he must also dissemble any awareness of these transactions that might be divulged by the spoken word. Lying as such, however, is not instinctive; hence the relation of defensive lying to the primitive instinct of fear bears much the same indirectness that we have noted with other offences in speech, with obscenity in the case of sex, and with insult and slander in the case of anger. Most delinquents lie. But, from obvious causes, thieves lie more regularly than those who commit violence; and those who commit violence against property more than those who commit violence against persons. Indeed, with the young offender who is definitely reported to be frank and truthful, there is every prospect of an immediate reform, unless ill-timed punishment and injudicious reproach adds stealth to stealing, and so grafts, on top of an open tendency to the original offence, a secondary disposition to secrecy and reserve.¹

(vi.) *Grief*.—Sorrow is usually described as the "suggestress of suicide"; and suicide in England is classed as a felonious crime. Self-destruction, however, is hardly to be counted an instinctive propensity; and some writers, following McDougall, deny to sorrow and grief the status of an emotion. Others, with Shand, add them to their inventory; and in this they are in keeping with popular usage. We may provisionally adopt the latter view; and accept this passion as furnishing the readiest explanation for those rare instances of attempted suicide that form the saddest features of the juvenile court. The majority of such youthful tragedies, in England and America, are found at adolescence among girls.² Naturally at such a stage the motivation is often somewhat mingled; and other feelings—such as fear, anger, sex, and a fantastic form of self-assertion that paradoxically seeks its melodramatic end by destroying the self to be asserted—blend with mere grief, and make their contribution differently in different individuals. Unexecuted threats of suicide outnumber the genuine attempts; and for convenience are classed with them in the table. But, as with all forms of intimidation, the element of anger and resentment plays here a full, if not the principal, rôle.

(vii.) *Other Instincts*.—The foregoing are by no means the only human instincts recognised by psychologists, nor the only human instincts that lend energy for crime. Self-assertion, for example, is regarded by many as a definite instinct, analogous to, but distinct from, anger, acquisitiveness, curiosity, and the rest. In nearly all delinquents it is vigorously developed. In many it assists profoundly to reinforce whatever mutinous or adventurous tendencies their composition may contain. And in some it is perhaps the sole source and stimulus of their frivolous and mischievous enterprises.³

A large amount of juvenile transgression is simply a forcible mode of self-expression. Adrift in an impressionable world, already increasingly aware of tempting powers and an ever-widening influence, the growing child inevitably seeks, in the most incisive and audacious manner open to him, to emphasise his individuality and to affirm his own independence.

¹ The lying of children forms a common ground of appeal to the school psychologist. It has frequently been studied; and, of course, is to be assigned to numerous and very different causes. Here, however, since lying is regarded as a vice rather than a crime, as a moral offence rather than a legal one, I shall not enter into it.

² In most other countries self-murder bulks larger among boys than among girls, repeating the sex-incidence which is universal at all other ages. In Prussia the statistics for fifteen years report nearly a thousand child suicides—the greater portion being boys suffering from worries about examinations and over-pressure at school.

³ While in boys self-display incites to feats of daring, in girls it may lead, either, at a younger age, to vain and romantic lying, and to contrivances still more wild and theatrical for forcing attention, for getting (as the phrase goes) into the lit circle of the limelight; or it may plunge them, at an older epoch, into theft and immorality for the sake of gay clothes, gaudy jewellery, and all the feminine adjuncts to personal adornment.

Another instinct, equally strong in all but a few solitary and stealthy rebels, is the instinct of the herd. Young criminals, like young wolves, hunt usually in packs. And the criminal gang, though seldom organised until the closing years of the school period, strives, like the isolated rogue, to assert with spirit its defiant and adventurous ascendancy.

Disgust is a further emotion, which, mildly indulged, brings with it a pleasurable consciousness of power, a piquant sense of excitement, of exhilaration. To shock ourselves is as enjoyable as to shock and horrify our acquaintances. And many of the revolting habits, which often get wrongly ascribed to sex, and for the refined adult seem nothing but the stigma of the perverted, the degenerate, and the depraved, have their origin in a tentative trifling with this strange and pungent instinct.¹

Play is not so much a separate instinct, as a hereditary mode in which almost every instinct may be exercised. Long ago the poet Schiller and the philosopher Spencer pointed out that play is the overflow of excessive animal spirits, the spilling of superfluous nervous energies, which, in the brimming state of dependent childhood, are not yet wholly drawn off and absorbed by the serious struggle for existence. Play is this; but it is something more. It offers a valuable gymnastic by which the slowly developing instincts may be tested, tried, and trained—practised and modified during the earlier years of immaturity for the later years of self-supported life. In the young much seeming criminality is simply play, or a pitiable substitute for play, having this origin and this purpose; and, were it not harmful to the community, would be a source of serviceable experience to the experimenting individual.²

These, then, are instinctive origins of criminality in the young. From first to last, in all but the plainest cases, the working of these instincts is obscured and supplemented by a complex overgrowth from higher mental levels—by what I have alluded to as sentiments and complexes. With these, therefore, after a brief note upon the treatment of the impulsive delinquent, the concluding portion of my paper will deal.

(To be concluded).

¹ The so-called moral sense is in part an æsthetic sense, a nice fastidious taste in matters of social behaviour. And the young delinquent seems to some appallingly wanting in a capacity for disgust. Where this is so, the offence has, as its negative pre-condition, the deficiency of an instinct instead of an excess. But this is, I think, exceptional. And the paradox expounded in the text is based on an accepted principle of psychology. All feelings and sensations, even things so generally unpleasant as terror, pain, and sorrow, bitter tastes and objectionable smells, are agreeable if sufficiently slight and delicate, and displeasing only when a certain intensity is passed. Thus, disgust, in the disgusting offender, is not so much lacking in itself: it is marked rather by an unusually high transition-point from pleasantness to the reverse. It is present; but, like fear in the venturesome, it acts not as a deterrent but as a stimulant.

² It will be observed that it is chiefly but not entirely the positive or "sthenic" instincts which figure in the list. The negative or "asthenic" instincts—tenderness, submissiveness, grief, and fear—being inhibitory rather than provocative in their immediate tendencies, seldom act alone as the final precipitating motives.

This throws light upon the remarkable difference in criminal tendencies between the two sexes. Broadly speaking, in this country there are about three times as many male criminals as female; and, though the divergence is smaller at the younger ages, and varies considerably in various countries and with various definitions of crime, it still remains, of all mental differences between men and women, the most striking and the most definitely proved. Of inborn differences the only one that is at all well-marked is the difference in instinct and emotion—what I have called the positive or sthenic emotions being more pronounced in the male, and the negative or asthenic in the female. Further, the detailed differences in the specific crimes correspond with the detailed differences in the specific instincts. Here, therefore, we have further corroboration of the instinctive origin of criminality.

FOREIGN INTELLIGENCE.

[We are glad to be able to announce that we have made arrangements whereby regular instalments of notes from foreign sources will be contributed by competent authorities abroad. These will include comments on the progress of psychology in the countries concerned, together with abstracts of such periodicals and books of importance as are not readily accessible to English readers. The latter will be found in our "Survey of Current Literature." We publish a further instalment of General Foreign Intelligence below, and propose, in the near future, to extend our arrangements to cover all centres of psychological importance.]

UNITED STATES.

The difficulties involved in assembling for the annual meeting all the members of the American Psychological Association who are scattered over an area of thousands of miles, with no rebate on railroad fare, has been instrumental in the formation of smaller groups of psychologists restricted to a definite territory. The New York branch of the American Psychological Association was the first local division of this organization. Within the year, a southern branch of the American Psychological Association was formed under the chairmanship of Prof. E. C. Tolman, and a New England Branch of the same Association was organized through the initiative of Miss Calkins and Prof. H. L. Langfeld. This latter group, which met for the first time on Nov. 10th at Harvard University, and was entertained at Prof. Langfeld's home, was composed of psychologists from the following institutions: Harvard University, Radcliffe College, Clark University, Wellesley; Smith College, Dartmouth; Boston University, Tufts College, Boston Psychopathic Hospital, McLean Hospital for the Insane, University of Vermont, Wesleyan College, Amherst College, Simmons College, Carnegie Bureau of Nutrition. The discussion, which was informal, centred about the issue of behaviourism. In the evening, Prof. Langfeld and Dr. Miles related their experiences abroad, and gave their impressions of the European laboratories they visited.

It must be said that besides the meetings of the American Psychological Association, there have in the past years been

gatherings of a more exclusive sort. During the Easter recess a group of psychologists, often referred to as the Titchener experimentalists, get together for the purpose of reporting and discussing the various investigations conducted in their laboratories. The laboratories represented include Harvard, Columbia, Yale, Princeton, Cornell, Clark and Wesleyan. No purely theoretical questions are discussed at these meetings.

Of a different type is the monthly conference of the Olympians at the home of Dr. Morton Prince, in Boston. This club, which counted among its members Münsterberg, Royce and Southard, had disbanded, but started anew last year under the leadership of Morton Prince. The Club consists of four or five different elements—the philosophical, represented by Profs. Perry, Hocking, and Lewis; the psychological, by Profs. McDougall, Langfeld, and Doctors Troland, Allport and Roback; the psychiatric, by Dr. Prince, Prof. McFie Campbell, Drs. Waterman, Solomon, Myerson, Horton, and McPherson; the biophysiological, by Profs. Wheeler and Canon; and the physical by Prof. Bovie.

The American Psychological Association, or rather its members, have felt the need of branching out for other than geographical reasons. Unlike their European colleagues, the American psychologists have, as a rule, specialized interests. Since psychology is such a comprehensive science, there will be found fields in it which are restricted in their appeal. Besides, the meetings of the American Psychological Association, as a rule, extend over not more than three days, so that it was thought advisable even in the past few years to divide up a particular session into two sections: for instance, an experimental section and a tests section. A man might listen to one or two papers in one room and then attend the session in the adjoining room on another field in psychology. Gradually, however, these separate sections are developing into either affiliated or independent organizations, such as the Association of Clinical Psychology and the Medico-Psychological Association. The applied psychologists will probably be the next group to organize into a separate body. It should be mentioned, too, that the gigantic American Association for the Advancement of Science numbers a psychological section among its constituents proper.

Publications.

Strange as it may seem, there have been very few psychological works published in the last few months, unless we call a text-book a work. Authors and prospective authors are told by

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publishers that the field for psychological publications is restricted. Of course, this does not apply to text-books of any sort or description and books on sex and psychoanalysis. Even such works as Chapman's *Trade Tests* and Kuhlmann's *Handbook of Mental Tests* come under the rubric of texts or manuals. Prof. Woodworth's *Psychology* is an attempt to present in a more elementary and at the same time more systematic form the material of his *Dynamic Psychology*, while Prof. Meyer's *Psychology of the Other One* is really a revised and enlarged edition of his *Fundamental Laws of Human Behavior*. Pyle's *Psychology of Learning* is an advanced text in educational psychology, while Averill's *Psychology for Normal Schools* is an elementary text dealing mainly with child psychology.

The bulk of the labours of American psychologists sees the day in the dozen or more Journals and Reviews, as also in the series of Psychological Monographs and Archives of Psychology. The output in the psycho-educational field is astonishingly—some are disposed to think alarmingly—great.

Investigations at the Harvard Psychological Laboratory.

The work of supervising the research at this laboratory is divided among Prof. H. S. Langfeld and Dr. F. Allport for problems in human and social psychology; Prof. Wm. McDougall for problems in abnormal and animal psychology; Prof. W. F. Dearborn for educational problems, and Dr. L. T. Troland for problems in vision. Prof. McDougall's problem is to test out the theory that acquired characteristics cannot be transmitted by having a number of rodents of two different families with no possibilities of interbreeding learn two different problems and then checking up the ability for the two diverse tasks of the progeny in the two families. Prof. Langfeld and Dr. Troland are working on Heterochromatic threshold. After measuring the brightness value of various colours, they note whether the threshold of discrimination changes with a change in saturation.

Among the graduate students, Mr. I. C. Whittemore is studying social factors in industry. This experiment is an attempt to isolate and evaluate certain factors, notably rivalry, in the social environment of factory operatives at work. Mr. G. W. Allport is engaged on a classification of fundamental personality traits and on a method by which to measure them. Mr. H. de Silva, working on the basis that intelligence is a complex of factors,

requires his subjects to take a number of mental tests. Mr. N. D. Hirsch, under the guidance of Prof. McDougall, is examining experimentally the evidence in connection with the relation between nature and nurture. Mr. C. L. Goldthwait's experiment consists in an investigation of eye-movements and limb-movements in their possible relation to mental imagery. Miss R. S. Murphy is endeavouring in her problem to discover what elements are involved in the experience of poetical appreciation. Mr. Clark is studying certain phenomena (such as the burnished effect) of retinal rivalry. Miss Day's work on the correlation of mood with colours has been continued in another direction, viz., the correlation of mood with melodies. Miss Cutler has been investigating the rôle of motor expression, principally movements of the tongue, in silent reading.

Minor experiments on advertizing with reference to its appeal to women as compared with men, on recognition, on types of motor learning, and on the value of the Tatbestandsdiagnostik are also being carried on in the Harvard Psychological Laboratory.

In educational psychology, group intelligence tests were applied, under the direction of Prof. W. F. Dearborn to approximately 15,000 school children, and two investigations involving these data were begun during the last year. Investigations on methods of brief handwriting and the standardization of performance tests for use in the study of the mentally deficient are in progress. Investigations of non-readers and in regard to the rate of physical development in the case of normal children have been begun this year.

A. A. ROBACK.

ITALY.

In the febrile after-war period in Italy amongst many other consequences of the war the following are specially to be noticed:—Firstly, an extraordinary awakening of the religious sentiment both in the Catholic field and amongst Free-thinkers, together with a deep interest in religious psychology and philosophy¹; secondly, a deep feeling of social injustice, strengthened by misery, unemployment, and bad functioning of the State organism, has moved legislators, sociologists and psychologists to the proposal of radical reforms based upon the data of psychology and sociology; and at the same time new experiments and

¹ We hope to refer to this more fully in a later communication.—H.H.

researches are being performed with the object of arriving at a surer social foundation.

We will briefly mention only the most interesting applications of criminal and social psychology. In 1920 a Royal Commission, under the presidency of E. Ferri, of which four biologists and psychologists were members (Lustig, Ottolenghi, De Sanctis, and Ferrari), was given the task of changing certain points of the Penal Code in the direction of Lombroso's ideas. The essence of this reform was the abolition of ethical and theological conceptions in the consideration of crime in order to concentrate observation and study upon the delinquent in his relations with Society—a most controversial standpoint philosophically, like all theories of Lombroso, but humane, and therefore worthy of every consideration. This project is based not upon the usual doctrine of retributive punishment, but merely upon the necessity for self-defence by Society, and aims therefore only at helping the delinquent to re-acquire his self-respect by working for the indemnification of the damaged person and for his own family. The new code contains less that is new as regards juvenile delinquency, but in this field also are to be mentioned many innovations already put into practice. Thus, for example, at the Marassi judicial prison in Genoa the League for Social Hygiene has created a special section for the young, which will serve as a place of inquiry and observation in order to elucidate the genetic, pathological and environmental causes of crime. The observations will be done exclusively by physicians, and re-education will be achieved by means of appropriate instruction given by specialists and by means of physical exercises with training in agricultural and professional work. Contemporarily in the environs of Milan (Arese) was inaugurated the "Cesare Beccaria Institute for the Redemption of the Young," which works in the same way as the institution at Genoa, but is independent of the prison and has therefore the advantage of not oppressing the juvenile mind with a terrifying environment. At the Congress on Juvenile Delinquency, held in January, 1922, in Milan, many important measures were discussed (prophylaxis and tutelage of the young in the scheme of the new Penal Code, regulated freedom, and so forth), but the reports have not yet been published.

The results of psychological work are also being applied in the field of social reforms, and in attempts at increasing the individual capacity of the worker. Vocational researches, which were initiated chiefly by Münsterberg, but which had predecessors in Italy in the work of Petrazzani and Patrizzi, who were the first to suggest an examination of the professions by physio-

psychological criteria, have now in Italy a capable exponent in Ugo Pizzoli, of Modena, who is organizing the first "Italian Blackford Institute" with a psycho-therapeutical laboratory for industrial work, the object of which is to study the vocational aptitudes of the pupils of professional schools.

It should also be mentioned that the Humanitarian Society of Milan has undertaken to act as patron to the practical application of a complex scheme of vocational guidance in several categories of workers. A new organization has been founded in Rome under the name of the "Italian Institute for Social Hygiene, Thrift, and Welfare Work," which will be a centre for the observation and study of the mortality and morbid phenomena caused by social sickness, as well as a centre for propaganda, the co-ordination of organizations for social work, and for inquiry and experiments on new forms of social reform.

On November 15, 1921, there was inaugurated in Milan the Catholic University of the Sacred Heart. It actually consists only of the Faculties of Philosophy and the Social Sciences. The so-called "re-discovery" method will be adopted, and the University is bound to be an important centre of psychological research, for its rector is the distinguished Italian psychologist, A. Gemelli. Its laboratory for experimental psychology is lavishly equipped so as to compare favourably with the great laboratories of Europe.

H. HELLER-HEINZELMANN.

BELGIUM: THE DECROLY SYSTEM.

In Belgium, as everywhere else, new tendencies in pedagogy arise. Here also, we understand that the traditional school must make room for the progressive, that it must reckon with the child's psychology and its needs, its right of living, and of living happily.

The pioneer of this idea, he who in our country has devoted all his energies to it, is Dr. Decroly. He has never ceased to fight for the love of the child, he has but one religion: that of the child. Let us try to introduce him in spite of his modesty, and retrace his life of enthusiasm, of faith, of labour devoted to the child, as well as his work and his method of teaching.

Dr. Ovide Decroly was born at Renaix on the 23rd of July, 1871. He studied at the Ghent University, and after graduating he went to Berlin, where he worked with Profs. Langerhaus, Mendel and Joly. Afterwards he went to Paris, where he studied neurology and psychiatry under the guidance of Profs. Raymond and Joffroy. He then came back to Brussels and

became Dr. Glorieux's assistant at the Polyclinic of the Rue des Eperonniers.

In 1901, he founded the Special Teaching Institute (for abnormal children) where he expounded a special pedagogy, appropriate to the different cases to be dealt with. In view of the results obtained with these abnormal children, accepted in no school but which no other method had been able to develop, numerous friends of Prof. Decroly desirous of giving a better-understood education to their children, insisted upon his creating a similar school for normal children.

In 1907, he opened the "Ecole pour la vie, par la vie," for which he drew inspiration from the Special Teaching Institute. His school is accessible for interested visitors, and is situated in the Rue de l'Ermitage.

In 1912 he was put in charge of the Special Teaching Course organised by the provincial authorities of Brabant, and which aims at giving a psychological and scientific foundation to the staff devoted to the education of backward and abnormal children.

In 1912 he was also made psychological adviser to the committee for professional guidance, where numerous parents came to ask advice concerning their children. The year 1920 opened the doors of the Brussels University for him, as professor of child-psychology, in the pedagogical section.

In 1921 he was entrusted with the educative hygiene and the medico-pedagogical courses.

Let us now try to give a short description of his new method for normal children. It is based on an experience of thirteen years, experience pursued in spite of difficulties of all kinds—the recruiting of pupils, the instability of the staff, and financial complications heavily aggravated by the war. Here are the characteristics of the Decroly schools:—

1. The school for general culture up to the age of 15 should be established in normal surroundings, *e.g.*, where the child can daily observe the phenomena of nature, the manifestations of the life of living beings in general and of man in particular, in their efforts to adapt themselves to the conditions of existence made for them.
2. This school must have a small population, but it should contain, if possible, elements of all ages, from 4 to 15, and of both sexes. In large centres co-education may be continued according to the class and origin of the children, until the age of ten or twelve.
3. The class-rooms must be arranged and furnished not so as to form classes of the auditory type, but on the lines of small laboratories with tables, water, gas and electricity, heating and artificial light, stands and trays for

collections, etc. 4. The staff must be active, intelligent, possessed of creative imagination, and be prepared for the observation of animals, plants, and children. They must love the children, be desirous of learning new things in psychology and science; they must express themselves easily and obtain order and discipline without effort. 5. The groups of children should be as homogeneous as possible; this homogeneity is the more necessary when the groups are larger. It is preferable not to exceed twenty or twenty-five pupils for one class. 6. For the backward or irregular children, if the number be sufficient (*i.e.*, 10-15) a particular class should be directed by a very able master, to help the lagging and to stimulate the aptitudes of the irregulars. 7. The lessons in the technique of written and spoken language (repetitions of reading, writing, spelling) and of arithmetic should take place during the first hour of the morning at least three or four times a week. These exercises should be made especially under the form of games where the emulation and the pleasure of succeeding are the principal stimulants. 8. The hours in the morning not devoted to lessons of technique should be given to divers exercises in observation, comparison, association, drawing, and concrete realisation (manual work), singing and physical games. These exercises should be chosen with regard to a programme of associated ideas. The teacher should be guided by the spontaneous interests of the child, also by the means which the *milieu* puts at his disposal, and he should also take into account the necessity of granting a sufficient rôle to each of the chief activities of the mind. 9. The afternoons, except half holidays, are devoted to hand-work or foreign language courses. 10. Certain mornings should be devoted to excursions and to visits (fishing for aquatic animals, search for insects, visits to factories, engineering works, museums, stations, home handicrafts). 11. The parents shall be informed of the method used at school, so as to understand it and help towards its entire success; they participate in the administration of the school by the intermediary of a committee. 12. The method is dominated by the idea of making the child understand what he is doing, and of bringing him to discipline himself; the limited number of pupils per class will permit the children, as in a workshop and except for certain exercises which demand silence, moving about to get what they require and exchanging ideas with each other and with the teacher about the work they are doing. 13. In order to develop initiative, assurance and solidarity, the pupils give lectures to their comrades; the subjects are chosen by themselves and submitted to the approbation of the teacher; the subjects are preferably con-

nected with those treated in the lessons on observation and association. 14. The encouragement of personal and collective work is obtained by the constant collaboration of the pupils in their different activities. This is brought about by the tidying of class-rooms, the collections, the materials, the pictures, the texts, the books; the making of apparatus, of boxes and envelopes for classifying, the repair or replacement of worn-out or broken objects, the cleaning of aquariums and terrariums, and by the organisation of charges and responsibilities relative to the internal life of the small community constituted by the class and all the classes together. 15. The programme as regards the division of branches and methods is organised on the following lines:—The school aims at general education, preparing the child for the actual social life. This preparation is made under the best possible conditions by *practically* introducing the children to life in general and to social life in particular.

This initiation, as far as the programme goes, must give to the child: (a) The knowledge of its own personality; the consciousness of itself, of its needs, of its aspirations, of its aims, of its ideals. (b) The knowledge of the conditions of the natural and human surroundings in which it lives, on which it depends, and on which it must act and react, so that its needs, its aspirations, its aims and its ideals may be realised. For Dr. Decroly, the main rules to be observed are the following:—As the child must be prepared for life, it must be made to understand it as much as possible.

Actually, life contains two fundamental entities: the *living being* and the *surroundings*. It is therefore necessary to study:

1. *The living being in general, and man in particular.*

2. *Nature and society.* The process of making the child understand the great laws that rule humanity and the universe comprises the study of two series of activities:

- (i.) The activities concerning the individual, whence follows the study of *individual functions*.

- (ii.) The activities concerning the species, whence follows the study of the *social functions*.

With the aim of getting in close touch with the child and with the facts which it can easily observe, Dr. Decroly distinguishes four primordial needs which have the most extensive influence on human activity: First, the need of food. Second, the need of fighting the elements. Third, the need of defence against dangers and diverse enemies. Fourth, the need of acting and working in unison, of getting recreation, of prospering.

With the need of feeding he connects the need of breathing and of cleanliness. With that of working, the need of light and repose.

Let us now consider the knowledge of the surroundings, considered especially from the point of view of the satisfaction of these needs. We must therefore examine all the factors of these surroundings: the human surroundings—the home, the school, society; the living surroundings—animals and plants; the non-living surroundings, also the sun and the heavenly bodies.

Amongst these factors may be noted: (1) The favourable or unfavourable influence of the surroundings on the individual. (2) The reaction of the individual to the surroundings and the appropriation of the latter to the needs of man.

After the study of all these needs, Dr. Decroly considers how they are to be satisfied and this is what constitutes the study of the surroundings. Each point will be treated from three points of view. (i.) The advantages from the point of view of man and the means of putting them to use; (ii.) Inconveniences and ways to avoid them; (iii.) Conclusions for practical life about the manner in which the child must behave, for its own good and for that of society.

We may consider the objects and the facts in four different ways: (1) Directly, by means of the senses and by immediate experience; (2) Indirectly, by personal recollection; (3) More indirectly still by the examination of documents relative to the objects or to actual, but non-accessible phenomena; (4) Most indirectly of all by the examination of documents relative to past objects or phenomena.

Hence arise two types of exercises: (1) Those of *observation* (personal and direct acquisition); (2) Those of *association* (indirect acquisitions or the recall of anterior acquisitions).

To these two groups of exercises which have for their objects the formation of judgments or the comparison of these with others transmitted by graphic or verbal channels, we can add those exercises known as *expression*.

The annual programme on which Dr. Decroly frames the outlines of his lessons is conceived as follows:—

I. The child and its needs.

II. The child and its surroundings divided into (i.) the family; (ii.) the school; (iii.) society; (iv.) animals; (v.) plants; (vi.) the earth; (vii.) the sun.

The method exposed is not only applied in Dr. Decroly's own school "Pour la vie, par la vie." In recent years it has received official recognition, and the Decroly method is actually used in twenty classes of the Brussels Corporation Schools.

It thus no longer constitutes a treatment applicable only to wealthy children, but experience has proved that it may easily be applied in public education.

In my own opinion, Dr. Decroly's efforts and achievements, which I have followed for years, are entitled to claim the attention of educationists throughout the world, in spite of the fact that Belgium is but a small country and the pedagogue a modest man, who has no sense of advertising.¹

J. VARENDONCK.

FRANCE.

M. Richet's *Traité de Métapsychie* has just appeared. The author gives this name of "Métapsychie" to the new *experimental* science that deals with supernormal phenomena, and which he has so largely contributed to found. According to him, this new science will be as different from everything that has so far been attempted in Psychical Research as Modern Chemistry is different from Alchemy or Astronomy from Astrology. After an historical survey of the development of Psychical Research and an analytical account of the various phenomena it has already dealt with—normal and abnormal cryptæsthesia (*i.e.*, perception otherwise than by the usual sensory means), mediumship, premonitions of all kinds, etc.—his conclusion is that practically nothing is known on the subject, and that therefore, in the face of so many problems of vital interest to everybody, the only thing to do is to start working and studying. The motto of all earnest workers must be: *Let us be as bold in our hypotheses as strict in our experimentation.*

The long-promised *Traité de Psychologie*, written under the general directorship of Dr. G. Dumas, the publication of which has been constantly delayed since 1913 owing to editorial difficulties, is hoped to appear in the course of the next few months. All those who are interested in modern French Psychology and desire to know its present state, will find in this book a full and representative account of its general position and directions.

The most striking feature of Psychology in France remains that, the majority of psychologists being psychiatrists, Pathological Psychology is by far the most developed branch. The aloofness of psychologists from the Freudian theory of neuroses and their still greater suspicion even where they hold Freud's

¹ Since writing this article I have received a copy of "Le méthode Decroly," by Miss A. Hamaide, Dr. Decroly's chief assistant. This book is published by the Institut J. J. Rousseau, in Geneva, and is fully illustrated. (6 francs.)

general theories, seems to be unchecked by the tendencies of public opinion in Germany, England, and the United States. They only accept the theory of Conflict and of Repression of Complexes, but these are the least original of Freud's views, and M. Pierre Janet has some right to claim them as his own also. In spite of the recent French translation of the *Introduction to Psycho-Analysis*—the first translation of Freud's works that has hitherto been made here—in spite of M. Lenormand's play *Le Mangeur de Rêves* which illustrates the theory of the Œdipus complex and gives an exposé of the main Freudian dogmas—in spite of an able and popularising article of M. Jules Romains on Psycho-Analysis in the *Nouvelle Revue Française*, January, 1922, this new method obviously appeals but little to the public or to professional Psychologists. The reasons for this attitude are too numerous to be discussed here; let us only wonder if it is not significant that Psycho-Analysis has met with great success almost exclusively in Protestant countries. But, as regards France, the chief of these reasons may be said to be the enormous influence of Comte upon all French modern thought. Hence the preference for an *objective* study of psychological phenomena. Instead of being looked upon as phenomena of consciousness, and as such translatable only in terms of consciousness, they are looked upon from without, as the physicist looks upon the facts of the physical world: the explanation of these phenomena must also be objective; a psychological fact cannot therefore be explained by another psychological fact, since all our notions in psychology are so far only metaphorical interpretations, but by its chemical or anatomical or physiological antecedents or concomitants which are facts very definite, measurable and hitherto irreducible. This point of view is evidently very far from Freud's own, when he arrives at the conclusion that mental diseases can be produced by purely psychic causes and are not necessarily connected with alterations of the brain. It is unfortunately true that none of the terms of our psychological vocabulary correspond to anything definite; the word "image," which is not only the basis of Taine's Psychology but of all modern theories on Perception and Memory, is an instance of this: everybody speaks of "images" but nobody knows what they *are* or even if they exist at all. To replace whenever possible the psychological terms by their chemical or physiological symbols is therefore a laudable attempt at precision, but the difficulty is that Physiology is not advanced enough to be of much help to Psychology.

Another attempt towards the explanation of psychological phenomena has been made on different lines since Durkheim tried

to demonstrate the social origin of these phenomena. M. Lévy-Bruhl has remarkably illustrated this new method in two of his works, *Les Fonctions Mentales dans les Sociétés inférieures* and *La Mentalité Primitive* (the latter just published). And M. Lalo has undertaken a new interpretation of Art through the study of its sociological factors.

Does it mean that Psychology will not be an autonomous science, but either a branch of Physiology or of Sociology, or a mixture of both as Comte's idea was? The example of what happened with Physiology may help us to answer this question. Though it is now known that physiological facts are entirely reducible to physico-chemical facts their study constitutes all the same an independent science. Though they are of the same nature as the physico-chemical facts, it is sufficient for them to be of a different degree of complexity and to present themselves under a different aspect and in different conditions to form a category which it is legitimate to study separately. Besides, it is this special study which alone has led to the discovery that the facts it dealt with were of the same nature as those that were already the object of Chemistry and Physics. This analogy shows that it is necessary that Psychology should develop itself as an independent science, since Physiology and Sociology are not advanced enough to account for the particular class of phenomena with which it is occupied. It is only the parallel development of these three sciences that will show whether Psychology is reducible to one of the two others, or to both of them, and if so, to what extent.

VIENNA.

Prof. Alois Höfler (born 1853), who taught Philosophy, Psychology and Pædagogics at the University of Vienna, died on the 27th February. He was a collaborator and pupil of the late Prof. Alexius Meinong, with whom he also collaborated in a treatise on Logic. Much of his work was devoted to special problems of education, and he took an active part in all discussions on reform of teaching in the higher schools as well as in the university. Since some years ago he was president of the Philosophical Society of Vienna. He also wrote a short textbook of Psychology and a number of papers on Psychical Work, and the Psychology and Logic of Exact Science. He was a believer in the interactionist theory of mind and body, and devoted some studies to this theme.

Society of Applied Psychology and Psychopathology of Vienna.—Prof. Kraft, of Vienna University, read a paper on Telepathy and allied phenomena, without taking any definite position. He laid stress on the necessity of exact scientific inquiry. Prof. Wagner-Tauregg thought that an investigation of prophetic dreams, second sight and presentiments would be of more value than study under the conditions of the laboratory. Prof. Kelsen read a paper on the possibility of a psychological foundation of Sociology, which he denied, Sociology being of a normative character. Psychology can only, according to him, describe the concrete psychical phenomena, wherein the sociological contents become objects of individual consciousness.

Abstracts of German and Austrian periodicals will be found in the Review section.

SURVEY OF CURRENT LITERATURE

Instinct and the Unconscious. By W. H. R. RIVERS, F.R.S.
Second Edition. (Cambridge University Press, 16/-.)

The first edition of this important book was fully reviewed in our pages a year ago. This new edition contains two additional appendices—the first, “Psychology and the War,” in which the influence of the latter on the former is discussed; the second a re-publication of the essay on “The Instinct of Acquisition” which recently appeared in these pages.

A Treatise on Probability. By JOHN MAYNARD KEYNES. (Macmillan, 1921, 18/-.)

“The mental process by which we pass from direct knowledge to indirect knowledge is in some cases and to some degree capable of analysis. We pass from a knowledge of the proposition *a* to a knowledge about the proposition *b* by perceiving a logical relation between them” (p. 13). For Mr. Keynes probability is such a logical relation. Between any proposition and any given body of knowledge, according to him, there holds a probability relation which sometimes at least we can perceive. Upon the degree of this relation the degree of belief which it is rational to entertain with regard to the proposition depends. From this position all the fundamental parts of Mr. Keynes’ *Treatise* are developed.

It is therefore natural to enquire what these “propositions” may be between which these probability relations hold, and in what sense we can be said to “perceive” these relations. Unfortunately Mr. Keynes devotes no discussion to either point. In view of the fact that both the proposition and immediate perception of abstract entities, such as logical relations, have recently been subjected to drastic criticism from the psychological angle, even by members of the logical school to which he belongs (cf. Mr. Russell’s *Analysis of Mind*), this omission gives to his *Fundamental Ideas*, Part I., a somewhat outmoded appearance. Psychologists, when they cease to be over-awed by the superior assurance of the logicians within their special province, will have much to say regarding the powers so often attributed to the mind, usually for their own convenience, by the latter. When some of this has been said, an extensive process of translation will become possible, by which much valuable work, such as is contained in the latter parts of this book, may be made more accessible and brought into closer relation to ordinary modes of investigation. With the disappearance of such things as “ideas or meanings, about which we have thoughts” (p. 12), and propositions as independent entities which we can be said to know, the problem of probability may be expected to become more comprehensible. A full account, for instance, of judgment as a psychological event will be found to include an account of partial recurrence which is highly relevant to probability. In the mean-

time, those psychologists and others whose work leads them to the practical consideration of probability problems will find the later parts of this book interesting, though Mr. Keynes seems ill-advised in deciding for non-numerical probability. But they may be excused if they find the philosophical portions singularly inappropriate.

The Care of the Adolescent Girl. By PHYLLIS BLANCHARD, Ph.D.
(Kegan Paul, 7/6.)

The knowledge of the importance of sex is coeval with the human race, but it is only recently that the mechanisms whereby the sex-instinct operates and which are responsible for the serious consequences of disturbances of normal sex life have been elucidated. These discoveries have not only thrown the urgency of proper sexual education into unprecedented prominence, but have furnished, for the first time in history, clues to methods whereby we may reasonably hope to solve the problems concerned.

For both sexes adolescence is a most crucial period of adjustment, and the health and happiness of thousands have certainly been impaired by ignorant treatment. It is, therefore, urgently necessary that all those who are responsible for the upbringing of young girls should be thoroughly acquainted with the psychological processes at work in their minds. To this understanding Miss Blanchard's book is likely to be a real help. She has clearly read extensively, and gives copious citations from a great number of authorities. Her principal chapters deal with The Sex Instinct of the Adolescent Girl: The Adolescent Conflict: The Sublimation of the Libido: Pathological Manifestations: The Adolescent Girl and Love; and these headings sufficiently indicate the scope of the book. The author illustrates a number of her points by concrete cases, and provides a copious bibliography. If we say that the book left a certain impression of vagueness on our mind, it is perhaps hardly fair to count this as a fault: for it is scarcely possible to lay down rigid rules on such a subject as this when the peculiar circumstances of each individual case are all-important. What is wanted at present is rather a thorough ventilation of the whole matter, a breaking away from the bad old plan of ignoring facts, and a wider appreciation by parents and teachers of the general factors involved. In each of these particulars Miss Blanchard's book will be valuable, and may be recommended to interested readers. Dr. Mary Scharlieb, and Professor Stanley Hall whose *Psychology of Adolescence* is well known, contribute sympathetic prefaces.

Burke and Hare. Edited by WM. ROUGHEAD. (Hodge, 10/6.)

Last Studies in Criminology. By H. B. IRVING. (Collins, 15/-.)

The Tale of Terror: A Study of the Gothic Romance. By EDITH BIRKHEAD. (Constable, 15/-.)

Ibsen and His Creation. By JANKO LAVRIN. (Collins, 7/6.)

These four books all belong to what may be called psychological by-ways. Neither criminology, the Gothic Romance, nor the work of Ibsen are topics which could find more than a mention in

any systematic course of psychological study. But they are all subjects from which the psychologist can learn, and to whose specialist students he can make valuable contributions.

The case of Burke and Hare, now published in the Notable British Trials series, is one of the most famous in the annals of British criminal law, and is remarkable for the extreme fascination which it exerted on the contemporary public. The question of the sanity or otherwise of Burke is of direct psychological interest, but scarcely possible of decision now.

Mr. Irving's book deals exclusively with persons wrongfully convicted of crime. It is delightfully written, and highly readable and interesting. The case of the unfortunate de la Roncière is, perhaps, the most interesting of all, and gives a remarkable picture both of the iniquitous travesty of justice which French criminal law permitted at the time and of the way in which an hysterical girl fabricated a case against a perfectly innocent man, simply to satisfy her craving for attention: morbid psychology with a vengeance!

Miss Birkhead has written a very scholarly study of the Gothic Romance. Psychologically, it is interesting in the light of the recently-recognised fact that much—if not all—the pleasure of a "story" is derived from the reader's projection of himself into the rôle of the hero (or heroine), and his consequent experience in phantasy of the latter's adventures. This is easy to understand in most cases, but it is a little perplexing in cases where the interest of the story is based on the gruesome and the terrifying. It would be interesting to attempt to correlate the widespread but somewhat transient popularity of the Tale of Terror with contemporary social conditions.

Mr. Lavrin's study of Ibsen is on the same lines as his earlier study of Dostoevsky, and will appeal to those who enjoy psycho-literary dissections.

The Neurotic Constitution. By Dr. ALFRED ADLER. Translated by Bernard Glueck, M.D., and John E. Lind, M.D. With an Introduction by William A. White, M.D. (Kegan Paul, 18/-.)

Dr. Adler is well known as leader of one of the most important schools of psycho-therapeutic thought, and this edition of his important book, reprinted from the American edition of 1917, is very welcome.

Dr. Adler approaches the problem of the neurotic constitution from the organic rather than the functional side, and holds that a predisposition to neurosis is caused by "organ inferiority"—that is to say, a definite bodily weakness of some kind. This organic basis was specifically dealt with in his earlier work, and, although it underlies the views developed in the present volume, it is the psychological aspect which is chiefly considered here. Dr. Adler regards the neurosis as a reaction elicited in the attempt to reach a "fictitious goal"—to attain a sense of completeness or adequacy—and considers that this "goal" is itself determined by the feeling of incompleteness, of inadequacy, caused by the "organ inferiority." "This formula, 'I wish to be a complete man,'" he says, "is the guiding fiction in every neurosis."

The general psychologist, such as the present reviewer, is apt to suspect that the apparent divergencies between different schools is largely due to differences of terminology, and that where we have

cleared these up we shall find that all the disputants have really been talking about substantially the same thing. The "feeling of inferiority," for instance, sounds very like the obverse of the "instinct of self-assertion," a phrase which in turn seems to refer to much the same thing as the "libido." But until this linguistic millennium arrives the "warring sects" must continue to expound their views in their own terms, and there is no doubt that the line taken by Dr. Adler is one of the most promising, for his theories provide a much-needed meeting-ground for organicists and functionalists respectively who are too apt to go their several ways with little or no regard for each other's achievements.

Dr. Adler's views are, therefore, of unusual interest, and his book of corresponding value, even although one is left in some uncertainty as to why some individuals should triumph over "organ inferiority," while others should succumb and develop neuroses—a circumstance which suggests that "organ inferiority" is not the only cause which predisposes a person to neuroses. It seems probable that in many cases some specific cause (*e.g.*, the infantile experiences to which the Freudians attach such weight) is necessary to produce a neurosis, in addition to the predisposition arising from organ inferiority. In fact, most of the difficulties met with in attempting to formulate a satisfactory scheme of pathological psychology disappear if Freud and Adler are combined, and those who are well versed in the former should make a point of studying this exposition of the latter's views.

Essays in Critical Realism. By DURANT DRAKE and others. (Macmillan, 1921, 10/-.)

This is the second time that a group of American professors has approached the problem of Realism co-operatively, and the second attempt, if clearer and more coherent than *The New Realism*, is by no means an improvement. Under the influence of Dr. Santayana and Professor Strong, who contribute the fifth and seventh essays respectively, the self-styled "critical" realists have been led to equate the initial "datum" with the Platonic "essence," or "universal." "Only universals have logical or æsthetic individuality, or can be given directly or all at once," says Mr. Santayana (p. 168), and in explaining that the things we are conscious of in sense-perception are logical entities, the detached concrete natures or "essences" of the things we perceive, Professor Strong remarks: "I owe this precious conception to Mr. Santayana" (p. 224).

The best that can be said for such a conception is, in our opinion, that it may be capable of a psychological interpretation which would not altogether miss the mark. Whatever else may be thought of "universals," few psychologists will agree to-day that they can thus be left as unanalysable ultimates "given immediately," with an "amphibious but incorruptible quality" possessing "now the ideal status of an object of intuition, and again the material status of the form of a thing." In a word, the metaphysical side of Critical Realism is unsatisfactory in the extreme, and the reader of this volume will turn for such solace as he may find to Professor Lovejoy's amusing account of the inconsistencies of Pragmatism (pp. 35-85), and the valiant efforts of Professor Rogers to cope, on the above assumptions, with the Problem of Error.

F

Methods and Results of Testing School Children. By EVELYN DEWEY, EMILY CHILD, and BEARDSLEY RUMI. (Dent, 15/-.)

The Intelligence of School Children. By LEWIS M. TERMAN. (Harrap, 8/6.)

The chief reflection aroused by the perusal of these, the latest examples of experimental work in School Grading, is one of renewed scepticism as to the claims made by the advocates of such Tests as have hitherto been devised. "Unless the rank and file of teachers learn to use the (Binet) tests," says Professor Terman (p. 291), "the universal grading of children according to mental ability will remain largely a Utopian dream." To which some educationists might reply that the universal grading of children by teachers who had learned to use these tests would be a pedagogical disaster of the first order. As an amusing diversion at Christmas parties, or as a device to facilitate the dragooning of the masses in our overcrowded industrial areas, such crude methods have no doubt a certain justification. But when we read—"A college professor with a twelve-year-old son who tested at 83 was planning to send him through college. The boy will be fortunate to complete the eighth grade. Such children are sometimes badgered and urged on until life is a burden"; or "Anything above 85 I Q in the case of a barber probably represents so much dead waste; yet we know a barber who is as intelligent as the average college student"—it is time to inquire seriously into the social and political ideals of our would-be advisers. Are the following sentences from Professor Terman perhaps significant?

"Superior children usually come from superior families" (p. 193).

"It is small wonder that many (of the 70-85 class) fail and drift so easily into the ranks of the anti-social or join the army of Bolshevik discontents."

But if Professor Terman is already anxious to apply his nostrum, the more cautious co-operators who are responsible for the volume on *Methods* are content to believe that the tests they so carefully analyse may, if properly checked, be "of practical value to the teacher *in dealing with puzzling children*." The italics are ours, and limit the field in a way which will allow of general agreement. Their study, which divides into three parts—Mental Tests, Social Study, Physical Study—is particularly valuable for its treatment of statistical material, Mr. Rumi having had at his disposal two "assistant statisticians." A further volume dealing with the interpretation of the objective data of mental tests is promised.

An Introduction to Psychology. By SUSAN S. BRIERLY. (Methuen, 5/- net.)

This book aims at meeting the first needs of the non-professional student, and it achieves this aim to a remarkable degree. Mrs. Brierly has, in a very short space, placed before the reader a comprehensive survey of modern psychology in such a way as to give the uninitiated a good grasp of the subject. The first part of the book contains a brief survey of the meaning and scope of psychology, which is found to be best defined as the study of "purposive activity." The second part prepares the way to a more detailed account of the innate and

acquired characteristics of the human mind, by a general discussion of life energy or "hormé," and the relation of the organism to its environment. Throughout a strictly scientific attitude is maintained, and due emphasis is laid upon the biological outlook of psychology. It is a book which should be of interest to the more advanced as well as to the beginner. It is short and very much to the point.

Psychology and Philosophy. By Prof. F. DE SARLO. (2 Vols., 546 and 440 pp. Published by "La Cultura Filosofica," Florence.)

This work by the eminent Italian philosopher and psychologist is the most important publication of recent years in Italy, and is worthy of the attention of all serious students of psychology and philosophy. Not only does it represent one of the most important schools of contemporary Italian thought, but it is also a noteworthy contribution to philosophy in general and animism in particular. It treats the deepest and most vital problems of philosophy and psychology with such depth and sagacity of inquiry, with so wide a culture, such penetrative and acute criticism, and in so convincing a manner that no reader of it can fail to benefit greatly. The essays collected in these two large volumes deal with the chief points in the science of the human mind, and contribute a revision of nearly all the psychological work performed by the author during 30 years. The extent of the book and the limits of the space at our disposal restrict us to only a few of the chief points treated in it. As is indicated by the title, one of the most important discussions of the work concerns the relations between psychology and philosophy. In order to determine them it is necessary to avoid two errors which have been widely prevalent in the past: the first, that psychology is indistinguishable from physical sciences; and the second, that it has no particular connexion with philosophy. On the contrary, psychology is to be distinguished from natural sciences on the ground that psychical experience alone coincides with reality. On the other hand, although psychology neither can nor should be based on determinate metaphysical premises, and is therefore independent of philosophy, it none the less shares with philosophy an order of relations which no other science can have. Psychology, in studying mental activities, studies a form of ultimate reality, which must necessarily have the greatest importance for any metaphysical construction. Psychological researches must evidently lead to the determination of metaphysical ideas about the nature of the mind, and the study of the various mental functions necessarily has importance for the determination and realisation of fundamental values, which themselves are the subject-matter of such fundamental philosophical sciences as logic, ethics, and æsthetics. The psychological method is the only one competent to give fruitful results in the study of products of the mind, of whatever order these may be, because consideration of the modes of action of the chief mental functions is the only road to sure and certain knowledge of the functions themselves. And the fact that for mental life *esse est percipi* has its true validity would alone suffice to prove that the relations between philosophy and psychology must be different from those between philosophy and natural sciences.

Psychology has its foundation in itself, and has as subject-matter a peculiar form of experience, the inner experience. Psychological cognition, being based upon a form of immediate and direct experience, is capable of giving us the highest degree of certitude, so that it necessarily represents the ultimate court of appeal in the search for the truth of fact. But this inner experience, besides the complex of mere facts, permits us also to perceive directly the unity of consciousness and the identity of the subject throughout variations of functions and the changes of time; and this is the indispensable condition for the intelligibility of mental life.

Thus, starting from the data of mental experience and using the same methods as are applicable in the other sciences—the same logical rigour and the same rational principles—the author examines the gravest problems of the human mind, basing himself upon the immediate perception of the real unity, which he claims is the real principle of the various mental functions. He criticises with great cogency the various schools of “psychology without mind”: the intellectualistic of James, the voluntaristic of Wundt, and the idealistic of Natorp. The psychology of De Sarlo is evidently very different from that which absorbs all reality in consciousness; on the contrary, he is strongly opposed to the fundamental principle of every idealistic conception, and devotes to this subject some of the best essays of the first volume. Thus, for instance, in the essay on “Mental Experience,” he proves that it implies duality of subject and object, and that it is necessary to exclude every form of immanence of the object in the corresponding mental act; he criticises the idealistic doctrine, which identifies consciousness with the action of thought upon itself as object; and insists on the necessity of integrating the notions of consciousness and mental experience by new ones, which are to be determined by metaphysics.

Even this brief note may serve to show the great importance of this work, which makes a definite contribution to the solution of many fundamental problems of psychology and philosophy.

Ein Geistes Kranker als Künstler. By W. MORGENTHALER.
(Bircher, Berne, 1921, 18 frcs.)

The story of a schizophrenic patient (*dementia præcox*) is described and thoroughly analyzed. The case is very curious, because the man, the son of poor people and a workman himself, though he had never received any notable instruction, produced during his psychosis a great many works—drawings and pictures of an undeniable æsthetic value. His poetry, of which he wrote a great deal, is of much less importance. It is as if the mental disturbance had in some way liberated forces which in a normal course of life would not have manifested themselves. The intense desire to find an outlet for his inner experiences and the working up of the sense-impressions and the affective tendencies are very similar to those of artists in general. His works seem on one side to be related to primitive Gothic art, on the other to certain modern tendencies (expressionism). The pathological process and the psychological foundations of the creative artistic process are laid bare, so that this study is of value, not only for the psychopathologist, but also for anyone endeavouring to understand art in its psychological connections.

The Beloved Ego. The Depths of the Soul. Disguises of Love.

By W. STEKEL. (Kegan Paul, 6/6 each.)

One cannot always agree with Dr. Stekel in all his views, and if these books were intended as technical treatises one might feel it necessary to criticise them in some detail. But they are written for popular consumption, and their author certainly has the knack of presenting psycho-analytic doctrines in a homely, graphic, and readable manner.

It is probable that these three volumes of essays will be widely appreciated by a large section of the intelligent laity who are anxious for general ideas on modern psychological thought, without being too deeply concerned about the *minutiae* of technical orthodoxy.

The Man from the Other Side. By ADA BARNET. (Allen and Unwin, 7/6.)

We started to read this book because it was our duty to review it: we continued because we found it really interesting. In general, "psychic" novels are either tedious or absurd, and it is rare to find one in which the "psychic" element is kept in its proper perspective and is not preposterous in itself. In this case the authoress has written a very delightful novel, in which the continued influence of a fine character persists beneficently after death and acts as a great power for good in the life of his former fiancée. The conception is cheering and helpful, and—if survival be a fact—by no means impossible. We are confident that our readers will enjoy the book.

The Hand of Fate. By I. H. PERDICARIS. (Holden and Hardingham, 7/6.)

"This book is a Memoir, showing how the Hand of Fate guided the Author through a life of varied experiences" (Introduction). The experiences have certainly been varied, and their recital is not wholly uninteresting, but it is not clear why the Hand of Fate should be invoked as a causal agent.

Purpose and Transcendentalism. By H. STANLEY REDGROVE, B.Sc., F.C.S. (Kegan Paul, 5/-.)

This is "an exposition of Swedenborg's main doctrines, with a view to encouraging a wider reading and study of his works," and it seems well adapted to its purpose. Swedenborg is seldom mentioned in the philosophies of the schools, but there can be no question that he anticipated many modern theories in a most remarkable fashion. Thus he regarded both light and heat as products of motion, and Mr. Redgrove shows that his doctrine of "discrete degrees" is eminently applicable to such distinctions as between matter, molecule, and atom. Many other points, both in Physics and Biology, are also discussed in the light of Swedenborg's system.

Even to-day Swedenborg numbers many followers, and these will certainly appreciate the book. But it can also be recommended to all those who wish to acquaint themselves with the more important views of this very remarkable man.

Masonic Legends and Traditions. By DUDLEY WRIGHT. (William Rider, 5/-.)

The science of "Collective Psychology" is now attracting so much attention that it is instructive to observe the causes which have served to lend cohesion to any considerable group or community. Of such causes a number are admirably exemplified in the Practice, Ritual, and Traditions of Masonry, and it is probable that no more perfect example of the empirical application of those psychological laws which determine communal stability could be found than in the organisation and development of the Craft.

Mr. Wright does not, of course, deal specifically with this aspect of his subject; his business is merely to recount some of the more interesting Legends and Traditions. In doing this he has the advantage of being genuinely well informed, and his very readable book will appeal to all who are interested in legendary and traditional lore in general, or Masonry in particular.

The Psycho-analytic Study of the Family. By J. C. FLÜGEL. (International Psycho-analytical Press, 10/6.)

Mr. Flügel has written a book which is distinctly technical, and primarily intended, we think, for advanced students of psychology. But his subject is so important, and comprehensive books on it are so rare, that his work should not be missed, even by those whose knowledge of psychology is comparatively slight. Family life presents the child with his first experience of every kind of situation to which he will afterwards be obliged to react: Authority and discipline, love and emulation, hunger, jealousy, hostility, dependence, and self-assertion all arise in the narrow circle of the normal family, and it is clearly to be expected that the way in which the child reacts to these first prototypes will have a profound effect on his subsequent behaviour throughout life. By these first reactions the structure of his mind is moulded and his habits formed, but few people realise the extent and importance of these early years, or appreciate how fully the actual mechanisms have been worked out. The proper appreciation of the book demands a rather more extensive understanding of modern psychology than the average "lay" reader is likely to possess, but he will not miss much if he is careful not to condemn as preposterous notions which are new and appear to him to be somewhat too strongly expressed. Any thoughtful person will easily understand, for example, that the relation between father and son is one which is bound to give rise to a certain amount of resentment, hostility, and jealousy from time to time, but he is apt to take exception to the use of the psychologically accurate term "hatred." The same applies to the fact that rudimentary sexual instincts exist before the age of puberty, and necessarily operate on the most accessible objects; this proposition is acceptable enough as stated, but its description in technical terms of "incest tendencies" often appears objectionable. We think that Mr. Flügel might, with advantage, have made things easier for the general reader by inserting a few explanatory remarks of this nature, without in any way diminishing the technical value of his work. None the less, for the sake of the next generation, we hope that many parents will take the trouble, not only to read this book, but to think about it, and to follow its indications in dealing with their families.

Psycho-analysis. By R. H. HINGLEY. (Methuen, 6/-.)

Dreams and the Unconscious. By C. W. VALENTINE.
(Christophers, 4/6.)

-The Hidden Self. By H. E. HUNT. (Rider, 4/6.)

Psycho-analysis, Sleep and Dreams. By ANDRE TRIDON. (Kegan Paul, 7/6.)

The public interest in psycho-analysis seems still to be unabated, and the four authors noted above have each set out to satisfy it in one way or another.

Mr. Hingley has written a book which we can cordially recommend to all who want a sound and reasonably comprehensive account of the subject. The author knows his subject, and varies the steady course of exposition by occasional passages of intelligent criticism. The major applications of psycho-analytic doctrine in social and educational fields receive a fair share of attention, and are made the occasion for a number of eminently sensible comments. Mr. Hingley has not, we think, set out to write a technical treatise, or to make original contributions to the subject, but rather to write a good, straightforward book for the ordinary educated person, and in this he has succeeded.

Dr. Valentine is Professor of Education in the University of Birmingham, and this may account for the admirable independence of attitude which is observable throughout his excellent little book. It deals primarily with dreams, but also—as might be expected—devotes a considerable proportion of space to the pedagogical aspects of the subject. The association test is also dealt with somewhat fully, as are Sublimation and Sex, and Forgetting, Doubt, and Prejudice. The book is short, clear, readable, and impartial, and Dr. Valentine is to be congratulated on having compressed so much good stuff into so small a compass.

Mr. Hunt is rather more popular (in the best sense of the word) than either Mr. Hingley or Dr. Valentine. His book is not so comprehensive as the former's, nor so concrete, if we may use the expression, as the latter's. Covering the general ground of the Unconscious and Psycho-analysis, he writes easily and pleasantly, and enlivens his text with a variety of simple and well-chosen examples. His concluding parallel between mental and social processes is most interesting and suggestive, in addition to being, we believe, original.

Mr. Tridon is already known as an exponent of psycho-analytic doctrine, with a journalistic rather than a scientific touch. The most noteworthy point made in the work here considered is the suggestion that sleep constitutes a particular form of "flight from reality." The book is, perhaps, not quite so inaccurate as its predecessors by the same author, but Mr. Tridon does not appear to be a very responsible authority.

The Technique of Psycho-analysis. By DAVID FORSYTH, M.D.,
D.Sc., F.R.C.P. (Kegan Paul, 5/-.)

First, last, and all the time, this is a practical guide for those who contemplate the actual performance of analyses. As such it could scarcely be improved upon in the space available. Dr. Forsyth

is, of course, one of those whose views on psycho-therapy command respect in all quarters; he has years of practical experience behind him, and he has succeeded in compressing a surprising amount of it into the short space of 133 pages. The book is full of helpful observations and suggestions on points which are obviously important, but which few people would think of for themselves. Medical men who think of taking up psycho-analytic work must, of course, read widely, but they should certainly not miss this book.

The Survival of the Soul. By PIERRE-EMILE CORNILLIER. (Kegan Paul, 10/6.)

The author, a well-known French artist, describes over one hundred séances with a young girl, in the course of which he received communications purporting to emanate from departed spirits of a high order. Beyond a few instances of apparently telepathic and clairvoyant phenomena of a fairly common type, the book contains nothing of evidential value. It is, however, interesting as a characteristic example of the development of pseudo-mediumistic proclivities in young girls. (Compare "A Medium in the Bud," etc.)

Death and Its Mystery. By CAMILLE FLAMMARION. (T. Fisher Unwin, 10/6.)

In this work the veteran French astronomer presents a great number of cases of supernormal phenomena, which he has accumulated during many years of study. These include instances of telepathy, premonition, veridical dreams, clairvoyance and prevision of the future, of which the last named are, perhaps, the most valuable.

The author's conclusion that there are mental faculties as yet unrecognised by orthodox science is probably correct, but his work would have been more convincing if he had exercised greater discrimination in the sifting of cases and shown a fuller appreciation of the sources of error in such work.

He does not seem to realise, for example, that the Stainton Moses phenomena are not necessarily all to be accepted at their face value, and he dismisses too lightly the criticisms of such serious students as Hyslop and Podmore. The book is, in fact, an eloquent pleading rather than a judicial enquiry; but psychical researchers will find it worth reading.

The Foundations of Psychology. By J. S. MOORE. (Princeton University Press. London: Oxford University Press, 1921, 12/6 net.)

This is the first serious attempt to discuss the fundamentals of psychology in text-book form since the advent of Behaviourism and Psycho-analysis. Professor Moore rightly points out that for many years past professional psychologists have been content to devote their time and attention chiefly to the experimental method, to the serious neglect of broader issues. "I do not mean to imply that there is *no* interest among psychologists in the principles of their science, but I do mean that the interest is relatively slight, and that what work is being done in this field is grievously lacking in unity, either of aim or result." The crudity with which the Behaviourist

view has been formulated is sufficient justification for this contention, but Professor Moore is on more dubious ground in his constructive endeavours. For he assumes that what is wanted is synthesis, and regards himself as "synthetizing the foundations upon which the science is even now built." It would seem more natural to maintain that the chief problem to be solved is the elimination of difficulties raised by rival terminologies, and of the nature and extent of these difficulties Professor Moore seems hardly to be aware. He is too ready to postulate the philosopher and metaphysician in the background, after the manner of his predecessors, and to shrink as a mere psychologist from invading their preserve. Hence the really vital issues of the relations of thought and language are left entirely on one side.

To the English reader the most noticeable feature of the volume is its freshness of approach. Thus, by way of introduction to Self-Psychology (the fourth of the four main Current Concepts—Structuralism, Functionalism, and Behaviourism being the other three), we are told (p. 68) that "the doughtiest champion of this view is Professor Mary Whiton Calkins . . . but a similar general position has been defended also by many other psychologists—as Franz Brentano, G. F. Stout, J. M. Baldwin, Joseph Royce, James Ward, J. E. Creighton, and C. H. Judd." The outlook, as the above implies, is by no means exclusively American, but the many interesting sidelights on current American controversies are of particular value at the present time.

After devoting 86 pages to the Definition of Psychology, and 66 to the Field of Psychology as a Science, the treatment concludes with a section on Postulates, in which recent developments of the theory of the Subconscious play a large part. It is, however, surprising to learn (p. 229) that a discussion of the views of Jung "must be left for some future time." The postulate of "independent psychical causation" which the author adopts seems to be the outcome of a hazy theory of knowledge, Münsterberg being referred to as America's "one great theoretical psychologist." But in spite of its weakness on the theoretical side—and, as usual, the term "meaning" (p. 100 ff.) is a danger signal—the book is a welcome step in the right direction, and can be confidently recommended to those in search of a guide to modern tendencies; especially if read in conjunction with such a work as Mr. Russell's *Analysis of Mind*, reviewed in our last issue. There are a number of minor misprints—e.g., p. 66, line 22; p. 138, line 13; and p. 168, line 31.

The Sociological Determination of Objectives in Education. By DAVID SNEDDEN. (Lippincott, 1922, \$2.50.)

It is a hopeful sign that educationists all over the world are asking themselves fundamental questions, and thereby coming in increasing numbers to recognise the value of psychology, not only as a guide in matters of detail, but in relation to the more general issues raised by such a book as that of Mr. Snedden. The author's aim has been to pass in review the subjects actually taught in schools, to consider the reasons advanced for their retention, and to provide a sociological and psychological justification for proposed reforms. No longer, he thinks, can teachers be content to accept the curricula handed down to them from earlier generations with

other needs and other ideals—"The scientific spirit of our time is about to impose a new burden on the master. He must explain and justify the reasons for teaching Latin to John or Mary, instead of American literature or hygiene or carpentry." And when he has decided *what* must be taught in the light of modern social requirements, there are still the *how* and the *when*, governed by such considerations as the "two types of learning"—the ability to do, to express in action being regarded as the most tangible result of the first, and distinguished from appreciation the outcome of the second. In spite of the interesting problems which the book raises, the impression remains that the author has not fully digested his material; particularly in the section devoted to mathematics, where the comments and queries of a critic on the changes suggested are quoted without further elucidation. This, added to the fact that, like most American lecturers on pedagogical subjects, Mr. Snedden writes in an awkward and discursive style, makes us hope that a second edition may have the advantage of a thorough revision in a few years time.

PERIODICALS.

Archivio Italiano di Psicologia (No. 4, November, 1921). G. Corberi presents a long experimental paper: "On the Estimation of Psychosensory and Psychomotor Activities." Continuing the researches of De Sanctis, he studies by the method of prolonged work a number of subjects, both in the normal state and under the influence of drugs (alcohol, morphine, and others), with the object of measuring certain sensory and psychomotor activities in order to determine their reciprocal relations, etc. Space does not permit of mentioning all results of this interesting paper, and we can only remark that it has considerable importance for vocational psychology by establishing that for certain occupations (medicine, advocacy, etc.) the predominance of sensory activities is more favourable than the other ones. On the contrary, the motor predominance is relatively more useful for occupations in which the higher intellectual processes are not always indispensable. G. Camphora publishes a long and acute introspective paper: "Observations on Dream Phenomena," in which he continues and checks the latest researches of De Sanctis, Vachide, Delage, Freud, and Kiesow. Amongst his conclusions the following are noteworthy:—(i) We have no sure data for affirming or assuming that we dream during deep sleep. (ii) Dreams tend to concentrate on the thoughts of waking life which are concerned with indifferent matters, whereas facts which to some extent excite us are commonly excluded from them. (iii) The psychological mechanism by which dreams are produced does not appear at all different from the common process of perception in waking life. (iv) The majority of affective manifestations in dreams are only the immediate expression of mere physical disturbances. (v) In opposition to the theory of Freud, a dream always represents a psychical reaction corresponding to an actual stimulus.

Rivista di Psicologia (No. 3, 1921). M. Patrizzi: "Two Fatigue Tests on Professional Work." The author, inventor of the "crural ergograph," presents in a brief paper abstracts of two

memoirs which will soon be published *in extenso*. The first describes researches made with author's apparatus and Mosso's ergograph in order to determine fatigue in professional work by a new method, called by the author "parallel ergo-myography," consisting in simultaneous registration of digital ergograms and single voluntary contractions; by this method it is possible to measure not only the phases of increasing and decreasing energy, but also the period of latent energy, which prior to the work of this author has not yet been achieved in the case of voluntary human contractions. The second memoir is entitled: "From the Psychometric Graph of Attention to that of Mnemic and Associative Capacity," and describes the author's method of measuring and immediately representing the intensity and constancy of attention of an experimental subject by a series of reaction-times; the results of his experiments have been confirmed by Janet, Binet, and others. The author believes that the mnemograms obtained by his method may have great importance for the experimental examination of intellectual workers.

Rassegna di Studi Sessuali (No. 2, 1921). R. Assagioli: "The Freudian Doctrine of Sex." The author was the first exponent of Freudian doctrines in Italy, but, although accepting the general tenor of his views, makes various important criticisms. He maintains that Freud attributes an excessive value to the laws discovered by him, and too great an importance to the lower aspects of sexuality, neglecting the higher manifestations of love. He also considers as exaggerated Freud's statement that all psycho-neuroses are due to sexual disturbances, and also his sexual interpretation of many fear states. The neglect of the distinction between the conscious dominion of sexual instinct and what Freud calls "Verdrängung" leads to many exaggerations, especially by attributing excessive importance to the lack of satisfaction of sexual instinct as the cause of psycho-neuroses.

Zeitschrift für die gesamte Neurologie und Psychiatrie. Vol. LXXIV, Nos. 1-3, 1922. Arthur Kronfeld: "On Schizophrenic Alterations of the Consciousness of Activity." All symptoms within a psychosis, which cannot be reduced to or deduced from other psychical elements, are considered as primary. They derive directly from the somatic processes; a psychological interpretation is therefore impossible. The irruption of such a primary fact interrupts the chain of psychical causation. The consciousness of the ego is not given through the emotions. The condition of this consciousness is the character of intentionality. If this is lacking, the consciousness of activity, of having given the objects through intentional acts of the subject cannot constitute itself, the objects become estranged to the subject ("ichfremd"). This defect of the consciousness of activity is irreducible. F. Kehr: "The Arnold Case—A Contribution to Modern Views on Paranoia." A very interesting story of a paranoid condition, showing that a complete system of delusionary ideas may arise out of conflicts as a psychic reaction, and that on the basis of the fear of being persecuted a megalomaniac conception may be produced, the position of the persecuted persecutor forming an intermediary phase. Jakob Kläsi: "Contribution to the Question of Infantile Sexuality." Sexual manifestations in early

childhood are not normally of a pathological nature; but they may be, if the sexual preoccupation becomes overstrong. A story describing the love-relations between two children of 4 and 3½ years shows that sexual love may manifest itself even in these years very strongly—at least, in mental affections—and may show the same character of sublime spirituality observable in adults in conditions of increased affectivity produced by love. The behaviour of children in love is apt to give valuable clues to the direction of impulses and the character, and consequently, also, for educational measures. Vol. LXXIV., Nos. 4 and 5. Paul Schilder: "Some Remarks on the Problems: Cortex, Subcortical Ganglions—Psyche, Neurosis." The so-called extrapyramidal motility reacts in its tonic and its automatic functions to psychical influences; hysteria and katatonia may therefore produce "organic" symptoms. If the motor system is impaired the production of organic symptoms by psychical influence is facilitated. The motor disturbances in katatonia are consequences of psychical influence and of organic lesions. Hysteria and cerebellar diseases may give rise to similar symptoms; probably the same mechanisms are involved in both cases. Psychogenic influence acting on organic mechanism does not of itself constitute a neurosis. This, then, is only the case when the organic modification is used in the service of the neurotic attitude. Heinrich Herrschmann: "On Homicidal Impulses as the Cause of Killing by 'Neglect.'" Heinz Hartmann: "A Case of Depersonalisation." In such cases the unification of all the actual tendencies of the ego cannot be attained; the act is characterised by a "moment" of contradiction, which is irreducible. The state can be understood as a reaction to a psychical trauma, though other factors are also involved. It represents a special form of introversion, as Jung has named the flight from reality. The case described is remarkable because of a curious defect of visualisation.

Archiv für Psychiatrie. Vol. LXIV., Nos. 3 and 4. Andreas Kluge: "On Changes of Affectivity." This paper attempts to sketch a theory of affective processes from a purely mechanistic point of view. S. Galant: "Practical Intelligence and Moral Imbecility." An intellectual measure of morality cannot exist. The conception of moral imbecility or insanity is meaningless. Moral thinking and immoral acts can co-exist in one individual; this is often the case in criminals. Raecke: "Perversity and Egotism—A Contribution to the Forensic Valuation of Sexual Abnormalities." Perversions presuppose a dominating power of phantasy, which supplants reality. Since the same factor of psychopathic constitution may lead to pseudologia in impostors, one cannot wonder that both abnormalities are often observed in the same individual.

Schweizer Archiv für Neurologie und Psychiatrie. Vol. IX., Nos. 1 and 2, Vol. X. Hans W. Maier: "Studies on the Effect of Caffeine and Coffee on Man." The number of Arithmetical calculations obtained per minute and of mistakes (method of Kraepelin) showed after the administration of coffee containing normal quantities of caffeine and of a coffee deprived of its caffeine-content the same favourable influence. It is concluded that the exciting power of coffee is not to be sought for in its caffeine-content,

but in other substances, whereas most of the physiological effects (on blood-pressure, sleep, etc.) are certainly due to caffeine. But the caffeine-free coffee ("Hag") is not altogether ineffective in these latter respects.

Zeitschrift für Psychologie. Vol. LXXXVIII., Nos. 1 and 2. E. R. Taensch: "Fundamental Questions of Acoustics and the Psychology of Sound" (II.): The vowel-character observable in the "compound sinusoidal curves" obtained by Taensch's siren is conditioned by periodic series; the duration of the period is heard as the voice-tone of the vowel. In periods of equal frequency the variation of amplitude alone may suffice for the production of a vowel, the vocal quality being determined by the wave-frequency and the voice-tone by the variations of amplitude. The characteristic wave-frequencies were found for O at 450 v./sec., for A at 930 v./sec. III.: "On the Dependence of the Apparent Force of a Sound upon the Subjective Localisation of the Origin of the Sound—An Analogy to the so-called Central Factors in Colour Vision." If the sound-producing instrument is placed in such a way that the sound seems to come from one side, one has the impression that the ear receives a stronger stimulus. This is probably caused by the conditions of normal hearing, the stimulation being usually stronger on one side if the sounding body is actually placed on the right or the left.

Zeitschrift für Biologie. Vol. LXXIV., Nos. 3 and 4, 1922. M. von Frey and W. Webels: "On the Specific Sensory Qualities of the Cornea and Conjunctiva of the Eye." Mechanical and thermal stimulation of the cornea in the normal state and after anæsthesia by cocaine shows that both organs can only produce sensations of pain and of cold, but not of pressure or of warmth. The anatomical data correspond with the physiological findings, only two sorts of nerve-endings being present, instead of the four which are found in the skin.

British Journal of Psychology (General Section, December, 1921) contains an interesting account by Godfrey Thomson of mental tests given in Northumberland elementary schools. The tests given were chiefly new, and had the merit of being very simple. They proved useful, on the whole, in selecting candidates for free secondary education. A. G. Grant: "Perception of Form"—highly technical. H. Hartridge: "Criticism of Wrightson's Hypothesis of Audition"—also very technical. L. Feasy: "Experiments on Æsthetics."—An account of experiments in which coloured and uncoloured rectangles were exhibited and the subject's psychogalvanic reflex noted. L. G. Fieldes and C. S. Myers on "Left-handedness and the Reversal of Letters."—This article should be of interest to followers of Head's experiments on card tests in relation to aphasia. "Note on the Use of the Psycho-galvanic Reflex," by W. Whately Smith. Mary Sturt: "A Comparison of Speed with Accuracy in the Learning Process"—an account of experiments on learning type-writing carried out at the Cambridge laboratory.

The Journal of Applied Psychology. September, 1921. "The Results of Repeated Mental Re-examination of 639 Feeble-minded over a Period of 10 Years," by F. Kuhlmann. "Pictorial

Completion Test II.," by William Healy. Frank Watts on "The Construction of Tests for the Discovery of Vocational Fitness"—a very clear statement of an important problem. "A Statistical Method for Incomplete Order of Merit Ratings," by M. J. Ream. "Methods for the Selection of Comptometer Operators and Stenographers," by M. A. Bills (communicated by C. S. Yoakum).

The Journal of Educational Psychology. December, 1921. Harold Rugg continues his article on "The Possibility of the Rating of Human Character." Fowler D. Brooks writes on "The Rate of Mental Growth, ages 9 to 15," concluding that it is uniform and independent of sex during those years. Verbal and Abstract Elements in Intelligence Examinations," by John P. Herring, being a study of the relations between human intelligence and certain definite abilities. "What is Reading Ability?" by J. B. Wyman and M. Wendle. "Terman Vocabulary as a Group Test," by Angelina Weeks, who finds this test equally reliable for children above the fifth grade, whether given as an individual or a group test.

The American Journal of Psychology. October, 1921. The most interesting articles in this number are:—"Qualitative Aspects of Bitonal Complexes," by C. C. Pratt, being a detailed account of experiments carried out in the Clark University laboratory. "Functional Psychology and the Psychology of Act," by E. B. Titchener, includes a criticism of Ladd's system as typical of functional psychology. "Church History and the Psychology of Religion," by Pierce Butler, a student of Church history, who attempts to show the importance of testing historical conclusions by psychological criteria. "From the Cornell University Laboratory: The Involuntary Response to Pleasantness," by G. H. Corwin.

The Journal of Philosophy. November 24, 1921. "Giving up Instincts in Psychology," by Zing Yang Kuo, who repudiates the usual views on instinct and puts forward some original ones of his own, which are interesting if not convincing.

Archiv für die gesamte Psychologie. Vol. XLII., Nos. 1 and 2. Erich Berner: "General Study of the Intersubjective Relations in the Theories of the Later German Sceptics." This study, of a philosophical rather than a psychological nature, tries to classify and to understand the different theses on the relations of two subjects—of knowing another mind—as evolved by modern scepticism of various shades; the positions of the so-called immanent philosophy (Schubert-Soldern, Bergmann, etc.) are specially analyzed. After some remarks on Stirner and Nietzsche, a short chapter on solipsism is devoted to the demonstration of the logical mistakes included in this theory. K. Korniloff: "A Dynamometric Method for the Study of Reactions." An instrument called a dynamoscop is described, which enables us to measure the quickness, duration, and force of a given reaction. It consists mainly in a rubber balloon, which is compressed by pressing down the reacting-key included in the circuit of the chronoscope. The compression of the balloon is registered by a mercury manometer on a kymograph. The expenditure of energy is found to increase

with the decreasing of the reaction-time. The reactions in a natural attitude of the subject are mostly quick and of little energy. The intensity of the external manifestation of will decreases with the increasing of the complexity of thought processes. O. Klemm: "On the Correlation of Different Apperception Effects in testing industrial efficiency." The correlations of immediate memory fixation and the content of apperception in point-counting and the distinguishing of colours are experimentally studied. T. Lindworsky: "Contributions to the Theory of Representations." The number of concrete representations in thinking does not correspond to the faculty of producing such representations. If in solving a "thought-task" the subject reacts with a general solution, the evolution of representation is arrested in its beginnings, whereas other subjects proceed beyond the general thought to special representations. Wilhelm Möhrke: "A Contribution to the Study of the Sensation of Pain." The subjects were required to do intellectual work, being simultaneously stimulated in a painful way by an electric current. The influence of different sorts of current (direct, alternating, etc.) is analyzed mainly from a physiological point of view. Friedrich Nicolai: "Experimental Study of the Perseveration of Visual Impressions and Their Decrease in Time." Impressions which were apperceived during a short exposure remain, after an initial period of marked forgetting, very permanently fixed in memory. If the tasks increase in difficulty the effect increases, too, but not in proportion, since it converges to a maximum limit. A great number of objects arranged in groups disturbs the retention, not of the number, but of localisation.

Imago. Vol. VII., No. 4. Lou Andreas-Salome: "Narcissism as a Double Orientation." Narcissism cannot be identical with self-love. It signifies at the same time the relation of libido to ourselves and the fact that everyone remains for ever somehow enclosed or embedded in the primitive state of undifferentiated libido, wherein a dissociation of sexual and egotistical energies has not yet taken place. Just as the libido which in later years becomes a conscious "moment," in the ego may cause anxiousness through a repression or inhibition of our tendency to grasp reality, so it may undergo the same transformation through a delay in the differentiation of a circumscribed personality out of the undifferentiated mass of early childhood. It is a strange and uncanny experience, the ego being born into the world of the non-ego. The individual may feel as if he were only a sort of ghost. This experience is not uncommon among children and insane persons, because the ego is not yet consolidated in the first, and is in a state of dissolution in the second; but it may occur also in normal adults. The love of objects may be reduced to a love of one's self, and some "moments" of it are derived directly from narcissism. Certain very fundamental questions of the psychology of art, of ethics and sexuality acquire some new aspects if considered from this point of view. P. C. van der Wolk: "The 'Tri-theon' of the Ancient Indians." In the east of Java a little group of Hindus retired in the fifteenth century, before the Mohammedan invasion, to the Tenger Mountains, and has since then preserved a very pure and original religious tradition, whose myths are here described and analyzed. The threefold deity, Siwa-Ganesa-Durga, symbolizes the median

way of humanity between the extremes of contemplative religion on one side, and of boundless passion and death on the other. Ganesa is the regulating reason which enables man to find a way between faultless purity and absolute sin, either of which would make practical life impossible. J. C. Flügel: "Character and Matrimonial Life of Henry VIII." The matrimonial peripatetics of Henry VIII. of England have greatly interested historians, but have not yet been studied from a psychological point of view. Though the biographical material is poor, one may distinguish some characteristic tendencies—the wish for some obstacle and for a sexual rival, the incestuous wish and the wish for chastity in the mate. These tendencies are closely interrelated and depend upon a primitive Oedipus-complex; each of them is present in a positive and a negative form. The conflicts between the antagonistic tendencies seem to explain the abnormalities of Henry's matrimonial life. Geza Roheim: "The Self (IV.), The 'External Soul.'" This paper brings this study to a conclusion. The question of whether the stages of the evolution of libido in individual life, as distinguished by Freud, are to be found also in ethnology and phylogeny is answered in the affirmative. To the auto-erotic phase corresponds the active and passive magic significance of the erotogenic zones; the magic significance is erotogenicity; the summing-up of the partial tendencies constitutes the body-soul. To the doubling of self in the narcissistic period corresponds the ejection of the summed-up tendencies into the "eidolon," the soul as man's image severed from himself, whereby is caused the doubling of the world, the creation of an outward and inward world, of body and of mind. This is identical with an objectivation of the principles of pleasure and reality. To the third phase of the object-choosing corresponds in the narcissistic type the projection of personality as tutelary spirit and external soul and the introjection of a part of the surroundings in the representation complex "beast within man"; in the assimilating type ("Anlehnungstypus") the finding again of the paternal imago in the tutelary spirit and the looking for protection with the mother by the external soul. Egotistical libido and object-libido both tend to the same end, back to the mother, since the principal object of man's object-choosing is again the mother. The ego, or, dynamically expressed, the death-tendencies strive back into the inorganic; the libido works in a contrary direction. Since libido strives back towards the mother, back to the condition before birth, both forms of energy are identical, the libido being only transposed to a higher level of material organisation. S. Pfeiffer: "On Robert Lach's 'Studies in the Evolution of Ornamental Melopöie.'" An analysis of the book named (published 1913), in which Lach makes great use of sexual "moments" and Freudian views in explaining the phylogenetic and ethnological evolution of certain peculiar features in melody.

A great number of other books and periodicals has been received. These will be reviewed or acknowledged in detail in our next number.—(ED. Psyche).