Psychology from the Standpoint of a Behaviourist. By JOHN R. WATSON, Professor of Psychology, The John Hopkins University. J. B. Lippincott Co., 1919. Pp. xi + 429. Price 10*s.* 6*d.* net.

Behaviour psychology is essentially an American development, and this volume, written by one of the leading exponents of the new school, will be read with great interest by those concerned with the problems of psychology, as it is the first text-book that has been written from the strictly behaviouristic standpoint. In a sense the term "psychology" as applied to behaviourism would seem to be a misnomer, as it is a psychology which ignores the "psyche" altogether. Prof. Watson indicates this in his preface when he says: "The present volume does some violence to the traditional classification of psychological topics and to their conventional treatment. For example, the reader will find no discussion of consciousness, and no reference to such terms as sensation, perception, attention, will, image and the like. These terms are in good repute, but I have found I can get along without them, both in carrying out investigations and in presenting psychology as a system to my students. I frankly do not know what they mean, nor do I believe anyone else can use them consistently." These sentences suffice to make it clear that the behaviouristic movement is frankly revolutionary in its aims. Much is implied in these phrases. They would seem to exclude the conventional subject-matter of the psychologist as irrelevant to the understanding of the human being, and introspectionism is dismissed as obstructive to the path of progress. We have thus to begin all over again, throw over the past, and erect our knowledge on a new foundation. Such an attitude is not difficult to understand, and a certain impatience with conventional psychology is not unnatural. As Prof. Watson says in another place(1), in referring to the various formulations of *meaning*: "A more barren wilderness of words it has never been my lot to meet." Perhaps, however, in the above-quoted phrases, Prof. Watson has permitted himself to indulge in a certain over-emphasis, since we all surely know perfectly well what the terms he rejects mean, even though they may be undeserving of study, except in terms of movement.

The opening chapter is concerned with the definition and scope of psychology, and with its relation to other sciences. Behaviourism is exclusively concerned with the organism in action, with the response of the individual to his environment, and its aims are "to predict human activity with reasonable certainty," and to formulate "laws and principles whereby man's actions can be controlled by organised society." The organism is considered exclusively from the physical standpoint, and there is no mention of consciousness as a function or of its contents. At the first reading of the book, the intrinsic merit and value of the observations it contains are somewhat obscured by "investigatory behaviour" on the part of the reader, as to how Prof. Watson manages to avoid consistently the use of mental terms, and at times it is difficult to realise that we are reading something that we have read many times before in the language of ordinary psychology. Thus, for instance, the paragraph heading "The number of habits which can function simultaneously," for the moment is not grasped

as another way of putting the old question in respect to attention.

In the second chapter the methods of psychological investigation are described and included under the following headings:

1. Observation with or without instrumental control.
2. Conditioned reflex methods.
3. Verbal report methods (speech reactions).
4. Methods of testing (intelligence, special ability tests, etc.).

After these preliminary considerations, a chapter is devoted to the physiology of sensation, behaviouristic terms being substituted in the place of those usually employed. Thus, in describing visual hallucinations the author writes: "We see the subject reacting apparently to a visual object to which other persons do not react," and in this way avoids purely mental terminology. Following the study of "the receptors and their stimuli" the student is furnished with the further details of sensory-motor adjustment in two chapters which deal with the nervous system (neuro-physiological basis of action), and the muscles, excretory organs and ductless glands (organs of response). The behaviour responses of the organisms are divided into four groups: (1) Explicit habit responses (conduct as ordinarily understood, including language); (2) implicit habit responses (thinking—here placed in inverted commas and defined as sub-vocal talking,—bodily sets and attitudes, conditioned reflexes); (3) explicit hereditary responses (instinctive reactions); (4) implicit hereditary responses (endocrine secretion, circulatory changes, etc.). All these subdivisions are dealt with in detail in separate chapters.

In the chapters devoted to hereditary modes of response—emotion and instinct—the author furnishes an account of various interesting investigations of his own. He suggests as a result of his observations that *fear*, *rage* and *love* (using the last in the Freudian sense) are the emotional reactions belonging to the original nature of man. He explains, however, that he uses these terms with some hesitation, and he states that he would be willing to call them "emotional reaction states X, Y and Z." The subject is throughout dealt with in terms of situation and response, and subjective terms such as "feeling," "affection," "impulse," "need" and so on, are not referred to or utilised in any way.

Memory is here defined as "a general term to express the fact that after a period of no practice—explicit bodily habits, explicit word habits—the function is not lost but is retained as part of the individual's organisation, although it may, from disuse, have suffered from greater or lesser impairment" (page 304). A special chapter is devoted to language, speech being "explicit language habits," and thought, which is here re-defined in conformity with behaviouristic psychology, is described under the heading of "Implicit language habits" or "sub-vocal talking." The final chapter deals with "Personality and its disturbance," and is thus concerned with the "totally integrated individual in action," which the student is in a position to understand, having been made acquainted with the "necessary part activities, such as instinct, emotion and habits," in the preceding chapters. The suggestions given for the study of personality are along the lines of the

personality studies of Hoch and Amsden, with which psychiatrists are, of course, familiar.

In commenting generally on this book it would seem that the fundamental doctrine of the "Behaviourist" is that man can best be understood by what he does—including what he says—rather than by what he thinks. This is expressed clearly in the paper already referred to, and from which perhaps a quotation may again be made: "We watch what the animal or human being is doing. He means what he does. It is foolish to ask him while he is acting what he is meaning. His action is the meaning. Hence, exhaust the concept of action and we have exhausted the concept of meaning. It is a waste of effort to raise a problem of meaning apart from actions which can actually be observed. To answer what the Church means to men it is necessary to look upon the Church as a stimulus and to find out what reactions are called out by this stimulus in a given race, in a given group or in any given individual. Parallel with this query we can carry out another as to why the Church calls out such and such responses. This might take us into folklore and into the influence of the code upon the individual, into the influence of parents upon children, causing the race to project the father and mother into a heavenly state hereafter, finally into the realms of the incest complex, homosexual tendencies, and so on. In other words, it becomes like all others in psychology, a problem for systematic observation and experimentation." A certain amount of introspection is allowed as necessary under certain circumstances by the Behaviourist, but it is not really encouraged. Thus, referring to fatigue (page 351): "It is quite another problem but again worth while to specify the condition of the worker from time to time. For example, at the end of the fourth hour he may have become dizzy, nauseated or complained of headache. The position we take here is not at all incompatible with studying the individual's organic condition from moment to moment or even with recording his verbal complaints." The attitude towards thought taken by the Behaviourist is quite clear. It is no more than complex behaviour. "It is not different in essence from tennis-playing, swimming or any overt activity, except that it is hidden from ordinary observation, and is more complex and at the same time is more abbreviated as far as its parts are concerned than even the bravest of us could dream of. . . . Thought is highly integrated bodily activity" (page 325). The aim of the Behaviourist is thus to study thought, not as the introspectionist does by analysing its content, but by the delicate instrumental study of the bodily activities of which it is the expression—or rather, perhaps, which it actually is.

All this cannot fail to raise discussions which are far beyond the scope of a review. Such questions as these naturally arise in the mind—Why then is there such a state as consciousness? What is its function? Can the individual be adequately explained apart from the fact of self-consciousness? Is the behaviourist method adequate to explain all the psychological problems we have to meet, or is it not, at present, only limited in its scope? Can we afford to dispense with all that is included under such terms as "need," "impulse," "feeling," "cognition" and so on? Whatever answers we may be inclined to give to these questions, and however we may feel that the study of mental content and function

is legitimately and necessarily included within the scope of psychological investigation, it is quite clear that the purely behaviourist approach will yield results of much value to the understanding of human conduct. Though behaviourism may neglect readily accessible factors which enable us to understand ourselves and other people, yet it will undoubtedly exert a beneficial influence upon psychology even when the latter is approached from a different and more conventional angle. That it has already done so is abundantly evident.

The atmosphere of the book is extremely business-like and practical. Prof. Watson allows himself to be influenced by no preconceived opinions; he must have objective evidence; and he allows no sentimental consideration to interfere with a frank expression of his view. He is always clear, concise and to the point. However much his views fail to find acceptance they certainly cannot be neglected by those who are concerned with the study of human behaviour. H. DEVINE.

(1) "Is Thinking merely the Action of Language Mechanism?" *The British Journal of Psychology*, October, 1920. A valuable symposium on "Behaviourism," with contributions from F. C. Bartlett, Miss E. M. Smith, G. H. Thompson, I. H. Pear, A. Robinson, J. B. Watson.

La Meccanica del Cervello e la Funzione dei Lobi frontali. [The Mechanism of the Brain and the Function of the Frontal Lobes.] By Prof. LEONARDO BIANCHI. Turin: Fratelli Bocca, 1920. Medium 8vo. Pp. 431, with 61 illustrations and 4 diagrams.

In this volume Prof. Bianchi presents us with a very valuable contribution to the literature of cerebral structure and function. It contains a wealth of scientific material and many original observations. For about forty years Prof. Bianchi has been actively engaged in the investigation of the problems of cerebral evolution and cerebral localisation. He has brought forward many facts of an experimental, clinical, anatomico-pathological and cytological character. His views have not always met with general acceptance—indeed, they have sometimes been severely criticised, but Prof. Bianchi has always replied with calm assurance, widening the scope of his observations and bringing forward fresh proofs in confirmation of his views.

Chapter I deals with the evolution of the nervous system and the cerebral localisations. In his interpretation of the mode whereby external stimuli become transformed into psychic products, Prof. Bianchi shows the modern tendency of physicists to regard the various manifestations of natural energy as forms of one single force, controlled by identical laws. He speaks of the deformation and the elastic vicissitudes of ether, and of electric dissociation consisting in the separation of negative electrons from neutral atoms—a separation which would explain the chemical mutations of bodies. Reactions in the lower living organisms appear to be of a chemical, physical, or mechanical nature. Even after the appearance of the nervous system, many phenomena regarded as psychic in character are really nothing more or less than tropisms. Psychic or mental characteristics only come into the scene when we have the intervention of sensations and associative memory. Briefly put, evolution of mind takes place *pari*