The behavioristic interpretation
of consciousness

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THE PSYCHOLOGICAL REVIEW

THE BEHAVIORISTIC INTERPRETATION OF CONSCIOUSNESS I.

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I. Present Forms and Limitations of Behaviorism

Behaviorism, beginning as a laboratory technique and a critique of method in concrete experiment, has advanced rapidly to a place as an accredited system of psychology, stressing the importance of objective methods and of physiological interpretations. The history of the movement is still reflected in the tendency of its exponents to stress experimental method rather than interpretation, in the lack of any systematic formulation of the relations of the science to the
specific problems of the older subjective psychology, and in a certain shifting of ground in behavioristic discussions which indicates that the behaviorists themselves are not yet quite certain of the philosophic implications of their system. Too often a statement of an extreme position is followed by a partial retraction or qualification which leaves the reader in doubt as to the degree of heterodoxy expressed. This hesitation before the plunge is not discreditable to the behaviorist: so great a departure from tradition in psychology demands caution. Moreover, the behaviorist is primarily an experimentalist and believes that many of the supposed problems of philosophy will, with increasing knowledge, resolve themselves into concrete laboratory problems. Why then dispute fruitlessly and at length about them before data are at hand for their solution?¹

Nevertheless, preoccupation with experimental problems will not excuse behaviorism for certain apparent inconsistencies in its doctrines. In various discussions of the scope of behaviorism three distinct and incompatible formulations are discernible. All involve the conviction that a complete description and explanation of behavior can be given in terms of the physicochemistry of bodily activity. They differ, however, in the place assigned to ‘mind’ in the system. The formulations are as follow.

1. Facts of conscious experience exist and are capable of treatment, as distinct from behavior. The behaviorist is not interested in them, since they are irrelevant to his problems, and leaves them to the tender mercies of the introspective psychologists or philosophers. This is merely psychophysical parallelism with emphasis on the physical. It is the view of Bechterew (2) and other early objectivists.

2. Facts of conscious experience exist but are unsuited to any form of scientific treatment. This is the most common formulation of the behaviorist’s position. It seems to have been Watson’s view in his earlier writings (31), as is shown by the following statement:

¹ Watson (32) has emphasized this view in his discussion of the rôle of the observer in experimentation.
“Will there be left over in psychology a world of pure psychics, to use Yerkes’ term? I confess I do not know. The plans which I most favor for psychology lead practically to the ignoring of consciousness in the sense that that term is used by psychologists today. I have virtually denied that this realm of psychics is open to experimental investigation. I don’t wish to go further into the problem at present because it leads inevitably over into metaphysics. If you will grant the behaviorist the right to use consciousness in the same way that other natural scientists employ it—that is, without making consciousness a special object of observation—you have granted all that my thesis requires.”

Watson seems now to have abandoned this position for the more extreme one outlined below (3). Weiss (33) still holds to the view when he says, “The structuralist point of view can, of course, be consistently maintained. There is justification for inferring the existence of a conscious correlate for at least some of our actions, but the heuristic value of this assumption seems doubtful when it is shown that behaviorism is not less discriminative or descriptive than structural psychology....” And again, “Perhaps the distinguishing difference between the functionalist and the behaviorist lies in the fact that the behaviorist disregards the entity which the functionalist calls consciousness” (34).

This we may call a methodological behaviorism. Experimentally it promises much, for it avoids the confusion of terms and issues inherent in systems which try to treat of both ‘mental’ and ‘physical’ data indiscriminately. It limits the problems definitely to interpretation upon one set of premises and avoids the common error of much older psychology in mistaking a psychological name for a physiological explanation. But it puts the behaviorist in the position of the dog in the manger. It omits a whole universe of phenomena, which have been supposed to constitute the chief realm of psychology. Simply because he can make nothing of the facts of consciousness (which he admits are facts) in his system of physical causation, the methodological behaviorist refuses to believe that any other system can be
devised which will permit the development of a science of pure psychics. And so long as he admits the existence of a universe of consciousness he lays open to attack his major premise, that behaviorism can account for all human activities. For the psychophysical dualist is constantly finding mental facts which he holds to be inexplicable in any mechanistic terms and by refusing to discuss such data the behaviorist prohibits himself from answering arguments based upon them. Moreover, so long as he admits the existence of entities in human existence which behaviorism disregards, he can not deny to others the right to try to study those entities and reduce them to a science by any means whatever.

3. The supposedly unique facts of consciousness do not exist. An account of the behavior of the physiological organism leaves no residue of pure psychics. Mind is behavior and nothing else. This view is implied in much of Watson’s writing, although it is not stated in so many words. For the most part he expresses a methodological behaviorism, but such statements as the following leave little doubt of his fundamental denial of the fact of consciousness, as described by the subjectivist. “It is a serious misunderstanding of the behavioristic position to say, as Mr. Thompson does—‘And of course a behaviorist does not deny that mental states exist. He merely prefers to ignore them.’ He ‘ignores’ them in the same sense that chemistry ignores alchemy, astronomy horoscopy, and psychology telepathy and psychic manifestations. The behaviorist does not concern himself with them because as the stream of his science broadens and deepens such older concepts are sucked under, never to reappear.”

This is the extreme behavioristic view. It makes no concessions to dualistic psychology and affirms the continuity in data and method of the physical, biological, and psychological sciences. “Consciousness is behavior.” “Consciousness is the particular laryngeal gesture we have come to use to stand for the rest.” I shall speak of this doctrine as strict behaviorism, or for brevity simply as behaviorism, since methodological behaviorism is only a form of epiphenomenal-
ism. Such a behaviorism has been called a materialism by several recent critics.\footnote{Cf. Pratt, (23).} Perhaps it is such, to the extent that modern physics and physiology are materialistic, but the word materialism implies a metaphysical theory of reality, whereas these sciences are, at least in their systematic treatment, altogether phenomenological. Psychophysical dualism and epiphenomenalism do imply theories of the ultimate nature of mind and matter, but behaviorism claims to avoid this and to attempt nothing more than a logical and mathematical description of experience such as is presented by the physical sciences. To stigmatize this as materialism is to appeal against behaviorism to the prejudices aroused by a crude metaphysic which is nowhere implied in its doctrines.

When we examine the evidence upon which strict behaviorism is based, a weakness in its current formulations seems evident. The behaviorist denies sensations, images, and all other phenomena which the subjectivist claims to find by introspection or by some form of direct knowledge. This disagreement as to matters of fact is not necessarily fatal to behaviorism, although it is the most frequent ground for rejection of the system. But when we examine the evidence adduced in support of the denial of consciousness, the behaviorist seems to have failed to strike at the root of the dualistic systems. The arguments employed—they can scarcely be called evidence—fall into four chief classes.

(a) Appeals to the principle of parsimony to exclude consciousness because it is unnecessary for the explanation of behavior (32, 34). The inadequacy of this argument is evident. The gravitational effects of Jupiter are irrelevant to a physiology of digestion, yet they are none the less a fact. The behaviorist must show further that his system is adequate to explain the supposed phenomena of consciousness as well as of behavior, before the argument becomes relevant. At best the argument in its present form can support only a methodological behaviorism.

(b) Reviews of the history of evolution or of superstition to show how the belief in the self may have arisen (35).
This argument is beside the point. It may force the subjectivist to deny the universality of evolution or of historical sequence, but this he has already done in claiming the existence of a universe of non-material things as the subject of his study, and in refusing to admit their derivation from the physical phenomena of evolution.

(c) Redefining of mind in objective terms as when Bawden (1) states that "...mentality or mind is a name for the fact of the control of the environment in the interest of the organism through the interaction of inherited capacities and acquired abilities." Such arguments likewise avoid the issue. They ignore the subjectivist's claim that he knows a unique mode of existence not definable in objective terms. At best from the standpoint of the subjectivist they constitute only a study of the physiological correlates of conscious processes.

(d) Attacks on the method of introspection. These are the behaviorist's big guns. In general, they take one of two forms. Introspection is inaccurate, unverifiable; the stuff revealed by it is variable and inconsistent. It is indeed so unreliable that we are justified in throwing out everything which it claims to establish. But much the same argument has recently been urged against the objective methods of mental testing. It may be a strong plea but it is not logically convincing. A method may be defective and yet reveal fundamentally important facts, as Loewenhoek's observations on infusoria.

The other form involves a theory of introspection. When one examines his own mental states he is really reacting to stimulation of his proprioceptors. Introspection is a physiological process and as such can reveal only other physiological processes. Even if mental states exist, they cannot be discovered by introspection. But the introspectionist may reply, "Your doctrine of introspection is only an hypothesis. You have not produced convincing proof of the homeodetic theory of introspection. My claim that mental states form a unique mode of existence is based on the nature of the material which introspection reveals. If it does reveal such phenomena, it must be more than a physiological process. It is
only by showing that mental states do not exist that you can prove that you have given an adequate account of the introspective process."

Thus it appears that the current formulations of behaviorism have not made good their claim to exclusive possession of the field of psychology. Methodological behaviorism has all the faults of psychophysical parallelism plus that of intolerance. It admits the existence of certain phenomena called conscious, admits that it can not fit them into its system, and denies to others the right to study those phenomena and to seek to formulate them into a science. Or, it reverts to the early objectivism of Bechterew and admits the possibility of a subjective psychology, merely asserting that this psychology is irrelevant to behavioristic explanation. It thus paves the way for the development of two cognate sciences, such as Fernberger (8) has recently advocated.

Strict behaviorism is advanced as a theory, but the insistence upon methodological behaviorism at all costs has prevented the consideration of any supposedly subjective data and has left the theory undeveloped. Yet if behaviorism is to become a complete science, if it is to avoid becoming merely a coordinate system with subjectivism, it must subordinate questions of method, of objectivity, to the application of mechanistic or physiological principles to the whole of psychology. This point is emphasized by Dewey (5) to whom the facts of consciousness appear as an experimental behavioristic problem. "To recognize that the behavioristic principle can make a place for them (the facts of consciousness) is important. For science is, after all carried on by men, and a seeming denial that such facts do exist and do come under the behavioristic principle is sure to keep alive in the minds of some a futile introspectionist method, by setting to one side a realm of facts to which (so it is thought) it must be applied since the behavioristic method confessedly does not apply."

Let me cast off the lion’s skin. My quarrel with behaviorism is not that it has gone too far, but that it has hesitated, that it has been diverted by details of experimental method,
when more fundamental issues are at stake; that it has failed to develop its premises to their logical conclusion. To me the essence of behaviorism is the belief that the study of man will reveal nothing except what is adequately describable in the concepts of mechanics and chemistry, and this far outweighs the question of the method by which the study is conducted. I believe that it is possible to construct a physiological psychology which will meet the dualist on his own ground, will accept the data which he advances and show that those data can be embodied in a mechanistic system. A behaviorism will thus develop which will be an adequate substitute for the older psychology. Its physiological account of behavior will also be a complete and adequate account of all the phenomena of consciousness. It will be methodological only in insisting that the concepts of the physical sciences are the only ones which can serve as the basis for a science, and in demanding that all psychological data, however obtained, shall be subjected to physical or physiological interpretation.

Such a program demands that we face the issue squarely. We must accept tentatively the supposed data of introspection and test the validity of our system by its ability to deal with such data. We shall find but three alternatives: the data may be of such a character that we can not hope to embody them in any mechanistic system; they may even now fall into such a system; or we may be able to define the problem of consciousness as an experimental problem, unanswerable on the basis of existing data, but offering possibility of solution with the development of objective science. Indirect arguments and denials of facts which others consider verifiable will not suffice. The dualist advances specific data with certain definable attributes as evidence for the validity of his system. Perhaps we can not verify his findings objectively, but we can examine his claims and determine if and in what respects they are incompatible with the postulates of the natural sciences. The key to the development of behaviorism lies here. When the behaviorist denies that consciousness exists, he denies, not the existence of the
phenomena upon which the conception is based, but only the inference that these data constitute a unique mode of existence or that they are not amenable to analysis and description of the same sort as are 'physical' data. Unfortunately, the psychological terminology current today involves not only an enumeration of phenomena but also a definite theory of reality. It is this theory which behaviorism repudiates.

In the following pages I shall first seek to discover on the basis of introspective evidence the 'data of consciousness,' stripped of metaphysical theory. I shall then attempt to show that these data are adequately describable in the concepts of the physical sciences and that the addition of a dualistic interpretation adds nothing to our understanding of them.

II. THE EVIDENCE FOR A MIND-BODY PROBLEM

Before we can begin a constructive program we must define clearly the sort of data with which the behaviorist and the dualist claim to deal and must have in mind the presuppositions underlying the system of each. I am not concerned here with the development of an epistemological theory, but only with the empirical basis of the distinction between behaviorism and psychophysical dualism. A system of psychology can not be developed without some implied theory of knowledge, but, on the other hand, every theory of knowledge presupposes a theory of psychology and by changing the rules of the game innumerable self-consistent systems can be developed. Escape from this dilemma, in so far as it concerns the points of difference between dualistic and behavioristic psychology, is offered by the faith which both express in the validity of physical science. Both behaviorism and psychophysical dualism accept the formulations of physics, chemistry, and biology as adequate descriptions of the interrelations between certain data of knowledge, and hence both accept a theory of knowledge which must justify the methods and conclusions of physical science. Any theory of knowledge which does this must also permit an attempt to extend the methods of physical science to other aspects
or elements of experience and can not arbitrarily limit the field of physical investigation. The dualistic systems of psychology admit this and seek to justify their dualism upon empirical rather than epistemological grounds. They point to certain data of experience—qualitative diversity, transcendence of time and space, independence of ‘physical law,’ and the like—and assert that the concepts of the physical and biological sciences are inadequate to describe the relations and characteristics of these data. On this ground they justify the division of experience into two aspects or modes of existence and the formulation of additional postulates concerning the nature of ‘mental existents.’ The behaviorist, on the contrary, claims that the concepts of the physical and biological sciences are adequate to describe and account for the whole of experience and that there is not adequate empirical evidence for the distinction of mental and physical modes of existence or aspects of experience. “Grant me,” he says, “the postulates of the physical sciences, and I can show you how the phenomena of mind may arise within a system which has no other attributes than those which the physicist ascribes to his phenomenological world.”

The mind-body problem is thus a problem of the applicability of certain postulates and descriptive methods (those of the physical sciences) to certain specific data of knowledge (the so-called attributes or elements of consciousness). The controversy between behaviorism and dualism is not a question for philosophy but one to be answered strictly in the light of empirical evidence provided by psychological study.

We must first consider the character of the postulates and methods of physical sciences. These sciences are as yet incomplete and no one can predict what form they will finally take. Their simplest formulations at present involve postulates of the relation of discrete entities in time and space and the attempt at characterization of experience in terms of the mathematical relations of these entities. They seek to keep their postulates as few and simple as possible; to avoid ascribing to the entities other attributes than those implied in a time-space-number system; to avoid additional concep-