

SKINNER

A Historical Introduction to the Philosophy of Mind

Readings With Commentary

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Inner "Causes"

Every science has at some time or other looked for causes of action inside the things it has studied. Sometimes the practice has proved useful, sometimes it has not. There is nothing wrong with an inner explanation as such, but events which are located inside a system are likely to be difficult to observe. For this reason we are encouraged to assign properties to them without justification. Worse still, we can invent causes of this sort without fear of contradiction. The motion of a rolling stone was once attributed to its *vis viva*. The chemical properties of bodies were thought to be derived from the *principles* or *essences* of which they were composed. Combustion was explained by the *phlogiston* inside the combustible object. Wounds healed and bodies grew well because of a *vis medicatrix*. It has been especially tempting to attribute the behavior of a living organism to the behavior of an inner agent, as the following examples may suggest.

Neural causes. The layman uses the nervous system as a ready explanation of behavior. The English language contains hundreds of expressions which imply such a causal relationship. At the end of a long trial we read that the jury shows signs of *brain fag*, that the nerves of the accused are *on edge*, that the wife of the accused is on the verge of a *nervous breakdown*, and that his lawyer is generally thought to have lacked the *brains* needed to stand up to the prosecution. Obviously, no direct observations have been made of the nervous systems of any of these people. Their "brains" and "nerves" have been invented on the spur of the moment to lend substance to what might otherwise seem a superficial account of their behavior.

The sciences of neurology and physiology

have not divested themselves entirely of a similar practice. Since techniques for observing the electrical and chemical processes in nervous tissue had not yet been developed, early information about the nervous system was limited to its gross anatomy. Neural processes could only be inferred from the behavior which was said to result from them. Such inferences were legitimate enough as scientific theories, but they could not justifiably be used to explain the very behavior upon which they were based. The hypotheses of the early physiologist may have been sounder than those of the layman, but until independent evidence could be obtained, they were no more satisfactory as explanations of behavior. Direct information about many of the chemical and electrical processes in the nervous system is now available. Statements about the nervous system are no longer necessarily inferential or fictional. But there is still a measure of circularity in much physiological explanation, even in the writings of specialists.

In World War I a familiar disorder was called "shell shock." Disturbances in behavior were explained by arguing that violent explosions had damaged the structure of the nervous system, though no direct evidence of such damage was available. In World War II the same disorder was classified as "neuropsychiatric." The prefix seems to show a continuing unwillingness to abandon explanations in terms of hypothetical neural damage.

Eventually a science of the nervous system based upon direct observation rather than inference will describe the neural states and events which immediately precede instances of behavior. We shall know the precise neurological conditions which immediately precede, say, the response, "No, thank you." These events in turn

will be found to be preceded by other neurological events, and these in turn by others. This series will lead us back to events outside the nervous system and, eventually, outside the organism. In the chapters which follow we shall consider external events of this sort in some detail. We shall then be better able to evaluate the place of neurological explanations of behavior. However, we may note here that we do not have and may never have this sort of neurological information at the moment it is needed in order to predict a specific instance of behavior. It is even more unlikely that we shall be able to alter the nervous system directly in order to set up the antecedent conditions of a particular instance. The causes to be sought in the nervous system are, therefore, of limited usefulness in the prediction and control of specific behavior.

Psychic inner causes. An even more common practice is to explain behavior in terms of an inner agent which lacks physical dimensions and is called "mental" or "psychic." The purest form of the psychic explanation is seen in the animism of primitive peoples. From the immobility of the body after death it is inferred that a spirit responsible for movement has departed. The *enthusiastic* person is, as the etymology of the word implies, energized by a "god within." It is only a modest refinement to attribute every feature of the behavior of the physical organism to a corresponding feature of the "mind" or of some inner "personality." The inner man is regarded as driving the body very much as the man at the steering wheel drives a car. The inner man wills an action, the outer executes it. The inner loses his appetite, the outer stops eating. The inner man wants and the outer gets. The inner has the impulse which the outer obeys.

It is not the layman alone who resorts to these practices, for many reputable psychologists use a similar dualistic system of explanation. The inner man is sometimes personified clearly, as when delinquent behavior is attributed to a

"disordered personality," or he may be dealt with in fragments, as when behavior is attributed to mental processes, faculties, and traits. Since the inner man does not occupy space, he may be multiplied at will. It has been argued that a single physical organism is controlled by several psychic agents and that its behavior is the resultant of their several wills. The Freudian concepts of the ego, superego, and id are often used in this way. They are frequently regarded as nonsubstantial creatures, often in violent conflict, whose defeats or victories lead to the adjusted or maladjusted behavior of the physical organism in which they reside.

Direct observation of the mind comparable with the observation of the nervous system has not proved feasible. It is true that many people believe that they observe their "mental states" just as the physiologist observes neural events, but another interpretation of what they observe is possible, as we shall see in Chapter XVII. Introspective psychology no longer pretends to supply direct information about events which are the causal antecedents, rather than the mere accompaniments, of behavior. It defines its "subjective" events in ways which strip them of any usefulness in a causal analysis. The events appealed to in early mentalistic explanations of behavior have remained beyond the reach of observation. Freud insisted upon this by emphasizing the role of the unconscious—a frank recognition that important mental processes are not directly observable. The Freudian literature supplies many examples of behavior from which unconscious wishes, impulses, instincts, and emotions are inferred. Unconscious thought-processes have also been used to explain intellectual achievements. Though the mathematician may feel that he knows "how he thinks," he is often unable to give a coherent account of the mental processes leading to the solution of a specific problem. But any mental event which is unconscious is necessarily inferential, and the explanation is therefore not based upon independent observations of a valid cause.

The fictional nature of this form of inner cause is shown by the ease with which the mental process is discovered to have just the properties needed to account for the behavior. When a professor turns up in the wrong classroom or gives the wrong lecture, it is because his *mind* is, at least for the moment, *absent*. If he forgets to give a reading assignment, it is because it has slipped his *mind* (a hint from the class may remind him of it). He begins to tell an old joke but pauses for a moment, and it is evident to everyone that he is trying to make up his *mind* whether or not he has already used the joke that term. His lectures grow more tedious with the years, and questions from the class confuse him more and more, because his *mind* is failing. What he says is often disorganized because his *ideas* are confused. He is occasionally unnecessarily emphatic because of the force of his *ideas*. When he repeats himself, it is because he has an *idée fixe*: and when he repeats what others have said, it is because he borrows his *ideas*. Upon occasion there is nothing in what he says because he lacks *ideas*. In all this it is obvious that the mind and the ideas, together with their special characteristics, are being invented on the spot to provide spurious explanations. A science of behavior can hope to gain very little from so cavalier a practice. Since mental or psychic events are asserted to lack the dimensions of physical science, we have an additional reason for rejecting them.

Conceptual inner causes. The commonest inner causes have no specific dimensions at all, either neurological or psychic. When we say that a man eats *because* he is hungry, smokes a great deal *because* he has the tobacco habit, fights *because* of the instinct of pugnacity, behaves brilliantly *because* of his intelligence, or plays the piano well *because* of his musical ability, we seem to be referring to causes. But on analysis these phrases prove to be merely redundant descriptions. A single set of facts is described by the two statements: "He eats" and "He is hungry." A single set of facts is described by the two state-

ments: "He smokes a great deal" and "He has the smoking habit." A single set of facts is described by the two statements: "He plays well" and "He has musical ability." The practice of explaining one statement in terms of the other is dangerous because it suggests that we have found the cause and therefore need search no further. Moreover, such terms as "hunger," "habit," and "intelligence" convert what are essentially the properties of a process or relation into what appear to be things. Thus we are unprepared for the properties eventually to be discovered in the behavior itself and continue to look for something which may not exist.

The Variables of Which Behavior Is a Function

The practice of looking inside the organism for an explanation of behavior has tended to obscure the variables which are immediately available for a scientific analysis. These variables lie outside the organism, in its immediate environment and in its environmental history. They have a physical status to which the usual techniques of science are adapted, and they make it possible to explain behavior as other subjects are explained in science. These independent variables are of many sorts and their relations to behavior are often subtle and complex, but we cannot hope to give an adequate account of behavior without analyzing them.

Consider the act of drinking a glass of water. This is not likely to be an important bit of behavior in anyone's life, but it supplies a convenient example. We may describe the topography of the behavior in such a way that a given instance may be identified quite accurately by any qualified observer. Suppose now we bring someone into a room and place a glass of water before him. Will he drink? There appear to be only two possibilities: either he will or he will not. But we speak of the *chances* that he will drink, and this notion may be refined for scientific use. What we want to evaluate is the

probability that he will drink. This may range from virtual certainty that drinking will occur to virtual certainty that it will not. The very considerable problem of how to measure such a probability will be discussed later. For the moment, we are interested in how the probability may be increased or decreased.

Everyday experience suggests several possibilities, and laboratory and clinical observations have added others. It is decidedly not true that a horse may be led to water but cannot be made to drink. By arranging a history of severe deprivation we could be "absolutely sure" that drinking would occur. In the same way we may be sure that the glass of water in our experiment will be drunk. Although we are not likely to arrange them experimentally, deprivations of the necessary magnitude sometimes occur outside the laboratory. We may obtain an effect similar to that of deprivation by speeding up the excretion of water. For example, we may induce sweating by raising the temperature of the room or by forcing heavy exercise, or we may increase the excretion of urine by mixing salt or urea in food taken prior to the experiment. It is also well known that loss of blood, as on a battlefield, sharply increases the probability of drinking. On the other hand, we may set the probability at virtually zero by inducing or forcing our subject to drink a large quantity of water before the experiment.

If we are to predict whether or not our subject will drink, we must know as much as possible about these variables. If we are to induce him to drink, we must be able to manipulate them. In both cases, moreover, either for accurate prediction or control, we must investigate the effect of each variable quantitatively with the methods and techniques of a laboratory science.

Other variables may, of course, affect the result. Our subject may be "afraid" that some-

thing has been added to the water as a practical joke or for experimental purposes. He may even "suspect" that the water has been poisoned. He may have grown up in a culture in which water is drunk only when no one is watching. He may refuse to drink simply to prove that we cannot predict or control his behavior. These possibilities do not disprove the relations between drinking and the variables listed in the preceding paragraphs; they simply remind us that other variables may have to be taken into account. We must know the history of our subject with respect to the behavior of drinking water, and if we cannot eliminate social factors from the situation, then we must know the history of his personal relations to people resembling the experimenter. Adequate prediction in any science requires information about all relevant variables, and the control of a subject matter for practical purposes makes the same demands.

Other types of "explanation" do not permit us to dispense with these requirements or to fulfill them in any easier way. It is of no help to be told that our subject will drink provided he was born under a particular sign of the zodiac which shows a preoccupation with water or provided he is the lean and thirsty type or was, in short, "born thirsty." Explanations in terms of inner states or agents, however, may require some further comment. To what extent is it helpful to be told, "He drinks because he is thirsty"? If to be thirsty means nothing more than to have a tendency to drink, this is mere redundancy. If it means that he drinks because of a state of thirst, an inner causal event is invoked. If this state is purely inferential—if no dimensions are assigned to it which would make direct observation possible—it cannot serve as an explanation. But if it has physiological or psychic properties, what role can it play in a science of behavior?