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Part II of the Symposium "Consciousness and Perception in Psychology"; Part I by A. J. Watson
[Author's version]

II - U. T. PLACE

Mr. Watson's paper may be summarized in the following syllogism:-

Major Premiss: - "If psychologists wish to develop the kinds of explanations of behaviour they are, for the most part, in fact attempting to develop, then consciousness is not an item or process to which reference may legitimately be made."

Minor Premiss: - "The use of the concept of perception in psychological explanations of behaviour involves an implicit 'appeal to consciousness' in deciding what aspects of behaviour are to be attributed to perception."

Conclusion: - "There are reasons for suggesting a conflict between the theoretical programme of psychology and the use of the concept of perception in the explanation of behaviour."

I am not concerned to question the validity of this argument. Nor do I wish to dispute the conclusion. I disagree, however, with both the premisses from which Watson derives it. While I cannot dispute the fact that consciousness, once the official subject matter of Psychology, is a concept and a topic which has been almost completely abandoned by contemporary experimental psychology, I cannot agree with Watson that to use the concept and attempt to study the phenomenon is an illegitimate procedure by the standards of scientific method on which contemporary experimental psychology is based. Nor can I accept without reservations his contention that when the psychologist tries to explain behaviour in terms of perception, he is making an implicit appeal to introspective evidence.

Watson gives four arguments for his view that consciousness is not a concept which the experimental psychologist can legitimately employ.

1. For his purpose the psychologist must employ concepts which are equally applicable to animals and human beings; consciousness is only applicable to human beings.
2. Contemporary psychological theorizing is based on the presumption "that there are no causal processes antecedent to behaviour which could not be described within the range of the concept of physiology, chemistry, engineering and so on:" consciousness is a process which cannot be so described.
3. It is very doubtful if it is possible to investigate conscious processes "in an acceptable scientific manner."
4. Psychologists are reluctant to employ concepts which present "considerable philosophical problems"; consciousness is such a concept.

I shall argue as against this: -

1. That it makes sense to attribute consciousness to animals and that although the evidence at present is only circumstantial, there are good reasons for believing that it exists in the case of some of the higher mammals other than man.

2. That there are no good reasons for supposing that consciousness is a process that cannot be described in physical terms.

3. That although there are serious methodological problems involved in studying the phenomena of consciousness, they do not justify the conclusion that the phenomena are not susceptible to scientific investigation.

4. That although consciousness presents problems which are at present classified as philosophical, they are nevertheless empirical problems about the meaning of words in the subject's natural language.

I

Before presenting the arguments for these conclusions, something needs to be said about the concept of Consciousness. Watson defines Consciousness "as some kind of `intervening event', intervening, that is to say, between the input, stimuli or cues which impinge upon organisms, both from without and within their bodies, and the behaviour which they exhibit in these circumstances." This intervening event or process, as he calls it elsewhere, differs from "those to which psychologists are apt to refer in attempting to explain behaviour," because "there is nothing theoretical about it." "Consciousness," he says, "is an intervening process the occurrence of which can be directly ascertained."

This definition clearly will not do as it stands. The view of consciousness as an event or process intervening between input and output accords well with the traditional view. But to define it as an intervening process, the occurrence of which is directly ascertained, would on the face of it allow us to count as a conscious event or process any neurological process or event, resulting from sensory input and producing an output at the effector organs, the occurrence of which is directly ascertained by means of recording electrodes implanted in the nervous system and harnessed to a suitable amplifying and recording device. Clearly in order to define consciousness adequately we need to specify the special kind of direct ascertainment involved.

As traditionally conceived, the occurrence of consciousness is directly ascertained only by the individual in whom it occurs. For knowledge of the consciousness of other persons we are

completely dependent on their introspective reports. Furthermore, whereas the occurrence of intervening neural events can be directly ascertained only when the necessary recording equipment is attached, the introspecting subject requires no recording equipment to ascertain his own conscious processes, and can, if required, give a running commentary upon them as long as he is awake.

If, as the traditional concept of consciousness implies, human beings can report the occurrence inside themselves of events and processes which play an important part in determining their behaviour, this is not a fact which a scientific psychology can readily ignore. If these processes are as important as most of their owners think they are, the information we can derive from the individual's description and reports of them ought to provide us with a kind of direct access to the intervening processes controlling behaviour which we cannot obtain at present in any other way. But even if the information to be derived from this source proves not very helpful for the understanding of behaviour in general, the verbal behaviour of the subject when asked to report these occurrences is a behavioural phenomenon in its own right for which some explanation is required.

Most human beings believe they can report and describe things that go on inside them that others cannot observe. It may be that this is a false belief and that when they think they are reporting inner processes and events, they are doing something quite different. But if so, it is the responsibility of the psychologist, as a student of human behaviour, to show that human beings do not in fact have this capacity they think they have and to explain how they come to believe that they have. If, on the other hand, human beings have this capacity, then it is equally the responsibility of the psychologist to explain how this comes about.

The only argument which will excuse the psychologist from the obligation to study consciousness, in the sense defined, is a satisfactory explanation of the alleged introspective reports of human subjects which dispenses with the assumption that they refer to inner events and processes on which the behaviour of the individual is causally dependent. In other words, in order to justify abandoning the concept of consciousness, the psychologist needs positive evidence that no such events and processes exist. It is clear that Watson provides no such evidence in his paper. Let us, however, examine the reasons he gives for rejecting the concept.

II

The argument that consciousness is not acceptable as a scientific concept because it cannot be applied to animals in the way that it is applied to human beings, assumes, firstly, that the concept of consciousness has no legitimate application in the case of animals, and, secondly, that there is no

place in a scientific psychology of behaviour for a concept which has application only in the case of human beings. I want to dispute both of these assumptions.

In the light of what we know about the evolution of the human species it is implausible to attribute the same behaviour, when it occurs in humans, to a different set of intervening processes from those to which it is attributed when it occurs in animals. But in so far as human beings do things that animals do not do, it is not inconsistent with the theory of evolution to use concepts which have no application to animals in explaining behaviour that is peculiarly human.

If we examine the behavioural functions commonly attributed to consciousness by noting the kinds of failure in performance that are attributed to the individual's failure to attend to and become conscious of the relevant stimuli and to other defects in the processes reported in the introspective evidence, we find that many of the performance failures attributed to defects of consciousness involve the peculiarly human function of language. Thus the individual's failure to mention some feature of the environmental situation confronting him, either at the time or when required to recall it later, may be attributed to a failure to pay attention to the relevant features of the stimulus.

Performance failures are also commonly attributed to a failure to think carefully enough about the situation before engaging in action. Thinking, as it occurs in human beings, is an activity, which is closely bound up with the use of language. Not only does thinking frequently involve audible or sub-vocal speech, but even in those cases where the subject reports a thought that is unaccompanied by words or images, the thought can seldom be expressed in any way other than in terms of concepts of a human natural language. Animals do not give descriptions of their environments, nor do they think in words, or have thoughts which can be legitimately expressed in terms of the concepts of human natural language. Hence in so far as it is used to explain behavioural function of this kind, there is no inconsistency between the principle of evolution and the fact, if it is a fact, that consciousness has no application in the case of animals.

On the other hand, there are some performance failures attributed to defects of consciousness which do not involve language, and which involve types of behaviour not radically different from those exhibited by animals. Thus failures in skilled performance are frequently attributed to a failure to pay the necessary attention to the relevant features of the stimulus. Performance suffers in this case, not necessarily because the individual fails to repeat the verbal maxims required to guide his behaviour appropriately, but because he fails to exclude from consciousness stimuli which are irrelevant to the successful performance of the task, and to give

sufficient prominence in his consciousness to those features of the stimulus pattern which must control his response, if the behaviour is to be performed successfully.

Furthermore, although human thinking is typically a verbal process, many of the behavioural situations in which it is used are practical problem-situations not involving the manipulation of verbal material, which do not differ in any important respect from problem situations which can be rapidly and efficiently resolved by anthropoid apes. Since apes cannot be supposed to think in words, and yet can solve problems which in the case of a human subject would require some kind of verbal thinking, it follows either that the thinking which the human subject reports in such cases is redundant, or, if it is not other animals, have this capacity.

As it happens, there is evidence from the introspective reports of human subjects of a form of thinking, namely mental imagery, which, although it is usually accompanied by verbal thinking, does provide the individual with a means of representing to himself situations not present to his sense without using words. If thinking, as applied to the solution of problems, is a matter of replica the results of various possible courses of action and selecting an appropriate response before engaging physically with the environment, it is conceivable that an organism with the capacity to form mental images, but without the capacity to use language, could use its mental imagery in this way.

Thus there are some things that animals do, which, when done by humans, are commonly attributed to conscious processes, not necessarily involving language. In order to reconcile this fact with the principle of evolution, we must either suppose that some kind of conscious process is involved when animals do these things, or we must give up the assumption that conscious processes are as necessary to successful performance as they appear to be in the case of human beings.

Is there any reason to suppose that the concept of consciousness has no application in the case of animals? Clearly, since animals have no properly articulated language, they cannot provide us with the introspective reports which constitutes our evidence for the conscious processes of human beings. But because we do not have any sort of direct evidence of the occurrence of such intervening processes in the case of animals, it does not follow that such processes do not occur. What it does mean is that, when applied to animals, conscious processes become hypothetical constructs like "those to which the psychologist is apt to refer in attempting to explain behaviour."

As such, explanations of animal behaviour in terms of conscious processes must take their place alongside alternative explanations of the same behaviour in terms of other hypothetical constructs based on different considerations and explanations which avoid all reference to hypothetical intervening processes of any kind. All such explanations must stand or fall by their

fertility in explaining the observed facts of behaviour, and in making possible the integration of the facts of behaviour with evidence derived from other sources such as neurophysiology and (dare one say it?) introspection.

As Lloyd Morgan pointed out, the scientific principle of parsimony requires that the internal processes postulated to account for animal behaviour be the simplest that will account for the observed facts. And as the behaviourists have undoubtedly shown, it is possible to give a plausible account of most animal behaviour without postulating intervening processes of any kind, conscious or otherwise. Nevertheless, there is at least one piece of evidence from the study of animal behaviour for which it is difficult to give a plausible explanation without postulating the occurrence of a conscious process.

In a recently reported study by Vaughn¹ Rhesus monkeys were trained to avoid an electric shock by pressing a bar attached to the hand whenever any one of a variety of images was projected onto a screen which provided the only source of visual stimulation. After this response had become well established the animals were placed in conditions of sensory deprivation which caused them to fall asleep. From time to time during sleep the animals suddenly began pressing the bar at the same rate as they had previously learned to do; and these bursts of bar-pressing were found to coincide with the rapid eye-movement phase of sleep.

Rapid eye-movement sleep is a distinct physiological condition found in many of the higher mammals which, in the case of human subjects woken during one of these periods, is associated with reports of vivid dream imagery. This is in marked contrast to the vague imageless thoughts reported by subjects woken from the deeper phase of sleep in which the rapid eye-movements and other associated physiological characteristics are absent. It is, thus, very tempting to suppose that the bar-pressing, observed in this experiment during the rapid eye-movement phase of sleep, was due to the occurrence of internally generated replicas of the visual stimuli to which the animals had been trained to make this response.

If these results can be repeated, and can be shown to occur when the animal has been trained to respond in this way to visual stimuli and only to stimuli of this kind, the conclusion that the

¹ Vaughn, C. J. "The development and use of an operant technique to provide evidence for visual imagery in the rhesus monkey under sensory deprivation." Doctoral dissertation, University of Pittsburgh, 1964. Quoted in Luce, G. G. *Current Research on Sleep and Dreams*, U.S. Department of Health, Education, and Welfare: Public Health Service Publication No. 1389, 1965, pp. 85-86.

I am indebted to Dr. Allen Rechtschaffen of the University of Chicago, Sleep Laboratory, for drawing my attention to this report.

sleeping animal is responding to visual dream imagery will be the only hypothesis that will conveniently fit the empirical facts. This conclusion, if it is substantiated, would not only provide very strong evidence for the occurrence of visual dream imagery in monkeys; it would also provide very strong grounds for suspecting the existence of other forms of consciousness in sub-human primates. For it is hardly likely that monkeys would have developed the capacity to form visual images only for the purpose of dreaming. However, until we have some more precise way of determining which behavioural functions do and do not depend on the occurrence of conscious processes in man or some means of detecting these processes physiologically, the problem of the nature and existence of animal consciousness will remain largely a matter for speculation.

III

There can be no doubt, to my mind, that Watson is right when he argues that there is no place in contemporary scientific psychology for concepts which cannot readily be integrated into the fabric of scientific thinking as a whole.

Where I do not agree with him is in supposing that there is any necessary incompatibility between the assumption that behaviour is in part causally determined by conscious processes, and the assumption "that there are no causal processes antecedent to behaviour which could not be described within the range of the concepts of physiology, chemistry, engineering and so on."

I have argued elsewhere² that the view that consciousness, in the sense in which we are using it for the purposes of this symposium, is a process in the brain is a reasonable scientific hypothesis which cannot be dismissed on logical grounds alone. It is not clear whether Watson thinks there is some logical contradiction in supposing consciousness to be a process in the brain. But if he does, the only argument he gives which can conceivably be construed as supporting this conclusion is the argument in which he maintains that consciousness is an intervening process quite different from those postulated by psychologists, because its occurrence is directly ascertained.

Treated as an argument against the mind-body identity thesis, this argument has consequences which I do not think Watson would want to accept. For if something which is directly ascertained cannot be the same thing as something whose existence is postulated on the basis of

² U. T. Place, "Is consciousness a brain process?", *British Journal of Psychology*, XLVII (1956), 44-50.

theoretical considerations, it follows that the planet Neptune, now observed by astronomers, cannot be the same planet as the planet whose magnitude, orbit and position were independently calculated by Adams and Le Verrier before it was discovered in 1846. Nor will it ever be possible for a neurophysiologist to observe any of the brain processes currently postulated by the theoreticians, or any they may postulate in the future, since, if their occurrence were directly ascertained, they would not, on Watson's view, be the same processes.

I conclude that Watson has not provided any convincing reasons for holding that there is a logical contradiction involved in supposing consciousness to be a process in the brain. But if there is no logical contradiction involved, there is certainly no empirical evidence which is inconsistent with the hypothesis, and much that is difficult to account for on any other assumption. And if there are no logical or empirical considerations which make the hypothesis untenable, there need be no inconsistency involved in holding both that an individual's consciousness determines his behaviour, and that "there are no processes causally antecedent to behaviour which could not be described within the range of the concepts of physiology."

IV.

It cannot be denied that the scientific investigation of consciousness presents serious methodological problems, but it is not all clear that these problems are such as to put the phenomenon entirely beyond the reach of scientific investigation. If there is sufficient empirical evidence to warrant the conclusion that a phenomenon exists, there must be at least some acceptable empirical evidence concerning its properties, since we cannot have evidence of the existence of something, unless we have evidence that there in exists something having the properties in terms of which the thinking in question is defined. And if we have acceptable empirical evidence about at least some of the properties of consciousness, it is difficult to see how the phenomenon can be wholly unsusceptible of scientific investigation.

Watson's argument seems to imply that there are some ways of investigating natural phenomena which are intrinsically acceptable from a scientific point of view, while other methods are intrinsically unacceptable. But this is surely misleading. The method of investigation that is scientifically acceptable depends on the nature of the phenomenon under investigation. A method which is quite unacceptable in investigating one phenomenon, because other methods are less liable to yield erroneous conclusions are available, may be scientifically acceptable in investigating another phenomenon, because it is the only or best possible method available in the circumstances.

Conclusions drawn on the basis of a method which has a large margin of error, must necessarily be correspondingly tentative, but it is usually better to draw conclusions on the basis of unsatisfactory empirical evidence than none at all.

The methodological problems involved in the study of consciousness derive from the incurably 'subjective' character of the reports on which we depend for our knowledge of the process. Introspective reports on which we depend for our knowledge of the process. Introspective reports are almost invariably made some time, even if only a matter of seconds, after the events they report, and are, therefore, almost certainly subject to the distortion which, as has been repeatedly demonstrated by psychological experiment, normally occurs when an individual attempts to reproduce from memory material of any complexity. But since, as things stand, we have no means of checking the accuracy of introspective reports against the reality they purport to describe, we have no basis for discriminating between what is distorted in the report and what is not, and can only assess the probable amount of distortion likely to be present by analogy with the amount of distortion present when the individual reports similar events where the accuracy of his report can be checked.

This is a serious methodological problem, but it is by no means unique to the study of consciousness. Similar problems arise in any situation where the scientist is dependent for his information on the retrospective reports of untrained human observers. Yet I do not think many psychologists or sociologists would argue that we ought to ignore such questions as the incidence and frequency of different types of sexual behaviour over the past fifty years because we are completely dependent for our information on this topic on the retrospective reports of untrained human observers on matters about which they have strong motives for misrepresentation. Scientific prudence requires that any conclusions drawn on the basis of such evidence be treated with the utmost caution; but it is surely better, and more consistent with aims and the methods of empirical science, to base conclusions on the best empirical evidence available, than to refuse to investigate a problem on the grounds that it cannot be studied in an acceptable scientific manner.

If conscious processes could not be investigated in an acceptable scientific manner, there would not exist, as there clearly does, a substantial body of information about them based on systematic empirical investigation. During the latter part of the nineteenth and the early years of the present century a great deal of information was accumulated about the effects of various stimulus conditions on the resulting conscious processes as reported by introspective observers, which laid the foundation of our present knowledge of the physiology of the sense organs. In the medical field there exists a large, if relatively unsystematized, body of knowledge about the effects of various

pathological conditions, physical as well as psychiatric, on conscious processes reported by the patient which, in spite of the development of more precise and objective methods, still plays an important part in diagnosis and in assessing the effects of treatment. The evidence collected notably by Galton, on individual differences in mental imagery and other purely subjective aspects of thought processes represents a substantial, if neglected, contribution to empirical knowledge in psychology, and whatever we may think about the curious theoretical apparatus of psycho-analysis, Freud's contribution to our knowledge of dreams at a purely descriptive level can hardly be denied.

The reason why psychologists have virtually ceased to add to this body of knowledge, is not that they have now discovered that all the conclusions drawn on the basis of introspection in the past can no longer be accepted. What was discovered at the beginning of this century is that it is impossible to resolve theoretical issues by appeal to introspective evidence alone. For if one theoretical position predicts a given conscious phenomenon and another theory predicts the opposite, and if one set of introspective observations is consistent with one theory and another set of observations is consistent with the other theory, it is always possible to argue that the observations that are inconsistent with the theoretical position of one's choice are unreliable; and in the absence of an independent check on the reliability of the introspective reports, there is no way of resolving the issue.

As long as psychologists were content to assemble empirical information at a descriptive level, this problem did not arise. But when the stage was reached where further progress required the resolution of theoretical issues which could not be resolved on the basis of the only kind of evidence available, the scientific investigation of consciousness ground rapidly to a halt.

It follows that the only way to overcome this obstacle and revive the interest of psychologists in the scientific investigation of consciousness, is to find some way of providing an independent check on the reliability of introspective reports. On a dualistic theory this is impossible, since, on this view, introspection is the only kind of evidence one can have of the nature of conscious processes. But if, as I have argued, consciousness is a process in the brain, it may eventually become possible to check the reliability of introspective reports against electro-physiological recordings of the processes they report, once these have been identified. Needless to say the implications of such developments from the standpoint of the psychology of consciousness are as exciting as its social implications are alarming.

V

The philosophical problems that arise concerning the concept of consciousness would not worry the psychologist, if he did not find himself inescapably involved in them whenever he tries to use the concept. If he could use the concept of consciousness, as he uses concepts like Time and

Cause, without feeling that he needs to consult what the philosophers have to say on the matter, there would be no problems.

That the psychologist should find this situation embarrassing is understandable. It is not just that he finds himself involved in matters that fall within the competence of specialists from another discipline. After all psychologists are quite happy to defer to neurophysiologists in matters of brain function, and even to engineers in matters of psychological theory. But to have to defer to philosophers in matters of consciousness is a very different matter.

It is not only that the psychologist is trying very hard to secure and maintain the reputation of his discipline as a natural and empirical science, and is, therefore, reluctant to become involved with a discipline that claims to handle its problems without recourse to empirical evidence at any point, and is not, like mathematics, recognised as an indispensable tool of scientific research. More important that this is the view, widely held by scientists, that there is no way of reaching a final and agreed conclusion in a philosophical argument. It is a consequence of this view that, if the psychologist is foolhardy enough to use the concept of consciousness, he becomes inescapably involved in problems to which he can never hope to obtain a final and agreed solution.

In order to meet this objection, we need to consider why the psychologist cannot use the concept of consciousness without becoming involved in philosophical problems. The reasons for this is that you cannot say anything about consciousness from a scientific point of view, without realising the question whether we have any scientifically acceptable evidence for the existence of such a process. Consciousness, as we have defined it, is a process intervening between input and output, the occurrence of which is directly ascertained by the individual in whom it occurs, but which cannot, as things stand, be observed by anyone else. It follows from this definition that the only evidence we can have of the existence of such a process comes from the introspective reports which the individual gives about it. There is no doubt, of course, about the existence of these reports. It is a matter of empirical fact that people frequently make statements which, so they claim, are reports of events and processes inside them that others cannot observe. But are they really doing what they claim to be doing? Can we account for this verbal behaviour without postulating some inner process to which the alleged introspective statements can be taken to refer?

These are questions which we can only answer by introducing considerations which are currently classified as philosophical. In order to decide whether an alleged introspective statement can be accounted for, without assuming that it refers to an inner process or event, we need to examine the logical implications of the words and expressions used in making the statement. In other words we can only decide whether the introspective reports are what they purport to be, by

studying what Professor Ryle has called 'the logical geography' of the words and expressions involved in giving, asking for and talking about them, and seeing whether the assumption that they refer to inner processes is the only hypothesis that will fit the logical facts.

The facts of logical geography with which we are here concerned are logical facts about words and expressions in the natural language of the introspective observer, for our purposes, English. But because they are logical facts, it does not follow that they are not at the same time empirical facts about the English language.

It is true that the native English speaker requires no empirical evidence to tell him that is something is red all over, it cannot be green all over. The fact that something cannot be both red and green all over at the same time is not an empirical fact; it is a logically necessary truth. It is nevertheless an empirical fact used in such a way that the sentence 'something cannot be red and green all over' expresses a logical necessary truth, and in such a way that a native speaker is justified in inferring 'X is not green' from the statement 'X is red all over'. It is with these empirical meta-language statements about the logically necessary relations holding between the words and expression of a given natural language that we are concerned, when we study the logical geography of the words and expressions used by the subject in giving and talking about his introspective reports.

As I see it, it is an accident of the present stage in the evolution of human thinking that this particular branch of empirical inquiry happens to be the responsibility of the philosopher. In the past, philosophy has given birth to a number of empirical sciences, from physics in the 17th century to psychology in the 19th century, and there is no particular reason to suppose that its child-bearing days in this respect are over. Indeed there is more than a little evidence that philosophy is at the present time heavily pregnant with an empirical scientific discipline concerned with the functional or meaning aspects of language.

If this development takes place and the notion of 'logical geography' becomes something more than a metaphor, the problem of deciding whether or not introspective reports refer to inner processes, will cease to be a philosophical problem. It will be recognised as an empirical problem, falling within the competence of the empirical science of linguistics, and therefore, as a problem to which we can reasonably expect to find a definite solution, and concerning which the experimental psychologist need have no inhibitions about consulting the relevant specialist.

The arguments I have presented are designed to undermine what I take to be the major premiss of Watson's argument, namely that the use of the concept of consciousness is incompatible with the aims and methods of experimental psychology. I have tried to show that consciousness is a process for the existence of which we have considerable empirical evidence in the case of humans and strong circumstantial evidence in the case of the higher mammals, that in spite of the methodological problems involved, consciousness is a phenomenon susceptible to scientific investigation, and one which does not require any supernatural or extra-physical explanation.

Watson, however, is not primarily concerned with the investigation and explanation of consciousness as a phenomenon in its own right. He is concerned with the use of this concept in explanations that are given by psychologists of the overt behaviour of organisms. Now, although the arguments I have presented provide a case for retaining, or rather reviving consciousness as a proper subject of scientific research in psychology, they do not provide any very convincing support for the use of this concept in explaining behaviour, whether human or animal at the present time.

If consciousness exists and is causally related to behaviour in the way it appears to be, it follows that an explanation of behaviour that takes account of all the intervening processes on which the occurrence of behaviour depends, must include consciousness among them. But this is true only of the final and complete explanation which it is the object of scientific research to achieve, but which is seldom achieved in practice, and is certainly a very long way off as far as the behaviour of organism is concerned. But because we cannot yet fit all the pieces of jigsaw together, it does not follow that we cannot at the present time provide perfectly satisfactory explanations of many aspects of behaviour without mentioning consciousness, or any other kind of intervening process.

An explanation is what it is, only in so far as the *explicans* is initially better understood than the *explicandum*. There can be no point in trying to explain behaviour in terms of intervening processes, if we already understand the behaviour by itself better than we understand the intervening processes. And whatever may be true of the intervening processes postulated by the neurophysiologist and the cybernetician, it is surely the case that our knowledge and understanding of consciousness is very much less than the knowledge and understanding that we have of the overt behaviour of the organism.

It would seem therefore, that although Watson's contention that any reference to consciousness is incompatible with the aims of experimental psychology is unacceptable, we have to concede that our knowledge and understanding of this process is far too poorly developed at present

to justify an attempt to make anything but the most tentative use of what we know about it in giving a scientific explanation of behaviour.

VII

If we have to concede that there is some substance in the major premiss of Watson's argument, in so far as the explanation of behaviour in terms of consciousness is concerned, we cannot avoid conceding the substance of his conclusion, namely that the use of the concept of perception in the explanation of behaviour cannot be easily reconciled with the aims of experimental psychology, unless we can upset his minor premiss which holds that the concept of perception as used by psychologists is really the old concept of consciousness in disguise. For if Watson is right in thinking that Perception is old Consciousness in disguise, the object of the camouflage, presumably, is to enable the psychologist to introduce considerations derived from introspection into his theoretical formulations, without making it obvious what he is doing either to himself or to those of his colleagues who would disapprove of such a procedure. Such a device, if this is what it is, is indefensible by any intellectual standards. It would be far better to recognise the fact that, in using perception in this way, the psychologist is making use of evidence derived from introspection, and face up to the methodological and theoretical problems involved in using such evidence and relating it to evidence from other sources.

In examining the case for what I take to be the minor premiss of his argument, I do not propose to follow Watson in his attempt to see whether genuine empirical substance can be given to the concept of perception, considered as an intervening process on the input side of the input to output channel, without making use of considerations derived from introspection.

It seems to me that we cannot hope to make sense of the concept of perception, as it is used in the explanation of behaviour, if we construe it as an intervening process in the input-output channel, whether we think of it as a theoretical construct for which the overt behaviour of the organism is our only evidence, or as a conscious process available to introspection. To construct it is either of these ways involves a radical misunderstanding of the logic of the concept, and Watson's discussion provides ample evidence of the conceptual confusion that results from this misunderstanding.

When a psychologist talks of explaining behaviour in terms of perception, I take it that he has in mind a situation such as the following.

Let us suppose that a man whom we may call Mr. *A* encounters another man, Mr. *B*, and let us further suppose that Mr. *B* happens to be a valued customer of the firm for which Mr. *A* works, one who places large orders and pays his bills promptly and in full. Now let us suppose that Mr. *B* happens to resemble another man, Mr. *C*, who also has dealings with Mr. *A*'s firm, but has always been a bad payer and at present owes the firm a considerable sum of money which has been outstanding period of time. Let us also assume that Mr. *A* is aware of the facts about both Mr. *B*'s and Mr. *C*'s financial dealings with the company and that he knows Mr. *C* by sight, but has not previously met Mr. *B*, and has not been told of the similarity in the appearance of Mr. *B* and Mr. *C*.

In these circumstances there is, clearly, a danger that Mr. *A* will mistake Mr. *B* for Mr. *C* and will, consequently, behave towards Mr. *B* in a way very different from the way he would have behaved had he realised that it was Mr. *B* and not Mr. *C* with whom he was dealing.

In terms of the concept of perception, as the psychologist would use the term in this context, the pattern of behaviour which Mr. *A* adopts depends on whether he perceives Mr. *B*, correctly, as Mr. *B* or, incorrectly, as Mr. *C*.

Now if I am right in thinking that this is a typical example of an explanation of a piece of behaviour in terms of the concept of perception, it is evident that this is not an explanation in terms of any intervening process in Mr. *A*'s input-output channel, whether introspective or otherwise. There is only one point in this account of Mr. *A*'s behaviour where it can be plausibly argued that there is an implicit reference to Mr. *A*'s conscious processes. This is contained in the statement that Mr. *B* resembles Mr. *C*. This statement might be held to imply that the visual experience that results when Mr. *A* looks at Mr. *B* is similar to that which results when he looks at Mr. *C*. But since in this case the similarity of the visual experiences in the two cases is a simple function of similarity of the physical stimulus they project on to the retina under normal conditions of viewing, it is this physical similarity of the two men that is mentioned in the explanation of Mr. *A*'s behaviour.

But even if we allow that there is an implicit reference to Mr. *A*'s visual experience in the mention that is made of the resemblance between Mr. *B* and Mr. *C*, it is clear that the similarity between the visual experiences in the two cases does not by itself explain Mr. *A*'s behaviour. What it explains is why Mr. *A* is liable to perceive Mr. *B* as Mr. *C*. It is the way he perceives Mr. *B*, not the visual experience which leads him to perceive Mr. *B* in this way, that explains his behaviour.

It is clear from this that the way Mr. *A* perceives Mr. *B* is not the same thing as his visual experience of Mr. *B*. Nor is it an additional inner process conjured up by his visual experience of Mr. *B*. It is simply the way Mr. *A* interprets the situation confronting him on the basis of his visual

experience. In other words, it is a matter of what he comes to believe is the case as a result of this particular sensory input and the experience it generates. It follows from this that when we explain behaviour in terms of the way an individual perceives a situation, it is what he believes that explains his behaviour, not the visual experience that is instrumental in creating that belief. Furthermore, when we explain behaviour in terms of the way the individual perceives the situation, we are not explaining it merely in the terms of the beliefs generated by the immediate sensory input. For in our example, it is not just the fact that Mr. *A* perceives Mr. *B* as Mr. *C* that explains his behaviour. What explains his behaviour is the fact that he mistakenly perceives Mr. *B* as a customer who does not pay his bills. Built into the description of Mr. *A*'s perception of Mr. *B* is Mr. *C*'s beliefs about Mr. *C*'s financial relations with the company based on what Mr. *A* has been told or discovered himself from an examination of the company's books.

When the psychologist explains behaviour in terms of the way the individual perceives a situation, he is explaining behaviour in the way we explain human behaviour in every-day life, in terms of what the individual believes about the situation and what it is that he wants to achieve or avoid.

For the purpose of every-day life such explanations are perfectly satisfactory. They enable use both to understand behaviour *ex post facto*, and to make reasonably reliable predictions, in advance of the event. Although they are quite properly avoided by psychologists in explaining animal behaviour, and have been largely displaced by what are felt to be more scientific explanations in those areas of human behaviour that have become the special province of the experimental psychologist, there are important areas of human social behaviour where no effective scientific alternative to explanations of this type has yet been devised. And when social psychologists, like Murphy, defend the use of the concept of perception in the explanation of behaviour it is, I suggest, their scientific right to use explanations of behaviour in terms of the individual's beliefs and motives that they are really concerned to defend.

But if those who defend explanations of behaviour in terms of the concept of perception are really defending explanations in terms of beliefs and motives, it follows that they are not, in spite of appearances, defending an explanation of behaviour in terms of consciousness. For to explain behaviour in terms of an individual's beliefs and motives does not, as such, involve any reference to his conscious processes. Nor does our information about an individual's beliefs, about how he interprets the situation confronting him, come from introspective reports in any ordinary sense of the term.

One kind of information that we obtain from introspective reports, and which can be obtained only from this source, is information about when a particular interpretation of the environmental situation confronting an individual actually occurred to him. But this is a piece of biographical information which is of no immediate relevance to the explanation of his behaviour. We are not interested in information of this kind when we inquire about an individual's beliefs in order to understand his behaviour. What we want to know is not when, but how the individual interprets the situation. Again there are some cases where our only source of information about how the individual interprets the situation confronting him is his introspective report. But this applies only in those cases where the individual changes his interpretation before it affects his overt behaviour, and such interpretations, it goes without saying, are of no relevance for understanding the overt behaviour he does exhibit.

If, on the other hand, the interpretation the individual makes does affect his behaviour, whether it be what he says or what he does, we are no longer solely dependent on his introspective report in drawing conclusions about what has now become his belief.

In some cases where we do not understand why an individual says what he says or does what he does, we may ask him to explain his reasons for doing or saying this, and in giving his reasons he may preface his remarks with the words 'I think' or 'I believe so-and-so'. But he may equally not mention himself at all, and simply make statements about the situation confronting him. It is true that, in making these statements, he can properly be said to be expressing his belief, and to imply that he believes what he says. And, although he may very well be mistaken in his beliefs, he cannot properly be said to be mistaken in saying or implying that he so believes, though he may be lying or even deceiving himself.

The fact that one cannot be mistaken in saying that one believes something, the fact that belief statements have what has been called 'private logic,' has lent colour to the idea that belief statements are a kind of introspective report, since having a private logic in this sense is one of the distinguishing marks of the statement people make about the events and processes that make up their consciousness. But to say that someone who makes a statement about matters of fact which may be quite unrelated to himself or his circumstances is making an introspective report simply because he happens to mean what he says, is surely to stretch the notion of introspection to a point where it ceases to have any meaning.

In the vast majority of cases we do not have to question the individual in order to find out what he believes. Nor do we require any assurance from him that he believes what he says. He shows what he believes in what he says about the situation and in the congruence between what he

says and what he does. To believe something is simply to be disposed to make the statement believed under appropriate circumstances, to draw the conclusions that follow, or appear to follow, from it, and to act accordingly. If we know from observation that someone has made a given statement, has drawn the conclusions that follow from it and has acted accordingly, we have all the empirical evidence we require for the conclusions that he believed what he said, better evidence in fact than we would have, if all we knew was that he said that he believed the statement in question.

Another reason why beliefs do not qualify as consciousness, in the sense we are using the terms for the purpose of this symposium, is that they are not events or processes. A process is something that is extended in time and of which it makes sense to say that it is now going on. An event, in the sense we are using it here, is something that occurs at a particular point of time, but is not extended in time. Beliefs are extended in time and therefore are not events, although the acquisition of a belief, which is not extended in time, is an event. But though they are extended in time, beliefs are not things of which it makes sense to say that they are going on now. Hence they are not processes.

It would appear to follow from the fact that beliefs are not events or processes that they are not the sort of things that can enter into causal relationships with processes and events. We can think of beliefs and motives as performance characteristics like the horse-power of a car. Knowledge of the horse-power of a car can be used to predict and hence explain its behaviour, just as we can use knowledge of an individual's beliefs and motives to explain and predict human behaviour. But such explanations are not causal explanations in the sense that an explanation of the movement of a car in terms of the explosion of gases in the cylinder is a causal explanation. An individual's beliefs do not push him into behaving as he does, any more than a car's horse-power forces the crankshaft to revolve.

When we explain an individuals' behaviour in terms of his beliefs and motives we are not explaining behaviour in the way the scientific psychologist wants to explain it, in terms of a flow of energy or information from input to output, from stimulus to response. This is not, even in the most extended sense, a stimulus-response explanation in which the subsequent verbal and non-verbal behaviour of the individual is predicted, and hence explained, from a knowledge of his present and past verbal behaviour and the relationship between this and his non-verbal behaviour, but with no implication that the antecedent behaviour from which the subsequent behaviour is predicted is the cause of the subsequent behaviour.

There is no reason to suppose that this type of explanation is in any way incompatible with a causal input-output type of explanation, any more than there is an incompatibility between explaining a motor-car's behaviour on the road in terms of its horse-power and explaining it in terms of the way the driver manipulates the controls. But only confusion results if we try to treat belief-motive explanations as if they were causal input-output type explanations.

For some reason psychologists have found it almost impossible to resist the temptation to do exactly this. Indeed one of the many reasons for the psychologist's disillusionment with the concept of consciousness in the early days of the psychology of behaviour seems to have been that if you interpret an explanation of an individual's behaviour in terms of his beliefs as a causal explanation, this seems to require that immediately before he performs an action the individual should recite to himself all the statements which he believes which are relevant to the performance of the action in question. In fact, the introspective evidence shows quite categorically that such recitations, if they occur at all, seldom include more than a tiny fragment of the beliefs which are relevant to the explanation of the action in question.

The phenomenological concept of perception which was introduced into psychology in the nineteen-twenties by the Gestalt psychologists seems to have been substituted for the traditional concept of consciousness at this point in order to reconcile the belief-motive explanation of behaviour with the input-output model in a way which is not so obviously exposed to refutation by the evidence of introspection. By representing the individual's beliefs as a set of relationships holding between a collection of ghostly phenomenal objects in a phenomenal environment, known as the 'field' or 'life-space', which is supposed to reside inside the subject's head, beliefs can be made to exert a continuous causal effect on behaviour, at the expense of turning every factual statement that the individual makes about any topic, however remote from himself and his own concerns, into a report of an inner process.

If this diagnosis of the rôle played by the concept of perception in psychological explanations of behaviour is correct, Watson's view that it is just the old concept of consciousness in disguise is clearly an over-simplification of a very complex relationship between the two concepts to which it is impossible to do full justice here. Enough has been said, however, to show that the objections that can be raised to the use of the concept of consciousness in the explanation of behaviour cannot be applied *pari passu* to explanations of behaviour in terms of the concept of perception. For in so far as explanations of behaviour in terms of perception are explanation in terms of the individual beliefs, they are not explanations in terms of conscious processes; nor do they depend in any intelligible sense on the evidence of introspection.

On the other hand these considerations do not provide any very convincing case for the continued use of the concept of perception in the scientific explanation of behaviour. Whatever we may think of the propriety of explaining behaviour in terms of an individual's beliefs and motives in a scientific context, to present such explanations in terms of the phenomenological concept of an intervening introspectible perceptual process is indefensible. To do so, involves a radical misunderstanding of the logic of these explanations and the introduction of a fictitious intervening process whose properties cannot conceivably be reconciled with any physical process known or unknown, a process the postulation of which is not required by the empirical evidence, whether it be from objective observations of behaviour or from introspection.