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Perception

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ABSTRACTS OF SOME LECTURES

PERCEPTION

THE HON. BERTRAND RUSSELL, F.R.S.

A. INTROSPECTIVE ANALYSIS.

THE words "mind" and "matter" are used glibly, both by ordinary people and by philosophers, without any adequate attempt at definition. Philosophers are much to blame for this. My own feeling is that there is not a sharp line, but a difference of degree; an oyster is less mental than a man, but not wholly un-mental. And I think "mental" is a character, like "harmonious" or "complicated," that cannot belong to a single entity, but only to a system of entities. But before defending this view, I wish to spend some time on traditional theories.

Traditionally, there are two ways of becoming aware that something exists, one by the senses, the other by what is called "introspection," or what Kant called the "inner sense." By means of introspection, it is maintained, we become aware of occurrences quite different in kind from those perceived by the outer senses. Occurrences known through introspection are "mental," and so are any other occurrences which intrinsically resemble them.

Mental occurrences are traditionally of three main types, called knowing, willing, and feeling. "Feeling," in this connection, means pleasure and unpleasure—we do not say "pleasure and pain," because "pain" is an ambiguous word: it may stand for a painful sensation, as when you say "I have a pain in my tooth," or it may stand for the unpleasant character of the sensation. This ambiguity deceived Berkeley, and provided him with a fallacious argument. Roughly, pleasure is a quality which makes you want an experience to continue, and unpleasure is the opposite quality which makes you want an experience to stop. However, I am not concerned to enlarge upon feeling at present.

As for the other two kinds of mental occurrence, "knowing" and "willing" are too narrow to describe what is meant. We want to include not only knowledge but also error, and not only the sort of knowledge that is expressed in beliefs but also the sort that occurs through perception. We use the word "cognition" or "cognitive state" to cover everything that could possibly be described as either knowledge or error; perception may be included, but pure sensation is more debatable.

"Willing," again, is too narrow a term. We want to include desire and aversion, and generally those states of mind which lead up to action. These are all included under the head of "conation."

Cognition and conation both have the property of being directed to an *object*. What you perceive or believe, what you desire or will, is something different from your state of mind. To take instances: you remember a past event, but your remembering occurs now; therefore your remembering is a different occurrence from what you remember. You will to move your

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arm, which is a physical occurrence, and therefore obviously different from your volition. Many psychologists have taken this relation to an object as the essential characteristic of mind—notably Brentano and Meinong. Sometimes feeling also is regarded as having an object: it is held that we are pleased or displeased *at* something. This view, however, has never won general acceptance, whereas the view that cognition and conation are directed to objects may be regarded as orthodox.

It is undeniable that this characteristic of being directed to objects is, in some sense, a property of cognition and conation, but there is room for great difference of opinion as to the proper analysis of the property. I think we cannot hope to understand the word “mental” until we have undertaken this analysis, and I shall therefore proceed to address myself to it. I shall confine myself to cognition, which is more important for our present purposes than conation.

Cognition is of various sorts. Take, as important kinds, perception, memory, conception, and beliefs involving concepts. Perception is the ordinary awareness of sensible objects: seeing a table, hearing a piano, and so on. Memory is awareness of a past occurrence, when this awareness is direct, not inferred or derived from testimony. Conception is more difficult to characterize. One may say, as a way of pointing out what is intended, that we “conceive” whenever we understand the meaning of an abstract word, or think of that which is in fact the meaning of the word. If you see a white patch of snow, or recall it by means of images, you do not have a concept; but if you think about whiteness, you have a concept. Similarly if, after seeing a number of coins, you think about roundness as a common characteristic of all of them, you have a concept. The object of your thought, in such a case, is a *universal* or a Platonic idea. Every sentence must contain at least one word expressing a concept, and therefore every belief that can be expressed in words contains concepts.

Each of these kinds of cognitive attitude involves its own problems. I shall begin with perception. This has to be treated both introspectively and causally. Let us take the introspective treatment first.

When you have the experience called “seeing a table,” there is a certain amount of difference between your unreflecting judgment and what careful examination reveals as to the nature of your experience. You judge that the table is rectangular, but the patch of colour in your visual field is not a rectangle; when you learn to draw, you have to draw the table as it really seems and not as it seems to seem. You have images of sensations of touch; if you were to try to touch the table and it turned out to be an optical delusion, you would get a violent shock of surprise. You have also expectations of a certain degree of permanence and weight. If you went to lift the table, you would find your muscles quite wrongly adjusted if the table were much lighter than it looked. All these elements must be included in the perception, though not in the sensation.

“Sensation,” as opposed to perception, is more or less hypothetical. It is supposed to be the core, in the perception, which is solely due to the stimulus and the sense-organ, not to past experience. When you judge that the table is rectangular, it is past experience that enables and compels you to do so; if you had been born blind and just operated, you could not make this judgment. Nor would you have expectations of hardness, etc. But none of this can be discovered by introspection. From an introspective point of view, the elements due to past experience are largely indistinguishable from those due to the stimulus alone. One supposes that past experience modifies the brain, and thereby modifies the mental occurrence due to the stimulus.

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The notion of sensation as opposed to perception belongs, therefore, to the causal study of perception, not to the introspective study.

There is, however, a distinction to be made here. You can discover by mere self-observation that visual objects are accompanied by expectations or images of touch; and similarly if you touch an object in the dark you will probably be led to form some visual image of it. Here you can arrive at a certain degree of analysis of your perception through the fact that images, as a rule, *feel* different from the immediate results of a sensory stimulus. On the other hand, no amount of introspection alone will reveal such things as the blind spot. The filling in of a sensation by elements belonging to the same sense is much less discoverable by introspection than the filling in by associated images belonging to other senses. Thus, although by introspection alone we could discover *part* of the influence of experience or perception, there is another part which we cannot discover in this way.

Remaining in the introspective attitude, it is evident that the contents of our minds at any given moment are very complex. Throughout our normal waking life we are always seeing, hearing, and touching, sometimes smelling and tasting, always having various bodily sensations, always feeling pleasant or unpleasant feelings (usually both), always having desires or aversions. We are not normally aware of all these items, but we can become aware of any of them by turning our attention in the right direction. I am not at present discussing "unconscious mental states," because they, obviously, can only be known causally, and we are now considering what can be known introspectively. There may be any number of perceptions that cannot be known by introspection; the point for us at the moment is that those that can be discovered by introspection at any one time are many and various.

I do not wish, just now, to discuss the nature of attention; I wish only to point out that it enables us to take the first steps in abstraction. Out of the whole multiplicity of objects of sense, it enables us to single out a small selection, which is an indispensable preliminary to abstraction. For example, attention will enable us to discriminate a coloured pattern which we are seeing, and to separate it from the other things we see and from images and other objects of sense and thoughts which may exist simultaneously. For the sake of simplicity, let us suppose that we discriminate a black and white pattern in the form of a triangle.

Within this pattern we can further discriminate sides and angles and an inside and outside—of course the sides are not mathematical lines nor the angles mathematical points. We now come to a question of very great importance, upon which our views of the relations of mind and matter largely depend. The question is this:

What difference is there between the propositions "There is a triangle" and "I see a triangle"?

Both these statements seem as certain as any statement can be—at least if rightly interpreted. As always happens in such cases, we are quite certain of *something*, but not quite certain what it is that we are certain of. I want to ask whether this something that we are certain of is really different in the above two statements, or whether the difference between them is only as to surroundings of which we are not certain. Most philosophers hold that there is a difference in what we are certain of; Mach, James, the American realists and I hold that the difference is in the uncertain context. Let us examine this question.

The *suggestions* of the two statements "I see a triangle" and "There is a triangle" are obviously different. The first states an event in my life,

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and suggests its possible effects upon me. The second aims at stating an event in the world, supposed to be equally discoverable by other people. You might say "There is a triangle" if you had seen it a moment ago but now had your eyes shut; in this case you would not say "I see a triangle." On the other hand, one sometimes, under the influence of indigestion or fatigue, sees little black dots floating in the air; in such circumstances you would say, "I see a black dot," but not "There is a black dot." This illustration shows that when you say "There is a black dot" you are making a stronger assertion than when you say "I see a black dot." In the other case, when you say "There is a triangle" because you saw it a moment ago, though not now, you have three stages: first, memory assures you of the proposition "I saw a triangle," and then you pass on to "There was a triangle," and then, further, to "There is a triangle, because nothing can have happened to destroy it so quickly." Here we have obviously passed far beyond the region of immediate certainty.

It seems clear, therefore, that, of our two statements, the one which comes nearest to expressing the fact of which we are immediately certain is "I see a triangle," because the other makes inferences to something public, and thus goes beyond the bare datum. This is on the assumption that we should not say "There is a black dot" when we see a black dot which we attribute to eye-trouble, and therefore suppose that no one else can see. Let us therefore concentrate upon "I see a triangle," and ask ourselves whether the whole of this, or only part, can be accepted as a primitive certainty.

A moment's reflection shows that both "I" and "see" are words which take us beyond what the momentary event reveals. Take "I" to begin with. This is a word whose meaning evidently depends upon memory and expectation. "I" means the person who had certain remembered experiences and is expected to have certain future experiences. We might say "I see a triangle now, and I saw a square a moment ago." The word "I" has exactly the same meaning in its two occurrences in this sentence, and therefore evidently has a meaning dependent upon memory. Now it is our object to arrive at the contribution to your knowledge which is made by seeing the triangle at the moment. Therefore, since the word "I" takes you beyond this contribution, we must cut it out if we want to find a correct verbal expression for what is added to our knowledge by seeing the triangle. We will say "a triangle is being seen." This is at any rate one step nearer to what we are seeking.

But now we must deal with the word "seen." As ordinarily used, this is a causal word, suggesting something dependent upon the eyes. In this sense, it obviously depends upon a mass of previous experience: a new-born baby does not know that what it sees depends upon its eyes. However, we could eliminate this. Obviously all objects of sight have a common quality, which no objects of touch or hearing have; a visual object is different from an auditory object, and so on. Therefore, instead of saying "a triangle is being seen," we should say "There is a visual triangle." Of course the meaning of the words "visual" and "triangle" can only be learnt by experience, but they are not *logically* dependent upon experience. A being could be imagined which would know the words at birth; such a being could express its datum in the words "There is a visual triangle." In any case, the problems remaining belong to the study of concepts: we will therefore ignore them at present.

Now in English the words "there is" are ambiguous. When I used them before, saying "There is a triangle," I meant them in the sense of "voilà" or "da ist." Now I mean them in the sense of "il y a" or "es

giebt." One might express what is meant by saying "a visual triangle exists," but the word "exist" has all sorts of metaphysical connotations that I wish to avoid.

We have now arrived at something which is just as true when your perception is illusory as when it is correct. If you say "There is a visual black dot," you are speaking the truth if there is one in your field of vision. We have eliminated the suggestion that others could see it, or that it could be touched, or that it is composed of matter in the sense of physics. All these suggestions are present when one says, in ordinary conversation, "There is a black dot." They are intended to be eliminated by the addition of the word "visual" and the change in the meaning of "there is." By these means we have arrived at what is indubitable and intrinsic in the addition to your knowledge derived from a visual datum.

We must now ask ourselves once more: Is there still a distinction, within what is immediate and intrinsic, between the occurrence of a visual datum and the cognition of it? Can we say, on the basis of immediate experience, not only "a visual black dot occurs," but also "a visual black dot is cognized"? My feeling is that we cannot. When we say that it is cognized, we seem to me to mean that it is part of an experience. That it so say, that it can be remembered, or can modify our habits, or, generally, can have what are called "mnemonic" effects. All this takes us beyond the immediate experience into the realm of its causal relations. I see no reason to think that there is any duality of subject and object in the occurrence itself, or that it can properly be described as a case of "knowledge." It gives rise to knowledge, through memory, and through conscious or unconscious inferences to the common correlates of such data. But in itself it is not knowledge and has no duality. The datum is a datum equally for physics and for psychology; it is a meeting-point of the two. It is neither mental nor physical, just as a single name is neither in alphabetical order nor in order of precedence; but it is part of the raw material of both the mental and the physical worlds. This is the theory which is called "neutral monism," and is the one that I believe to be true.

B. CAUSAL ANALYSIS.

I have dealt hitherto with the introspective analysis of the sort of occurrence that we naturally call a "perception." We have decided that, from the point of view of introspection, we cannot eliminate from a perception all the elements which embody effects of past experience, so that the core of pure "sensation" can only be studied by investigating the causal antecedents of perceptions. We proceeded to ask whether there is any difference, and if so what, between the two statements: "There is a triangle there" and "I see a triangle." We decided that in each of these two statements, when made as the result of a present perception, there is a core which may be accepted as indubitable, and which is the same in both; this may be expressed in the words "a visual triangle occurs." These words express something which is a datum both for physics and for psychology. But the two statements "I see a triangle" and "There is a triangle there" both go beyond the datum, and go beyond it in different ways. The first puts the datum into a context of other experiences also belonging to me; the second puts it into a context of other physical events, because "there" expresses, in a vague way, spatial relations to other occurrences. In all this we were confining ourselves to introspection: the context is "meant" by these phrases, and

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we did not ask whether we really have good reason to believe that there is such a context.

I come now to the causation of perceptions, as opposed to the introspective analysis. The causation of perceptions is studied by three sciences, physics, physiology, and psychology. Physics deals with that part of the causal antecedents which lies outside the body of the percipient; physiology with the part consisting of occurrences in the body of the percipient; and psychology with the part in the mind of the percipient. But this distinction of body and mind represents a metaphysical interpretation, not the crude facts upon which it is based. It is permissible to doubt whether the metaphysical interpretation is valid, and we shall therefore do well to go back to the crude facts. It is obvious that facts of a certain kind are dealt with by physiology, and facts of a certain other kind by psychology. How are these two kinds distinguished, apart from theory?

I believe there is only one way of making this distinction validly. Physiology has as its data those facts about a man which an external observer can perceive; psychology has as its data those facts about a man which only the man himself can perceive. That there is a cavity in your tooth is a fact of physiology, because the dentist can perceive it; but that you feel toothache is a fact of psychology, because you alone can perceive it, though the dentist may infer it.

This brings us to the distinction between public and private objects. The cavity in your tooth is a public object, because any one can perceive it by taking the right steps. Your toothache is a private object, because, apart from telepathy, no one else can perceive it, however hard he may try. The distinction is one of degree, not of kind; there is an element of privacy about *every* perception. Broadly speaking, what we see and hear is public, in the sense that any neighbouring person who is neither blind nor deaf can see or hear something closely similar. In a theatre no two members of the audience see or hear *exactly* the same events, but the similarity is so close that the differences are measurable in terms of price: you see (we may say) twice as well in a 10s. seat as in a 5s. one. And the audience can say that they have all seen the same play, and heard the same words spoken on the stage. That justifies us in saying that an actor or an orator makes a "public appearance."

Touch is public, where bodies that do not constantly change their shape are concerned, in the sense that a number of people can *successively* have very similar perceptions, but they cannot all touch the same spot at the same moment. Smell is public in the case of strong smells, and taste has a kind of semi-publicity. These senses are therefore regarded as giving us knowledge of the outer world. Then we have a group of perceptions which are private, but are interpreted as showing states of our body. Pains are localized, in the tooth, or the toe or the stomach, or wherever it may be; we regard them as giving us knowledge about these parts of the body. In this way one's own body is peculiar among physical objects: some things about it can be perceived by other people, and some only by oneself. You may see a man hit his funny bone, but he alone perceives the peculiar feelings which result. Such a case is intermediate between the extreme publicity of touch and sight, on the one hand, and the extreme privacy of introspection on the other. The pain in your funny bone is localized in a public place. When a doctor says to you, "Where do you feel pain?" you point to a part of your body and say "Here." The place where the pain is can be indicated to other observers, although they cannot perceive the pain. A human body, therefore, is partly private and partly public.

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But we reach a greater degree of privacy when we come to the sort of occurrence which would be called purely mental. Take, say, recollection. I will suppose that I am now recollecting what I ate for breakfast this morning. It is plain that an event is occurring, and that I can know it is occurring, and that no one else can know unless I mention it. So far, the case does not differ from a bodily pain. Where it does differ is in not being, in any obvious sense, located in space. You may say, if you like, that my thoughts are in my head, and I think there is a sense in which this is true; but it is not true in any immediate sense. This raises problems which deserve to be looked into more closely.

When you recollect, various different things may be happening. If you are a good visualizer, you may see your breakfast table, with cups and plates and bacon and eggs. You judge: I had bacon and eggs for breakfast. In the image of your breakfast table there are spatial relations; the image of the bacon and eggs is in *a* place, but not in a place which you regard as part of the present physical world. And you can hardly put it in the physical world of some hours ago, because the image is occurring *now*. So you decide that the place of your image is "imaginary." This applies equally to dreams. Indeed, in their case the privacy is even greater. In the case of a recollection, the image of your breakfast table which you have now resembles (more or less) a public object which existed at a certain past time; therefore you regain publicity by referring the image to the past. But in the case of a dream there is no way of arriving at publicity, and you therefore condemn it as wholly illusory.

I think this distinction of privacy and publicity is the real distinction underlying the distinction of mind and matter. What many people can perceive is physical; what only one person can perceive but localizes in a public place is in his own body; what only one person can perceive but fails, immediately or on reflection, to localize in a public place, is mental. If this is correct, we must attempt a more careful analysis of the notion of "publicity."

The publicity of what we see and hear is not in the strict sense a datum, although we find ourselves ineradicably convinced of it when we begin to reflect. The case of dreams shows that it is not a datum, since in dreams we are equally convinced that the occurrences of the dream are public, and yet on waking we become persuaded that they were purely private. Publicity, therefore, has not the highest grade of certainty; at any moment we may be merely dreaming. Every one knows how the late Duke of Devonshire dreamt that he was addressing the House of Lords, and woke up and found it was true. Perhaps he only dreamt that he woke up; at any rate it is "difficult to see how he could be sure. But although we may admit the abstract possibility that life is a dream, it is not difficult to find good grounds of probability for the common distinction between dreams and waking life, and for the view that what we see and hear is public.

We have two different matters to consider: first, the causal connections between different occurrences within one man's experiences; secondly, what is derived from observation of the behaviour of other men and animals.

Suppose you had lived alone all your life on an island where there were succulent vegetables but no animals. You would not have the evidence for publicity derived from observation of human and animal behaviour, but you would be able (if you were sufficiently intelligent) to distinguish between dreams and waking life. You could observe that large physical objects persist and keep their relative positions approximately unchanged. You could observe that visual objects can be touched, that some of them can

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be eaten, that bumps may hurt, and so on. You would observe that on a dark night, when things cannot be seen, they can still be touched, and show the same shapes and arrangements as by day. All this would lead you to think that your perceptions have causes outside yourself, in order to account for the recurrence of your perceptions in groups under certain circumstances. And if you dreamt that you saw a tree flying through the air, you would cease to believe that it had happened when you woke up and found the tree just where it was the previous evening.

But for men who live in a society the argument is much stronger. Apart from explicit testimony, even animal behaviour is very convincing. Suppose you are watching a flock of birds feeding on a newly sown field ; suddenly you hear a loud report which makes you jump, and you see all the birds fly away. If the birds were merely visual phenomena in your perceptual space, it would seem odd that they should be affected by the noise ; but if they heard the noise too, you can understand their flying away. Human behaviour affords much stronger arguments. Testimony is only an extreme form of the argument, and is logically analogous to the behaviour of the birds, but it makes the hypothesis that other people have perceptions which you cannot perceive irresistible. The usual scientific ground for assuming the existence of something unperceived is that it simplifies the statement of causal laws. This ground exists for believing in the perceptions of other people, and also for believing that Robinson Crusoe's perceptions are connected with causes more stable than themselves. The argument cannot be made demonstrative, since natural laws may not be simple. But it is as good as any argument to be found for any scientific law.

Admitting that other people have perceptions, it is not difficult to arrive at the conclusion that the perceptions of different people, when they are near together, are similar but not identical. We therefore conclude that when (say) a number of people watch the same actor, their perceptions are caused by a train of events emanating from a common source, and modified gradually as they travel away from it. What each perceives is not the actor himself, but an occurrence causally connected with the actor. Between the actor and the man who is watching him a series of events occurs : these belong to physics. Within the body of the spectator, beginning with the eye or ear, another series of events occurs. These belong to physiology. At last comes the event which the man calls "perceiving the actor," but this is merely the end of a causal chain. The actor himself is not the least like the visual pattern which the spectator sees ; but he is connected with the visual pattern by causal laws which enable us to know something about him from what we see. We do not know as much as common sense supposes, but we do know something. The question is : What sort of thing can we validly infer about him ? And when I speak of valid inference, I mean inference giving a high degree of probability, not only inference giving certainty.

I shall not, however, pursue this question at the moment, since I am now concerned with psychology. I have only pursued it so far as I have because it was necessary to explain in what sense perception can be regarded as a source of knowledge concerning the external world. When I speak of the "external" world, I do not mean "spatially external," because "space" is ambiguous, and in one sense every visual datum is spatially external. I mean by the "external" world merely that part of the world which I do not directly experience, but can only know by inference. Unconscious mental states would be "external" in this sense. But the more pressing part of the problem concerning the external world is concerned with minds and bodies other than our own. Our evidence for these is dependent upon perception,

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and it was necessary to deal with the causation of perception in order to show how it is capable of becoming a source of such knowledge.

Not all perception, using the word in its widest sense, gives knowledge of the external world in the above sense. You can perceive your images, recollections and beliefs; this kind of perception gives knowledge which is said to be of your mind. You can perceive bodily feelings; this gives knowledge which is said to be of your body, but is different from the knowledge of your body obtained by the methods of physics, i.e. by the public senses. Physiology, strictly speaking, is only concerned with that kind of knowledge about living bodies which can be obtained by an external observer; the kind which only the man himself can acquire (such as knowledge of a toothache) belongs rather to psychology. We may set up as definitions: Physics is the study which depends for its data upon public perceptions; psychology is the study which depends for its data upon private perceptions. In this sense, part of the knowledge we have of our own bodies belongs to physiology (which is a department of physics), and part to psychology. But it must not be forgotten that the distinction between public and private perceptions is a matter of degree.

To sum up: The core of the sort of occurrence which is usually called a perception of an external object is an event having two characteristics: (1) It is causally connected with a train of previous events having, so to speak, a centre in a certain region of physical space; (2) it can be "known" by a "person," i.e. it has relations of the kind implied when one says that it is "experienced." These two characteristics are not necessarily connected. Events having the first characteristic constitute the physical world; events having the second constitute the mental world. Thus what constitutes the occurrence called an external perception is both mental and physical; but such occurrences do not constitute the whole of the physical world, nor yet the whole of the mental world.

THE DEFINITION AND SCOPE OF PSYCHOLOGY

PROFESSOR T. H. PEAR

THE general goal of psychology is usually the understanding of human behaviour.

A definition of psychology is required to mark off its province from those of other sciences. This is, however, partly a matter of immediate convenience and must not be allowed to stand in the way of progress. To mark off completely the province of physiology from that of psychology is more likely to retard than to accelerate research. Yet a distinction between these two fields is often necessary and convenient.

The definition proposed is, *psychology is the positive science of mental processes and dispositions.*

Science may be described as organized knowledge of facts. Knowledge of facts is not the same as acquaintance with them. The facts which are studied in psychology are isolable parts of our experience. They include experiences which in some sense we share with others (these may be called public property) and experiences which we do not so share (private property). The perception of an external object is an example of the first; the experience of a mental image, of the second.

It is important to insist upon the significance of this definition of the word "organized." Many persons who cannot be called psychologists have a