CHAPTER 12

Reading 12.1 **Wing, M.C., Cooper, J.E., and Sartorius, M. (1974). Preface. In *Measurement and Classification of Psychiatric Symptoms*. Cambridge: Cambridge University Press (Extract pp. vii, viii).**

Reading 12.2 **Duhem, P. (1962). *The Aim and Structure of Physical Theory*. New York: Atheneum (Extract pp. 145 and 147–8).**

Reading 12.3 **Churchland, P. (1979). *Scientific Realism and the Plasticity of Mind*. Cambridge: Cambridge University Press (Extract pp. 8–10).**

Reading 12.4 **Hesse, M. (1980). *Revolutions and Reconstructions in the Philosophy of Science*. Brighton: The Harvester Press (Extract pp. 77–8).**

Reading 12.5 **Chalmers, A.F. (1999) *What is This Thing Called Science?* Buckingham: Open University Press (Extract p.25).**

Reading 12.1 EXERCISE 3

From: Wing, M.C., Cooper, J.E., and Sartorius, M. (1974). Preface. In *Measurement and Classification of Psychiatric Symptoms*. Cambridge: Cambridge University Press (Extract pp. vii, viii).

The good clinician, when he undertakes a diagnostic examination, knows what he wants to find out. He makes a systematic exploration of the subject's mental state, in order to discover whether any of a finite number of abnormal mental phenomena are present. This manual is a guide to a particular method of standardising the elements of this diagnostic process with a view to achieving comparability between clinicians. The most important part of the book is therefore the glossary of definition of symptoms. Everything else depends upon it. It is useless to try to determine whether a symptom is present unless it is quite clear what its specific characteristics are and how it can be distinguished from other symptoms. If the clinician knows these differential definitions, the rest is a matter of technique. If he does not, no amount of technical skill will give his judgements value.

The glossary of definitions is firmly grounded in the practice of the European clinical school of psychiatry, with its long tradition of clinical observation and emphasis on the importance of listening to the patients description of unusual experiences. The influence of this school has spread widely throughout the world and we have found that most psychiatrists recognize that the procedures described in this manual are a modification of their own practice. They are willing to adopt the system for purposes of attaining comparability with colleagues . . .

The only considerable exception we have found arises from the fact that an interview designed to discover whether defined symptoms are present must be based to some extent upon the technique of cross examination. Patients find this completely acceptable and, to the extent that interviewer and patient are together successful in producing an exact description of the symptoms, it can be a rewarding and therapeutic experience in itself. However, members of some schools of psychiatric thought, particularly the psychoanalytic, regard diagnosis as a relatively unimportant part of their work and find cross-examination too 'directive' a method of interviewing. This manual is not for them.

The PSE system has been developed over a period of ten years and it is still evolving. It has been tested in a wide variety of settings. Various editions have been translated and used in eleven languages apart from English, including Yoruba, Hindi and Chinese, and thousands of patients have been interviewed with its help. The latest edition is therefore based upon considerable experience but there is no doubt that it can be improved further. In particular, the method whereby data from the psychiatric history are taken into account and the principles underlying the computer classification, Catego, are still in a relatively stage of development . . . The system can be improved by dropping some of the symptoms, adding others, polishing the definitions of others and, in general, coming closer to the truth.

Reading 12.2 EXERCISE 4

From: Duhem, P. (1962). *The Aim and Structure of Physical Theory*. New York: Atheneum (Extract pp. 145 and 147–8).

Extract 1

Go into this laboratory; draw near this table crowded with so much apparatus: an electric battery, copper wires wrapped in silk, vessels filled with mercury, coils, a small iron bar carrying a mirror. An observer plunges the metallic stem of a rod, mounted with rubber, into small holes; the iron oscillates and, by means of the mirror tied to it, sends a beam of light over to a celluloid ruler, and the observer follows the movement of the light beam on it. There, no doubt, you have an experiment; by means of the vibration of this spot of light, the physicist minutely observes the oscillations of the piece of iron. Ask him now what he is doing. Is he going to answer 'I am studying the oscillations of the piece of iron carrying this mirror?' No, he will tell you that he is measuring the electrical resistance of a coil. If you are astonished and ask him what meaning these words have, and what relation they have to the phenomena he has perceived and which you have at the same time perceived, he will reply that your question would require some very long explanations, and he will recommend that you take a course in electricity.

It is indeed the case that the experiment that you have seen done, like any experiment in physics, involves two parts. In the first place it consists in the observation of certain facts . . . In the second place, it consists in the interpretation of those facts . . .

Extract 2

The result of the operations in which an experimental physicist is engaged is by no means the perception of a group of concrete facts; it is the formation of a judgement interrelating certain abstract and symbolic ideas which theories alone correlate with the facts really observed. This truth is evident to anyone who thinks at all. Open any report at all of an experiment in physics and read its conclusions; in no way are they purely and simply an exposition of certain phenomena; they are abstract propositions to which you can attach no meanings if you do not know the physical theories admitted by the author.

Reading 12.3 EXERCISE 5

From: Churchland, P. (1979). *Scientific Realism and the Plasticity of Mind*. Cambridge: Cambridge University Press (Extract pp. 8–10).

As we are now constituted, we lack the sensory equipment to perceive *visually* the middle-range temperatures of common objects. But it is not difficult to imagine beings who could. Simply imagine a race of men with larger eyeballs and/or more highly refractive lenses, a race of men whose retinas consist solely of rods sensitive to electromagnetic radiation at some wavelength in the far infrared. Since the vigour with which any body radiates in the far infrared is a more or less straightforward function of its temperature, and since images of these bodies will be formed on the retinas of the kind of eyes described, their possessors will be quite prepared, physiologically, to perceive visually the temperatures of common bodies, since the 'brightness' of the corresponding image will be a function thereof.

Let us imagine then an independent society of such beings speaking a language that is, superficially at least, indistinguishable from English, save for two points. First, it lacks our colour vocabulary, including 'black', 'grey', and 'white'. And second, our ordinary temperature vocabulary ('cold', 'hot', 'warmer than', etc.) is learned by the very young as an observation vocabulary for *visual* instead of tactile reports. (To simplify things later on, assume also that these beings lack any tactile or bodily sense for temperature, as we lack any tactile or bodily sense for colour.) They acquire the use of the relevant predicates in much the way we learn the use of our colour predicates, and they steadily amass, in various ways, the usual set of general beliefs or assumptions concerning temperature: 'Fires are hot', 'A warm thing will warm up a cooler thing, but never the reverse', 'If a body is warmer than a second body, and that second body is warmer than a third body, then the first body is warmer than the third body', 'Food keeps better in a cold place', 'Hot things cause painful burns', 'Rubbing things makes them warmer', and so on and so forth. Generally speaking, the set of 'temperature beliefs' of any adult member of this imagined society is no more dissimilar to your own set than yours is to, say, your next-door neighbour's. A few differences are pretty much standard, of course. 'Temperatures can be seen' is a platitude for them, but will be counted false or problematic by most of us. And the reverse holds for 'Temperatures can be felt'. But given the differences in our sensory equipment and the lack of pressure on the common man to consider the possibility of other sensory modalities, such occasional failures of perfect correspondence are neither surprising nor very interesting.

Given their linguistic behaviour, the special nature of their eyes, and the accuracy *de facto* of their perceptual reports on temperature, the natural position to take is that these people can indeed visually perceive the temperatures of objects, at least under 'normal' conditions (that is, under conditions of relatively low ambient infrared radiation, conditions such that the infrared that bodies *emit* is not swamped behind the infrared they may *reflect* to us from other sources). As they see it, the visually perceivable world consists not of middle-sized and variously coloured material objects, but rather of middle-sized and variously *heated* material objects. That is, they perceive hot objects *as* hot (warm, cold); they can visually perceive *that* they are hot (warm, cold).

If we accept this conclusion concerning their perceptual capabilities, we should notice that we have done so without the benefit of any information concerning the intrinsic qualities of their visual sensations. Should this affect the matter? To make matters interesting, let us suppose finally that, so far as the intrinsic nature of their visual sensations is concerned, the world 'looks' to them much as it looks to us in black-and-white prints of pictures taken with infrared-sensitive film. (This is in any case the result to be expected, since (a) their retinas contain only rods, and (b) we are supposing their physiology to be entirely human beyond the peripheral respects cited.) That is to say, on viewing a very hot object they have what *we* would describe as a sensation of an incandescent *white* object, and on viewing a very cold object they have what we would describe as as sensation of a *black* object, and so on. They, of course, describe these sensations quite differently—as sensations of heat, of coldness, and so on.

With these assumptions we arrive at the heart of the matter. If we succumb to the common-sense view that the meaning of simple observation terms is given in sensation, we must insist that *their* terms, 'cold', 'warm', and 'hot' really mean *black, grey*, and *white* respectively, rather than *cold, warm*, and *hot*. But this heterophonic sensation-guided translation of their vocabulary is not without very serious consequences. If we adopt it, we shall have to count as false all (but for a few flukes) of their many background beliefs involving the predicates in question: try substituting 'black', 'grey', and 'white' respectively for 'cold', 'warm', and 'hot' in the sample temperature beliefs listed above. Equally bad, we shall have to count as false all of their 'observation' judgements involving the relevant terms (save for those accidental cases where, for example, a cold object just happens to be black), for they certainly cannot see whether objects *are* black, grey, or white. Their visual sensations are keyed to other parameters entirely.

Accordingly, to insist on this sensation-guided translation is, I suggest, to make a joke of a perfectly respectable and very powerful sensory modality, and of a simple and appropriate mode of conceptual exploitation which has every virtue we can claim for our own habits of judgement in matters visual. While it is true that, under normal conditions, *this* is how white things and only white things look to standard observers, it is equally true that under (different) normal conditions, *this* is how *hot* things and only hot things look to (different) standard observers. To regard the relevant class of visual sensations as uniquely appropriate only for our kinds of visual judgements is to be insupportably parochial.

Reading 12.4 EXERCISE 7

From: Hesse, M. (1980). *Revolutions and Reconstructions in the Philosophy of Science*. Brighton: The Harvester Press (Extract pp. 77–8).

A more realistic and telling example is provided by the abandonment of Newtonian time simultaneity. This is an especially striking case, because time concepts are among the most stable in most languages and particularly in a physics which has persistently regarded spatial and temporal qualities as primary and providing the indispensable framework of a mechanistic science. As late as 1920 N R Campbell . . . wrote:

> Is it possible to find any judgement of sensation concerning which all sentient beings whose opinion can be ascertained are always and absolutely in agreement? . . . I believe that it is possible to obtain absolutely universal agreement for judgements such as, the event A happened at the same time as B, or A happened between B and C.

Special relativity had already in 1905 shown this assumption to be false . . . Now let's cast Einstein in the role of the 'operationalist' physicist who . . . has detected the theory-ladenness and wishes to withdraw from it to a level of direct observation', where there are no theoretical implications, or at least where these are at a minimum. What can he do? He can try to set up an operational definition of time simultaneity. When observers are at a distance from each other (they are always at some distance), and when they are perhaps also moving relatively to each other, he cannot assume that they will agree on judgements of simultaneity. He will assume only that a given observer can judge events that are simultaneous in his own field of vision, provided they occur close together in that field. The rest of Einstein's operational definition in terms of light signals between observers at different points is well known. But notice that this definition does not carry the programme just proposed for an operationalist physicist. For far from withdrawal to a level of direct observation where theoretical implications are absent or at a minimum, the definition requires us to assume . . . that the velocity of light in vacuo is the same in all directions and invariant to the motions of source and receiver . . . But from the point of view of the operationalist physicist before 1905, the suggestion of withdrawing from the assumption of distant absolute time simultaneity to this assumption about the velocity of light could not have appeared to be a withdrawal to more direct observation having fewer theoretical implications but rather the reverse.

Reading 12.5 EXERCISE 8

From: Chalmers, A.F. (1999) *What is This Thing Called Science?* Buckingham: Open University Press (Extract p.25).

In a well known experiment, subjects were shown playing cards for a small duration of time and asked to identify them. When a normal pack of cards was employed, subjects were able to accomplish this task very successfully. But when anomalous cards were introduced, such as a red Ace of Spades, then, At first, nearly all subjects initially identified such cards incorrectly as some normal card. They saw a red Ace of Spades as a normal Ace of Diamonds or normal Ace of Spades. The subjective impressions experienced by the observers were influenced by their expectations. When, after a period of confusion, subjects began to realise, or were told, that there were anomalous cards in the pack; they then had no trouble correctly identifying all the cards shown to them, anomalous or otherwise. The change in their knowledge and expectations was accompanied by a change in what they saw, although they were still viewing the same physical objects.