PHILOSOPHY AND THE SCIENTIFIC IMAGE OF MAN

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(Consists of two lectures given at the University of Pittsburgh in December 1960. First published in *Frontiers of Science and Philosophy* (Robert Colodny, ed. Pittsburgh: University of Pittsburgh Press, 1962. Reprinted in Wilfrid Sellars, *Empiricism and the Philosophy of Mind*, London: Routledge & Kegan Paul Ltd, 1963, pp. 1-40. Pagination here follows the latter.)

I. THE PHILOSOPHICAL QUEST

THE aim of philosophy, abstractly formulated, is to understand how things in the broadest possible sense of the term hang together in the broadest possible sense of the term. Under 'things in the broadest possible sense' I include such radically different items as not only 'cabbages and kings', but numbers and duties, possibilities and finger snaps, aesthetic experience and death. To achieve success in philosophy would be, to use a contemporary turn of phrase, to 'know one's way around' with respect to all these things, not in that unreflective way in which the centipede of the story knew its way around before it faced the question, 'how do I walk?', but in that reflective way which means that no intellectual holds are barred.

Knowing one's way around is, to use a current distinction, a form of 'knowing *how'* as contrasted with 'knowing *that'.* There is all the difference in the world between knowing *how* to ride a bicycle and knowing *that* a steady pressure by the legs of a balanced person on the pedals would result in forward motion. Again, to use an example somewhat closer to our subject, there is all the difference in the world between knowing *that* each step of a given proof in mathematics follows from the preceding steps, and knowing *how* to find a proof. Sometimes being able to find a proof is a matter of being able to follow a set procedure; more often it is not. It can be argued that anything which can be properly called 'knowing how to do something' presupposes a body of knowledge *that;* or, to put it differently, knowledge of truth or facts. If this were so, then the statement that 'ducks know *how* to swim' would be as metaphorical as the statement that they know *that* water supports them. However this may be, knowing how to do something at the level of characteristically human activity

presupposes a great deal of knowledge *that,* and it is obvious that the reflective knowing one's way around in the scheme of things, which is the aim of philosophy, presupposes a great deal of reflective knowledge of truths.

Now the subject-matter of this knowledge of truths which is presupposed by philosophical 'know-how', falls, in a sense, completely within the scope of the special disciplines. Philosophy in an important sense has no special subject-matter which stands to it as other subject-matters stand to other special disciplines. If philosophers did have such a special subject-matter, they could turn it over to a new group of specialists as they have turned other special subject-matters to non-philosophers over the past 2500 years, first with mathematics, more recently psychology and sociology, and, currently, certain aspects of theoretical linguistics. What is characteristic of philosophy is not a special subject-matter, but the aim of knowing one's way around with respect to the subject-matters of all the special disciplines.

Now the special disciplines know their way around in their subject-matters, and each learns to do so in the process of discovering truths about its own subject-matter. But each special discipline must also have a sense of how its bailiwick fits into the countryside as a whole. This sense in many cases amounts to a little more than the unreflective 'knowing one's way around' which is a common possession of us all. Again, the specialist must have a sense of how not only his subject-matter, but also the methods and principles of his thinking about it fit into the intellectual landscape. Thus, the historian reflects not only on historical events themselves, but on what it is to think historically. It is part of his business to reflect on his own thinking—its aims, its criteria, its pitfalls. In dealing with historical questions, he must face and answer questions which are not, themselves, in a primary sense historical questions. But he deals with these questions as they arise in the attempt to answer specifically historical questions.

Reflection on any special discipline can soon lead one to the conclusion that the *ideal* practitioner of that discipline would see his special subject-matter and his thinking about it in the light of a reflective insight into the intellectual landscape as a whole. There is much truth in the Platonic conception that the special disciplines are perfected by philosophy, but the companion conception that the philosopher must know his way around in each discipline as does the specialist, has been an ever more elusive ideal since the scientific revolution began. Yet if the philosopher cannot hope to know his way around in each discipline as does the specialist, there is a sense in which he can know his way around with respect to the subject-matter of that discipline, and must do so if he is to approximate to the philosophic aim.

The multiplication of sciences and disciplines is a familiar feature of the intellectual scene. Scarcely less familiar is the unification of this manifold which is taking place by the building of scientific bridges between them. I shall have something to say about this unification later in this chapter. What is not so obvious to the layman is that the task of 'seeing all things together' has itself been (paradoxically) broken down into specialities. And there *is* a place for specialization in philosophy. For just as one cannot come to know one's way around in the highway system as a whole without knowing one's way around in the parts, so one can't hope to know one's way around in 'things in general', without knowing one's way around in the major groupings of things.

It is therefore, the 'eye on the whole' which distinguishes the philosophical enterprise. Otherwise, there is little to distinguish the philosopher from the persistently reflective specialist; the philosopher of history from the persistently reflective historian. To the extent that a specialist is more concerned to reflect on how his work as a specialist joins up with other intellectual pursuits, than in asking and answering questions within his speciality, he is said, properly, to be philosophically-minded. And, indeed, one can 'have one's eye on the whole' without staring at it all the time. The latter would be a fruitless enterprise. Furthermore, like other specialists, the philosopher who specializes may derive much of his sense of the whole from the pre-reflective orientation which is our common heritage. On the other hand, a philosopher could scarcely be said to have his eye on the whole in the relevant sense, unless he has reflected on the nature of philosophical thinking. It is this reflection on the place of philosophy itself, in the scheme of things which is the distinctive trait of the philosopher as contrasted with the reflective specialist; and in the absence of this critical reflection on the philosophical enterprise, one is at best but a potential philosopher.

It has often been said in recent years that the aim of the philosopher is not to discover new truths, but to 'analyse' what we already know. But while the term 'analysis' was helpful in its implication that philosophy as such makes no *substantive* contribution to what we know, and is concerned in some way to improve the *manner* in which we know it, it is most misleading by its contrast to 'synthesis'. For by virtue of this contrast these statements suggest that philosophy is ever more myopic, tracing parts within parts, losing each in turn from sight as new parts come into view. One is tempted, therefore, to contrast the analytic conception of philosophy as myopia with the synoptic vision of true philosophy. And it must be admitted that if the contrast between 'analysis' and 'synthesis' were the operative connotation in the metaphor, then a purely analytic philosophy would

be a contradiction in terms. Even if we construe 'analysis' on the analogy of making ever smaller scale maps of the same overall terrain, which does more justice to the synoptic element, the analogy disturbs because we would have to compare philosophy to the making of small-scale maps from an original large-scale map; and a smaller scale map in this sense is a triviality.

Even if the analogy is changed to that of bringing a picture into focus, which preserves the synoptic element and the theme of working within the framework of what is already known while adding a dimension of gain, the analogy is disturbing in two respects, *(a)* It suggests that the special disciplines are confused; as though the scientist had to wait for the philosopher to clarify his subject-matter, bring it into focus. To account for the creative role of philosophy, it is not necessary to say that the scientist doesn't know his way around in his own area. What we must rather say is that the specialist knows his way around in his own neighbourhood, as his neighbourhood, but doesn't know his way around in it in the same way *as a part of the landscape as a whole.*

(b) It implies that the essential change brought about by philosophy is the standing out of detail within a picture which is grasped as a whole from the start. But, of course, to the extent that there is *one* picture to be grasped reflectively as a whole, the unity of the reflective vision is a task rather than an initial datum. The search for this unity at the reflective level is therefore more appropriately compared to the contemplation of a large and complex painting which is not seen as a unity without a prior exploration of its parts. The analogy, however, is not complete until we take into account a *second* way in which unity is lacking in the original datum of the contemporary philosopher. For he is confronted not by one picture, but, *in principle,* by *two* and, in fact, by *many.* The plurality I have in mind is not that which concerns the distinction between the fact finding, the ethical, the aesthetic, the logical, the religious, and other aspects of experience, for these are but aspects of one complex picture which is to be grasped reflectively as a whole. As such, it constitutes one term of a crucial duality which confronts the contemporary philosopher at the very beginning of his enterprise. Here the most appropriate analogy is stereoscopic vision, where two differing perspectives on a landscape are fused into one coherent experience.

For the philosopher is confronted not by one complex many-dimensional picture, the unity of which, such as it is, he must come to appreciate; but by *two* pictures of essentially the same order of complexity, each of which purports to be a complete picture of man-in-the-world, and which, after separate scrutiny, he must fuse into one vision. Let me refer to these two perspectives, respectively, as the

manifest and the *scientific* images of man-in-the-world. And let me explain my terms. First, by calling them images I do not mean to deny to either or both of them the status of 'reality'. I am, to use Husserl's term, 'bracketing' them, transforming them from ways of experiencing the world into objects of philosophical reflection and evaluation. The term 'image' is usefully ambiguous. On the one hand it suggests the contrast between an object, e.g. a tree, and a projection of the object on a plane, or its shadow on a wall. In this sense, an image is as much an existent as the object imaged, though, of course, it has a dependent status.

In the other sense, an 'image' is something imagined, and that which is imagined may well not exist, although the imagining of it does—in which case we can speak of the image as *merely* imaginary or unreal. But the imagined *can* exist; as when one imagines that someone is dancing in the next room, and someone is. This ambiguity enables me to imply that the philosopher is confronted by two projections of man-in-the-world on the human understanding. One of these projections I will call the manifest image, the other the scientific image. These images exist and are as much a part and parcel of the world as this platform or the Constitution of the United States. But in addition to being confronted by these images as existents, he is confronted by them as images in the sense of 'things imagined'—or, as I had better say at once, *conceived;* for I am using 'image' in this sense as a metaphor for conception, and it is a familiar fact that not everything that can be conceived can, in the ordinary sense, be imagined. The philosopher, then, is confronted by two conceptions, equally public, equally non-arbitrary, of man-in-the-world and he cannot shirk the attempt to see how they fall together in one stereoscopic view.

Before I begin to explain the contrast between 'manifest' and 'scientific' as I shall use these terms, let me make it clear that they are both 'idealizations' in something like the sense in which a frictionless body or an ideal gas is an idealization. They are designed to illuminate the inner dynamics of the development of philosophical ideas, as scientific idealizations illuminate the development of physical systems. From a somewhat different point of view they can be compared to the 'ideal types' of Max Weber's sociology. The story is complicated by the fact that each image has a history, and while the main outlines of what I shall call the manifest image took shape in the mists of pre-history, the scientific image, promissory notes apart, has taken shape before our very eyes.

II. THE MANIFEST IMAGE

The 'manifest' image of man-in-the-world can be characterized in two ways, which are supplementary rather than alternative. It is, first, the framework in terms of which man came to be aware of himself as man-in-the-world. It is the framework in terms of which, to use an existentialist turn of phrase, man first encountered himself—which is, of course, when he came to be man. For it is no merely incidental feature of man that he has a conception of himself as man-in-the-world, just as it is obvious, on reflection, that 'if man had a radically different conception of himself he would be a radically different kind of man'.

I have given this quasi-historical dimension of our construct pride of place, because I want to highlight from the very beginning what might be called the paradox of man's encounter with himself, the paradox consisting of the fact that man couldn't be man until he encountered himself. It is this paradox which supports the last stand of Special Creation. Its central theme is the idea that anything which can properly be called conceptual thinking can occur only within a framework of conceptual thinking in terms of which it can be criticized, supported, refuted, in short, evaluated. To be able to think is to be able to measure one's thoughts by standards of correctness, of relevance, of evidence. In this sense a diversified conceptual framework is a whole which, however sketchy, is prior to its parts, and cannot be construed as a coming together of parts which are already conceptual in character. The conclusion is difficult to avoid that the transition from pre-conceptual patterns of behaviour to conceptual thinking was a holistic one, a jump to a level of awareness which is irreducibly new, a jump which was the coming into being of man.

There is a profound truth in this conception of a radical difference in level between man and his precursors. The attempt to understand this difference turns out to be part and parcel of the attempt to encompass in one view the two images of man-in-the-world which I have set out to describe. For, as we shall see, this difference in level appears as an irreducible discontinuity in the *manifest* image, but as, in a sense requiring careful analysis, a reducible difference in the *scientific* image.

I have characterized the manifest image of man-in-the-world as the framework in terms of which man encountered himself. And this, I believe, is a useful way of characterizing it. But it is also misleading, for it suggests that the contrast I am drawing between the manifest and the scientific images, is that between a pre-scientific, uncritical, naive conception of man-in-the-world, and a reflected, disciplined, critical—in short a scientific—conception. This is not at all what I

have in mind. For what I mean by the manifest image is a refinement or sophistication of what might be called the 'original' image; a refinement to a degree which makes it relevant to the contemporary intellectual scene. This refinement or sophistication can be construed ander two headings; *(a)* empirical; *(b)* categorial.

By empirical refinement, I mean the sort of refinement which operates within the broad framework of the image and which, by approaching the world in terms of something like the canons of inductive inference defined by John Stuart Mill, supplemented by canons of statistical inference, adds to and subtracts from the contents of the world as experienced in terms of this framework and from the correlations which are believed to obtain between them. Thus, the conceptual framework which I am calling the manifest image is, in an appropriate sense, itself a scientific image. It is not only disciplined and critical; it also makes use of those aspects of scientific method which might be lumped together under the heading 'correlational induction'. There is, however, one type of scientific reasoning which it, by stipulation, does *not* include, namely that which involves the postulation of imperceptible entities, and principles pertaining to them, to explain the behaviour of perceptible things.

This makes it clear that the concept of the manifest image of man-in-the-world is not that of an historical and bygone stage in the development of man's conception of the world and his place in it. For it is a familiar fact that correlational and postulational methods have gone hand in hand in the evolution of science, and, indeed, have been dialectically related; postulational hypotheses presupposing correlations to be explained, and suggesting possible correlations to be investigated. The notion of a purely correlational scientific view of things is both an historical and a methodological fiction. It involves abstracting correlational fruits from the conditions of their discovery, and the theories in terms of which they are explained. Yet it is a useful fiction (and hence no *mere* fiction), for it will enable us to define a way of looking at the world which, though disciplined and, in a limited sense, scientific, contrasts sharply with an image of man-in-the-world which is implicit in and can be constructed from the postulational aspects of contemporary scientific theory. And, indeed, what I have referred to as the 'scientific' image of man-in-the-world and contrasted with the 'manifest' image, might better be called the 'postulational' or 'theoretical' image. But, I believe, it will not be too misleading if I continue, for the most part, to use the former term.

Now the manifest image is important for our purpose, because it defines one of the poles to which philosophical reflection has been drawn. It is not only the great speculative systems of ancient and medieval philosophy which are built around the manifest image, but

also many systems and quasi-systems in recent and contemporary thought, some of which seem at first sight to have little if anything in common with the great classical systems. That I include the major schools of contemporary Continental thought might be expected. That I lump in with these the trends of contemporary British and American philosophy which emphasize the analysis of 'common sense' and 'ordinary usage', may be somewhat more surprising. Yet this kinship is becoming increasingly apparent in recent years and I believe that the distinctions that I am drawing in this chapter will make possible an understanding and interpretation of this kinship. For all these philosophies can, I believe, be fruitfully construed as more or less adequate accounts of the manifest image of man-in-the-world, which accounts are then taken to be an adequate and full description in general terms of what man and the world really are.

Let me elaborate on this theme by introducing another construct which I shall call—borrowing a term with a not unrelated meaning— the perennial philosophy of man-in-the-world. This construct, which is the 'ideal type' around which philosophies in what might be called, in a suitably broad sense, the Platonic tradition cluster, is simply the manifest image endorsed as real, and its outline taken to be the large-scale map of reality to which science brings a needle-point of detail and an elaborate technique of map-reading.

It will probably have occurred to you by now that there are negative overtones to both constructs: the 'manifest image' and the 'perennial philosophy'. And, in a certain sense, this is indeed the case. I *am* implying that the perennial philosophy is analogous to what one gets when one looks through a stereoscope with one eye dominating. The manifest image dominates and mislocates the scientific image. But if the perennial philosophy of man-in-the-world is in this sense distorted, an important consequence lurks in the offing. For I have also implied that man is *essentially* that being which conceives of itself *in terms of the image which the perennial philosophy refines and endorses.* I seem, therefore, to be saying that man's conception of himself in the world does not easily accommodate the scientific image; that there is a genuine tension between them; that man is not the sort of thing he conceives himself to be; that his existence is in some measure built around error. If this were what I wished to say, I would be in distinguished company. One thinks, for example, of Spinoza, who contrasted man as he falsely conceives himself to be with man as he discovers himself to be in the scientific enterprise. It might well be said that Spinoza drew a distinction between a 'manifest' and a 'scientific' image of man, rejecting the former as false and accepting the latter as true.

But if in Spinoza's account, the scientific image, as he interprets it,

dominates the stereoscopic view (the manifest image appearing as a tracery of explainable error), the very fact that I use the analogy of stereoscopic vision implies that as I see it the manifest image is not overwhelmed in the synthesis.

But before there can be any point to these comparisons, I must characterize these images in more detail, adding flesh and blood to the bare bones I have laid before you. I shall devote the remainder of this section and section III to developing the manifest image. In the concluding sections I shall characterize the scientific image, and attempt to describe certain key features of how the two images blend together in a true stereoscopic view.

I distinguished above between two dimensions of the refinement which turned the 'original' image into the 'manifest' image: the empirical and the categorial. Nothing has been said so far about the latter. Yet it is here that the most important things are to be said. It is in this connection that I will be able to describe the general structure of the manifest image.

A fundamental question with respect to any conceptual framework is 'of what sort are the basic objects of the framework?' This question involves, on the one hand, the contrast between an object and what can be true of it in the way of properties, relations, and activities; and, on the other, a contrast between the basic objects of the framework and the various kinds of groups they can compose. The basic objects of a framework need not be things in the restricted sense of perceptible physical objects. Thus, the basic objects of current theoretical physics are notoriously imperceptible and unimaginable. Their basic-ness consists in the fact that they are not properties or groupings of anything more basic (at least until further notice). The questions, 'are the basic objects of the framework of physical theory *thing-like!* and if so, to what extent?' are meaningful ones.

Now to ask, 'what are the basic objects of a (given) framework?' is to ask not for a *list,* but a *classification.* And the classification will be more or less 'abstract' depending on what the purpose of the inquiry is. The philosopher is interested in a classification which is abstract enough to provide a synoptic view of the contents of the framework but which falls short of simply referring to them as objects or entities. Thus we are approaching an answer to the question, 'what are the basic objects of the manifest image?' when we say that it includes persons, animals, lower forms of life and 'merely material' things, like rivers and stones. The list is not intended to be complete, although it is intended to echo the lower stages of the 'great chain of being' of the Platonic tradition.

The first point I wish to make is that there is an important sense in which the primary objects of the manifest image are *persons.* And to

understand how this is so, is to understand central and, indeed, crucial themes in the history of philosophy. Perhaps the best way to make the point is to refer back to the construct which we called the 'original' image of man-in-the-world, and characterize it as a framework in which *all* the 'objects' are persons. From this point of view, the refinement of the 'original' image into the manifest image, is the gradual 'de-personalization' of objects other than persons. That something like this has occurred with the advance of civilization is a familiar fact. Even persons, it is said (mistakenly, I believe), are being 'depersonalized' by the advance of the scientific point of view.

The point I now wish to make is that although this gradual de-personalization of the original image is a familiar idea, it is radically misunderstood, if it is assimilated to the gradual abandonment of a superstitious belief. A primitive man did not *believe* that the tree in front of him was a person, in the sense that he thought of it both as a tree *and* as a person, as I might think that this brick in front of me is a doorstop. If this were so, then when he abandoned the idea that trees were persons, his concept of a tree could remain unchanged, although his beliefs about trees would be changed. The truth is, rather, that *originally* to be a tree was *a way of being a person,* as, to use a close analogy, to be a woman is a way of being a person, or to be a triangle is a way of being a plane figure. That a woman is a person is not something that one can be said to *believe;* though there's enough historical bounce to this example to make it worth-while to use the different example that one cannot be said to believe that a triangle is a plane figure. When primitive man ceased to think of what we called trees as persons, the change was more radical than a change in belief; it was a change in category.

Now, the human mind is not limited in its categories to what it has been able to refine out of the world view of primitive man, any more than the limits of what we can conceive are set by what we can imagine. The categories of theoretical physics are not essences distilled from the framework of perceptual experience, yet, if the human mind can conceive of *new* categories, it can also refine the old; .and it is just as important not to over-estimate the role of creativity in the development of the framework in terms of which you and I experience the world, as it is not to under-estimate its role in the scientific enterprise.

I indicated above that in the construct which I have called the 'original' image of man-in-the-world, all 'objects' are persons, and all kinds of objects ways of being persons. This means that the sort of things that are said of objects in this framework are the sort of things that are said of persons. And let me make it clear that by 'persons', I do not mean 'spirit' or 'mind'. The idea that a man is a team of two

things, a mind *and* a body, is one for which many reasons of different kinds and weights have been given in the course of human intellectual development. But it is obvious, on reflection, that whatever philosophers have made of the idea of a *mind,* the pre-philosophical conception of a 'spirit', where it is found, is that of a ghostly *person,* something analogous to flesh and blood persons which 'inhabits' them, or is otherwise intimately connected with them. It is, therefore, a development *within the framework of persons,* and it would be incorrect to construe the manifest image in such a way that persons are composite objects. On the other hand, if it is to do its work, the manifest framework must be such as to make meaningful the assertion that what we ordinarily call persons are composites of a person proper and a body—and, by doing so, make meaningful the contrary view that although men have many different types of ability, ranging from those he has in common with the lowest of things, to his ability to engage in scientific and philosophical reflection, he nevertheless is one object and not a team. For we shall see that the essential dualism in the manifest image is not that between mind and body as substances, but between two radically different ways in which the human individual is related to the world. Yet it must be admitted that most of the philosophical theories which are dominated by the manifest image are dualistic in the substantive sense. There are many factors which account for this, most of which fall outside the scope of this essay. Of the factors which concern us, one is a matter of the influence of the developing scientific image of man, and will be discussed in the following section. The other arises in the attempt to make sense of the manifest image in its own terms.

Now to understand the manifest image as a refinement or de-personalization of the 'original' image, we must remind ourselves of tlie range of activities which are characteristic of persons. For when I say that the objects of the manifest image are primarily persons, I am implying that what the objects of this framework, primarily *are* and *do,* is what persons are and do. Thus persons are 'impetuous' or 'set in their ways'. They apply old policies or adopt new ones. They do things from habit or ponder alternatives. They are immature or have an established character. For my present purposes, the most important contrasts are those between actions which are expressions of character and actions which are *not* expressions of character, on the one hand, and between habitual actions and deliberate actions, on the other. The first point that I want to make is that only a being capable of deliberation can properly be said to act, either impulsively or from habit. For in the full and non-metaphorical sense an action is the sort of thing that can be done deliberately. We speak of actions as *becoming* habitual, and this is no accident. It is important to realize

that the use of the term 'habit' in speaking of an earthworm as acquiring the habit of turning to the right in a T-maze, is a metaphorical extension of the term. There is nothing dangerous in the metaphor until the mistake is made of assuming that the habits of persons are the same sort of thing as the (metaphorical) 'habits' of earthworms and white rats.

Again, when we say that something a person did was an expression of his character, we mean that it is 'in character'—that it was to be expected. We do not mean that it was a matter of *habit.* To be *habitual* is to be 'in character', but the converse is not true. To say of an action that it is 'in character', that it was to be expected, is to say that it was predictable—*not,* however, predictable 'no holds barred', but predictable with respect to evidence pertaining to what the person in question has done in the past, and the circumstances as he saw them in which he did it. Thus, a person cannot, *logically* cannot, *begin* by acting 'in character', any more than he can *begin* by acting from habit.

It is particularly important to see that while to be 'in character' is to be predictable, the converse is not true. It does not follow from the fact that a piece of human behaviour is predictable, that it is an expression of character. Thus the behaviour of a burnt child with respect to the fire is predictable, but not an expression of character. If we use the phrase, 'the nature of a person', to sum up the predictabilities *no holds barred* pertaining to that person, then we must be careful not to equate the *nature* of a person with his *character,* although his character will be a 'part' of his nature in the broad sense. Thus, if everything a person did were predictable (in principle), given sufficient knowledge about the person and the circumstances in which he was placed, and was, therefore, an 'expression of his nature', it would not follow that everything the person did was an expression of his *character.* Obviously, to say of a person that everything that he does is an expression of his character is to say that his life is simply a carrying out of formed habits and policies. Such a person is a type only approximated to in real life. Not even a mature person always acts in character. And as we have seen, it cannot possibly be true that he has always acted in character. Yet, if determinism is true, everything he has done has been an expression of his 'nature'.

I am now in a position to explain what I mean when I say that the primary objects of the manifest image are persons. I mean that it is the modification of an image in which *all* the objects are capable of *the full range* of personal activity, the modification consisting of a gradual pruning of the implications of saying with respect to what *we* would call an inanimate object, that it *did* something. Thus, in the original image to say of the wind that it blew down one's house

would imply that the wind *either* decided to do so with an end in view, and might, perhaps, have been persuaded not to do it, *or* that it acted thoughtlessly (either from habit or impulse), or, perhaps, inadvertently, in which case other appropriate action on one's part might have awakened it to the enormity of what it was about to do.

In the early stages of the development of the manifest image, the wind was no longer conceived as acting deliberately, with an end in view; but rather from habit or impulse. Nature became the locus of 'truncated persons'; that which things could be expected to do, its habits; that which exhibits no order, its impulses. Inanimate things no longer 'did' things in the sense in which persons do them—not, however, because a *new* category of impersonal things and impersonal processes has been achieved, but because the category *of person* is now applied to these things in a pruned or truncated form. It is a striking exaggeration to say of a person, that he is a 'mere creature of habit and impulse', but in the early stages of the development of manifest image, the world includes truncated persons which *are* mere creatures of habit, acting out routines, broken by impulses, in a life which never rises above what ours is like in our most unreflective moments. Finally, the sense in which the wind 'did' things was pruned, save for poetic and expressive purposes—and, one is tempted to add, for philosophical purposes—of implications pertaining to 'knowing what one is doing' and 'knowing what the circumstances are'.

Just as it is important not to confuse between the 'character' and the 'nature' of a person, that is to say, between an action's being predictable with respect to evidence pertaining to prior action, and its being predictable no holds barred, so it is important not to confuse between an action's being *predictable* and its being *caused.* These terms are often treated as synonyms, but only confusion can arise from doing so. Thus, in the 'original' image, one person causes another person to do something he otherwise would not have done. But most of the things people do are not things they are *caused* to do, even if what they do is highly predictable. For example: when a person has well-established habits, what he does in certain circumstances is highly predictable, but it is not for that reason *caused.* Thus the category of causation (as contrasted with the more inclusive category of predictability) betrays its origin in the 'original' image. When all things were persons it was certainly not a framework conception that everything a person did was caused; nor, of course, was it a framework principle that everything a person did was predictable. To the extent that relationships between the truncated 'persons' of the manifest framework were analogous to the causal relationships between persons, the category itself continued to be

used, although pruned of its implications with respect to plans, purposes, and policies. The most obvious analogue at the inanimate level of causation in the original sense is one billiard ball causing another to change its course, but it is important to note that no one who distinguishes between causation and predictability would ask, 'what *caused* the billiard ball on a smooth table to continue in a straight line?' The distinctive trait of the scientific revolution was the conviction that all events are predictable from relevant information about the context in which they occur, not that they are all, in any ordinary sense, caused.

III. CLASSICAL PHILOSOPHY AND THE MANIFEST IMAGE

I have characterized the concept of the manifest image as one of the poles towards which philosophical thinking is drawn. This commits me, of course, to the idea that the manifest image is not a mere external standard, by relation to which one interested in the development of philosophy classifies philosophical positions, but has in its own way an objective existence in philosophical thinking itself, and, indeed, in human thought generally. And it can influence philosophical thinking only by having an existence which transcends in some way the individual thought of individual thinkers. I shall be picking up this theme shortly, and shall ask how an image of the world, which, after all, is a way of thinking, *can* transcend the individual thinker which it influences. (The general lines of the answer must be obvious, but it has implications which have not always been drawn.) The point I wish to make now is that since this image has a being which transcends the individual thinker, *there is truth and error with respect to it, even though the image itself might have to be rejected, in the last analysis, as false.*

Thus, whether or not the world as we encounter it in perception and self-awareness is ultimately real, it is surely incorrect, for example, to say as some philosophers have said that the physical objects of the encountered world are 'complexes of sensations' or, equally, to say that apples are not *really* coloured, or that mental states are 'behavioural dispositions', or that one cannot intend to do something without knowing that one intends to do it, or that to say that something is good is to say that one likes it, etc. For there is a correct and an incorrect way to describe this objective image which we have of the world in which we live, and it is possible to evaluate the correctness or incorrectness of such a description. I have already claimed that much of academic philosophy can be interpreted as an attempt by individual thinkers to delineate the manifest image (not recognized, needless to say, as such) an image which is both immanent in and

transcendent of their thinking. In this respect, a philosophy can be evaluated as perceptive or imperceptive, mistaken or correct, even though one is prepared to say that the image they delineate is but one way in which reality appears to the human mind. And it is, indeed, a task of the first importance to delineate this image, particularly in so far as it concerns man himself, for, as was pointed out before, man is what he is because he thinks of himself in terms of this image, and the latter must be understood before it is proper to ask, 'to what extent does manifest man survive in the synoptic view which does equal justice to the scientific image which now confronts us?'

I think it correct to say that the so-called 'analytic' tradition in recent British and American philosophy, particularly under the influence of the later Wittgenstein, has done increasing justice to the manifest image, and has increasingly succeeded in isolating it in something like its pure form, and has made clear the folly of attempting to replace it *piecemeal* by fragments of the scientific image. By doing so, it is made apparent, and has come to realize, its continuity with the perennial tradition.

Now one of the most interesting features of the perennial philosophy is its attempt to understand the status in the individual thinker of the framework of ideas in terms of which he grasps himself as a person in the world. How do individuals come to be able to think in terms of this complex conceptual framework? How do they come to have this image? Two things are to be noticed here: (1) The manifest image does not present conceptual thinking as a complex of items which, considered in themselves and apart from these relations, are not conceptual in character. (The most plausible candidates are images, but all attempts to construe thoughts as complex patterns of images have failed, and, as we know, were bound to fail.) (2) Whatever the ultimate constituents of conceptual thinking, the process itself as it occurs in the individual mind must echo, more or less adequately, the intelligible structure of the world.

There was, of course, a strong temptation not only to think of the constituents of thinking as qualitatively similar to the constituents of the world, but also to think of the world as causing constituents to occur in patterns which echo the patterns of events. The attempt, by precursors of scientific psychology, to understand the genesis of conceptual thinking in the individual in terms of an 'association' of elemental processes which were not themselves conceptual, by a direct action of the physical environment on the individual—the paradigm case being the burnt child fearing the fire—was a premature attempt to construct a scientific image of man.

The perennial tradition had no sympathy with such attempts. It

recognized *(a)* that association of *thoughts* is not association of images, and, as presupposing a framework of conceptual thinking, cannot account for it; *(b)* that the direct action of perceptible nature, *as perceptible,* on the *individual* can account for associative connection, *but not the rational connections of conceptual thinking.*

Yet somehow the world *is* the cause of the individual's image of the world, and, as is well-known, for centuries the dominant conception of the perennial tradition was that of a direct causal influence of the world as intelligible on the individual mind. This theme, initiated by Plato, can be traced through Western thought to the present day. In the Platonic tradition this mode of causation is attributed to a being which is analogous, to a greater or lesser degree, to a person. Even the Aristotelian distinguishes between the way in which sensations make available the intelligible structure of things to man, and the way in which contingencies of perceptual experience establish expectations and permit a non-rational accommodation of animals to their environment. And there is, as we know today, a sound score to the idea that while reality is the 'cause' of the human conceptual thinking which represents it, this causal role cannot be equated with a conditioning of the individual by his environment in a way which could in principle occur without the mediation of the family and the community. The Robinson Crusoe conception of the world as generating conceptual thinking directly in the individual is too simple a model. The perennial tradition long limited itself to accounting for the presence in the individual of the framework of conceptual thinking in terms of a unique kind of action of reality as intelligible on the individual mind. The accounts differed in interesting respects, but the main burden remained the same. It was not until the time of Hegel that the essential role of the group as a mediating factor in this causation was recognized, and while it is easy for us to see that the immanence and transcendence of conceptual frameworks with respect to the individual thinker is a social phenomenon, and to find a recognition of this fact implicit in the very form of our image of man in the world, it was not until the nineteenth century that this feature of the manifest image was, however inadequately, taken into account.

The Platonic theory of conceptual abilities as the result of the 'illumination' of the mind by intelligible essences limited the role of the group and, in particular, the family to that of calling these abilities into play—a role which could, in principle, be performed by perceptual experience—and to that of teaching the means of giving verbal expression to these abilities. Yet the essentially social character of conceptual thinking comes clearly to mind when we recognize that there is no thinking apart from common standards of

correctness and relevance, which relate what *I do* think to what *anyone ought to* think. The contrast between '*I*' and 'anyone' is essential to rational thought.

It is current practice to compare the inter-subjective standards without which there would be no thinking, to the inter-subjective standards without which there would be no such a thing as a game; and the acquisition of a conceptual framework to learning to play a game. It is worth noting, however, that conceptual thinking is a unique game in two respects: *(a)* one cannot learn to play it by being told the rules; *(b)* whatever else conceptual thinking makes possible— and without it there is nothing characteristically human—it does so by virtue of containing a way of representing the world.

When I said that the individual as a conceptual thinker is essentially a member of a group, this does not mean of course, that the individual cannot exist apart from the group, for example as sole survivor of an atomic catastrophe, any more than the fact that chess is a game played by two people means that one can't play chess with oneself. A group isn't a group in the relevant sense unless it consists of a number of individuals each of which thinks of himself as '/' in contrast to 'others'. Thus a group exists in the way in which members of the group represent themselves. Conceptual thinking is not by accident that which is *communicated* to others, any more than the decision to move a chess piece is by accident that which finds an expression in a move on a board between two people.

The manifest image must, therefore, be construed as containing a conception of itself as a group phenomenon, the group mediating between the individual and the intelligible order. But any attempt to *explain* this mediation within the framework of the manifest image was bound to fail, for the manifest image contains the resources for such an attempt only in the sense that it provides the foundation on which scientific theory can build an explanatory framework; and while conceptual structures of this framework are *built on* the manifest image, they are not definable within it. Thus, the Hegelian, like the Platonist of whom he is the heir, was limited to the attempt to understand the relation between intelligible order and individual minds in analogical terms.

It is in the *scientific* image of man in the world that we begin to see the main outlines of the way in which man came to have an image of himself-in-the-world. For we begin to see this as a matter of evolutionary development as a group phenomenon, a process which is illustrated at a simpler level by the evolutionary development which explains the correspondence between the dancing of a worker bee and the location, relative to the sun, of the flower from which he comes. This correspondence, like the relation between man's 'original'

image and the world, is incapable of explanation in terms of a direct conditioning impact of the environment on the individual as such.

I have called attention to the fact that the manifest image involves two types of causal impact of the world on the individual. It is, I have pointed out, this duality of causation and the related irreduci-bility, within the manifest image of conceptual thinking in all its forms to more elementary processes, which is the primary and essential dualism of the perennial philosophy. The dualistic conception of mind and body characteristic of, but by no means an invariable feature of, *philosophic! perennis,* is in part an inference from this dualism of causation and of process. In part, however, as we shall see, it is a result of the impact of certain themes present in even the smallest stages of the developing scientific image.

My primary concern in this essay is with the question, 'in what sense, and to what extent, does the manifest image of man-in-the-world survive the attempt to unite this image in one field of intellectual vision with man as conceived in terms of the postulated objects of scientific theory?' The bite to this question lies, we have seen, in the fact that man is that being which conceives of itself in terms of the manifest image. To the extent that the manifest does not survive in the synoptic view, to that extent man himself would not survive. Whether the adoption of the synoptic view would transform man in bondage into man free, as Spinoza believed, or man free into man in bondage, as many fear, is a question that does not properly arise until the claims of the scientific image have been examined.

IV. THE SCIENTIFIC IMAGE

I devoted my attention in the previous sections to defining what I called the 'manifest' image of man-in-the-world. I argued that this image is to be construed as a sophistication and refinement of the image in terms of which man first came to be aware of himself as man-in-the-world; in short, came to be man. I pointed out that in any sense in which this image, in so far as it pertains to man, is a 'false' image, this falsity threatens man himself, inasmuch as he is, in an important sense, the being which has this image of himself. I argued that what has been called the perennial tradition in philosophy—philosophia perennis—can be construed as the attempt to understand the structure of this image, to know one's way around in it reflectively with no intellectual holds barred. I analysed some of the main features of the image and showed how the categories in terms of which it approaches the world can be construed as progressive prunings of categories pertaining to the person and his relation to other persons and the group. I argued that the perennial tradition must be construed to include

not only the Platonic tradition in its broadest sense, but philosophies of 'common sense' and 'ordinary usage'. I argued what is common to ail these philosophies is an acceptance of the manifest image as the *real.* They attempt to understand the achievements of theoretical science in terms of this framework, subordinating the categories of theoretical science to its categories. I suggested that the most fruitful way of approaching the problem of integrating theoretical science with the framework of sophisticated common sense into one comprehensive synoptic vision is to view it not as a piecemeal task—e.g. first a fitting together of the common sense conception of physical objects with that of theoretical physics, and then, as a separate venture, a fitting together of the common sense conception of man with that of theoretical psychology—but rather as a matter of articulating two whole ways of seeing the sum of things, two images of man-in-the-world and attempting to bring them together in a 'stereoscopic' view.

My present purpose is to add to the account I have given of the manifest image, a comparable sketch of what I have called the scientific image, and to conclude this essay with some comments on the respective contributions of these two to the unified vision of man-in-the-world which is the aim of philosophy.

The scientific image of man-in-the-world is, of course, as much an idealization as the manifest image—even more so, as it is still in the process of coming to be. It will be remembered that the contrast I have in mind is not that between an *unscientific* conception of man-in-the-world and a *scientific* one, but between that conception which limits itself to what correlational techniques can tell us about perceptible and introspectible events and that which postulates imperceptible objects and events for the purpose of explaining correlations among perceptibles. It was granted, of course, that in point of historical fact many of the latter correlations were suggested by theories introduced to explain previously established correlations, so that there has been a dialectical interplay between correlational and postulational procedures. (Thus we might not have noticed that litmus paper turns red in acid, until this hypothesis had been suggested by a complex theory relating the absorption and emission of electromagnetic radiation by objects to their chemical composition; yet in principle this familiar correlation could have been, and, indeed, was, discovered before any such theory was developed.) Our contrast then, is between two ideal constructs: *(a)* the correlational and categorial refinement of the 'original image', which refinement I am calling the manifest image; *(b)* the image derived from the fruits of postulational theory construction which I am calling the scientific image.

It may be objected at this point that there is no such thing as *the*

image of man built from postulated entities and processes, but rather as many images as there are sciences which touch on aspects of human behaviour. And, of course, in a sense this is true. There *are* as many scientific images of man as there are sciences which have something to say about man. Thus, there is man as he appears to the theoretical physicist—a swirl of physical particles, forces, and fields. There is man as he appears to the biochemist, to the physiologist, to the behaviourist, to the social scientist; and all of these images are to be contrasted with man as he appears to himself in sophisticated common sense, the manifest image which even today contains most of what he knows about himself at the properly human level. Thus the conception of *the* scientific or postulational image is an idealization in the sense that it is a conception of an integration of a manifold of images, each of which is the application to man of a framework of concepts which have a certain autonomy. For each scientific theory is, from the standpoint of methodology, a structure which is built at a different 'place' and by different procedures within the intersubjectively accessible world of perceptible things. Thus 'the' scientific image is a construct from a number of images, each of which is *supported by* the manifest world.

The fact that each theoretical image is a construction on a foundation provided by the manifest image, and *in this methodological sense* presupposes the manifest image, makes it tempting to suppose that the manifest image is prior in a *substantive* sense; that the categories of a theoretical science are logically dependent on categories pertaining to its methodological foundation in the manifest world of sophisticated common sense in such a way that there would be an absurdity in the notion of a world which illustrated its theoretical principles *without also illustrating the categories and principles of the manifest world.* Yet, when we turn our attention to 'the' scientific image which emerges from the several images proper to the several sciences, we note that although the image is *methodologically* dependent on the world of sophisticated common sense, and in this sense does not stand on its own feet, yet it purports to be a *complete* image, i.e. to define a framework which could be the *whole truth* about that which belongs to the image. Thus although methodologically a development *within* the manifest image, the scientific image presents itself as a *rival* image. From its point of view the manifest image on which it rests is an 'inadequate' but pragmatically useful likeness of a reality which first finds its adequate (in principle) likeness in the scientific image. I say, 'in principle', because the scientific image is still in the process of coming into being—a point to which I shall return at the conclusion of this chapter.

To all of which, of course, the manifest image or, more accurately,

the perennial philosophy which endorses its claims, replies that the scientific image cannot replace the manifest without rejecting its own foundation.

But before attempting to throw some light on the conflicting claims of these two world perspectives, more must be said about the constitution of *the* scientific image from the several scientific images of which it is the supposed integration. There is relatively little difficulty about telescoping *some* of the 'partial' images into one image. Thus, with due precaution, we can unify the biochemical and the physical images; for to do this requires only an appreciation of the sense in which the objects of biochemical discourse can be equated with complex patterns of the objects of theoretical physics. To make this equation, of course, is not to equate the sciences, for as sciences they have different procedures and connect their theoretical entities via different instruments to intersubjectively accessible features of the manifest world. But diversity of this kind is compatible with intrinsic 'identity' of the theoretical entities themselves, that is, with saying that biochemical compounds are 'identical' with patterns of subatomic particles. For to make this 'identification' is simply to say that the *two* theoretical structures, each with its own connection to the perceptible world, could be replaced by *one* theoretical framework connected *at two levels of complexity* via different instruments and procedures to the world as perceived.

I distinguished above between the unification of the postulated *entities* of two sciences and the unification of the *sciences.* It is also necessary to distinguish between the unification of the theoretical *entities* of two sciences and the unification of the theoretical *principles* of the two sciences. For while to say that biochemical substances are complexes of physical particles is in an important sense to imply that the laws obeyed by biochemical substances are 'special cases' of the laws obeyed by physical particles, there is a real danger that the sense in which this is so may be misunderstood. Obviously a specific pattern of physical particles cannot obey different laws in biochemistry than it does in physics. It may, however, be the case that the behaviour of very complex patterns of physical particles is related in no simple way to the behaviour of less complex patterns. Thus it may well be the case that the only way in which the laws pertaining to those complex systems of particles which are biochemical compounds could be *discovered* might be through the techniques and procedures of biochemistry, i.e. techniques and procedures appropriate to dealing with biochemical substances.

There is, consequently, an ambiguity in the statement: The laws of biochemistry are 'special cases' of the laws of physics. It may mean: *(a)* biochemistry needs no variables which cannot be defined in terms

of the variables of atomic physics; *(b)* the laws relating to certain complex patterns of sub-atomic particles, the counterparts of biochemical compounds, are related in a simple way to laws pertaining to less complex patterns. The former, of course, is the only proposition to which one is committed by the identification of the theoretical objects of the two sciences in the sense described above.

Similar considerations apply, *mutatis mutandis,* to the physiological and biochemical images of man. To weld them into one image would be to show that physiological (particularly neurophysiological) entities can be equated with complex biochemical systems, and, therefore, that in the weaker sense, at least, the theoretical principles which pertain to the former can be interpreted as 'special cases' of principles pertaining to the latter.

More interesting problems arise when we consider the putative place of man as conceived in behaviouristics in 'the' scientific image. In the first place, the term 'behaviouristic psychology' has more than one meaning, and it is important for our purpose to see that in at least one sense of the term, its place is not in the scientific image (in the sense in which I am using the term) but rather in the continuing correlational sophistication of the manifest image. A psychology is behaviouristic in the broad sense, if, although it permits itself the use of the full range of psychological concepts belonging to the manifest framework, it always confirms hypotheses about psychological events in terms of behavioural criteria. It has no anxieties about the concepts of sensation, image, feeling, conscious or unconscious thought, all of which belong to the manifest framework; but requires that the occurrence of a feeling of pain, for example, be asserted only on behavioural grounds. Behaviourism, thus construed, is simply good sense. It is not necessary to redefine the language of mental events in terms of behavioural criteria in order for it to be true that observable behaviour provides evidence for mental events. And, of course, even in the common sense world, even in the manifest image, perceptible behaviour is the only *intersubjective* evidence for mental events.

Clearly 'behaviourism' in this sense does not preclude us from paying attention to what people say about themselves. For *using auto-biographical statements as evidence for* what a person is thinking and feeling is different from simply *agreeing with* these statements. It is part of the force of autobiographical statements in ordinary discourse—not unrelated to the way in which children learn to make them —that, other things being equal, if a person says, 'I am in state [*psi]',* it is reasonable to believe that he is in state *[psi];* the probability ranging from almost certainty in the case of, 'I have a toothache', to considerably less than certainty in the case of, 'I don't hate my brother'. The

discounting of verbal and non-verbal behaviour as evidence is not limited to professional psychologists.

Thus, behaviourism in the first sense is simply a sophistication within the manifest framework which relies on pre-existent evidential connections between publicly observable verbal and non-verbal behaviour on the one hand and mental states and processes on the other, and should, therefore, be considered as belonging to the manifest rather than the scientific image as I have defined in these terms. Behaviourism in a second sense not only restricts its evidential base to publicly observable behaviour, but conceives of its task as that of finding correlations between constructs which it introduces and defines in terms of publicly accessible features of the organism and its environment. The interesting question in this connection is: 'Is there reason to think that a framework of correlation between constructs of this type could constitute a scientific understanding of human behaviour?' The answer to this question depends in part on how it is interpreted, and it is important to see why this is so.

Consider first the case of animal behaviour. Obviously, we know that animals are complex physiological systems and, from the standpoint of a finer-grained approach, biochemical systems. Does this mean that a science of animal behaviour has to be formulated in neurophysiological or biochemical terms? In one sense the answer is 'obviously not'. We bring to our study of animal behaviour a background knowledge of some of the relevant large-scale variables for describing and predicting the behaviour of animals in relation to their environments. The fact that these large-scale variables (the sort of thing that are grouped under such headings as 'stimulus', 'response', 'goal behaviour', 'deprivation', etc.) are such that we can understand the behaviour of the animal in terms of them is something which is not only suggested by our background knowledge, but is, indeed, *explained* by evolutionary theory. But the correlations themselves can be discovered by statistical procedures; and, of course, it is important toestablish these correlations. Their discovery and confirmation by the procedures of behaviouristics must, of course, be distinguished from their *explanation* in terms of the postulated entities and processes of neurophysiology. And, indeed, while physiological considerations may *suggest* correlations be tested, the correlations themselves must be establishable independently of physiological consideration, if, and this is a 'definitional' point, they are to belong to a distinguishable science of behaviour.

Thus if we mean by 'earthworm behaviouristics' the establishing of correlations in large-scale terms pertaining to the earthworm and its environment, there may not be much to it, for a correlation does not belong to 'earthworm behaviouristics' unless it is a correlation in

these large-scale terms. On the other hand, it is obvious that not every scientific truth about earthworms is a part of earthworm behaviouris-tics, unless the latter term is so stretched as to be deprived of its distinctive sense. It follows that one cannot explain everything an earthworm does in terms of earthworm behaviouristics *thus defined.* Earthworm behaviouristics works within a background knowledge of 'standard conditions'—conditions in which correlations in terms of earthworm behaviour categories *are* sufficient to explain and predict what earthworms do in so far as it can be described in these categories. This background knowledge is obviously an essential part of the scientific understanding of what earthworms do, though not a part of earthworm behaviouristics, for it is simply the application to earthworms of physics, chemistry, parasitology, medicine, and neuro-physiology.

We must also take into consideration the fact that most of the interesting constructs of correlational behaviouristics will be 'iffy' properties of organisms, properties to the effect that *if at* that time a certain stimulus *were* to occur, a certain response *would be* made. Thus, to use an example from another field, we are able to correlate the fact that a current has been run through a helix in which a piece of iron has been placed, with the 'iffy' property of being such that if an iron filing *were* placed near it, the latter *would be* attracted.

Now it may or may not be helpful at a given stage of scientific development, to suppose that 'iffy' properties of organisms are connected with states of a postulated system of entities operating according to certain postulated principles. It is helpful, if the postulated entities are sufficiently specific and can be connected to a sufficient diversity of large-scale behavioural variables to enable the prediction of new correlations. The methodological utility of postulational procedures for the behaviouristics of lower organisms has, perhaps, been exaggerated, primarily because until recently little was known in neurophysiology which was suited to throw much light on correlations at the large-scale level of behaviouristics. In human be-haviouristics, however, the situation has been somewhat different from the start, for an important feature of characteristically human behaviour is that any two successive pieces of observable behaviour *essentially* involve complex, very complex, 'iffy' facts about what the person *would have said or done* at each intervening moment *if he had been asked certain questions;* and it happens that our background knowledge makes reasonable the supposition that these 'iffy' facts obtain *because an inner process is going on which is, in important respects, analogous to overt verbal behaviour, and each stage of which would find a natural expression in overt speech.* This is a point to which I shall return later on.

Thus it *does* prove helpful in human behaviouristics to postulate an inner sequence of events in order to interpret what could *in principle* be austerely formulated as correlations between behavioural states and properties, including the *very* important and, indeed, *essential* 'iffy' ones. But, and this is an important point, the postulated episodes are not postulated on neurophysiological grounds—at least this was not true until very recently, but because of our background knowledge that something analogous to speech goes on while people are sitting 'like bumps on a log'.

For our present purposes it does not make too much difference whether we say that human behaviouristics *as such* postulates inner speechlike processes, or that whatever their contribution to explanation or discovery, these processes fall by definition outside behaviouristics proper. Whether or not human behaviouristics, as a distinctive science, includes any statements about postulated entities, the correlations it establishes must find their counterparts in the postulational image, as was seen to be true in the case of the correlations established by earthworm behaviouristics. Thus, the scientific explanation of human behaviour must take account of those cases where the correlations characteristic of the organism in 'normal' circumstances break down. And, indeed, no behaviourist would deny that the correlations he seeks and establishes are in some sense the counterparts of neurophysiological and, consequently, biochemical connections, nor that the latter are special cases within a spectrum of *biochemical* connections (pertaining to human organisms), many of which are reflected in observ-able phenomena which, *from the standpoint of behaviouristics,* represent breakdowns in explanation. I shall, therefore, provisionally assume that although behaviouristics and neurophysiology remain distinctive sciences, the correlational content of behaviouristics points to a structure of postulated processes and principles which telescope together with those of neurophysiological theory, with all the consequences which this entails. On this assumption, if we trace out these consequences, the scientific image of man turns out to be that of a complex physical system.

V. THE CLASH OF THE IMAGES

How, then, are we to evaluate the conflicting claims of the manifest image and the scientific image thus provisionally interpreted to constitute *the* true and, in principle, *complete* account of man-in-the-world?

What are the alternatives? It will be helpful to examine the impact of the earlier stages of postulational science on philosophy. Some reflections on the Cartesian attempt at a synthesis are in order, for they bring out the major stresses and strains involved in any attempt

at a synoptic view. Obviously, at the time of Descartes theoretical science had not yet reached the neurophysiological level, save in the fashion of a clumsy promissory note. The initial challenge of the scientific image was directed at the manifest image of inanimate nature. It proposed to construe physical things, in a manner already adumbrated by Greek atomism, as systems of imperceptible particles, lacking the perceptible qualities of manifest nature. Three lines of thought seemed to be open: (1) Manifest objects are identical with systems of imperceptible particles in that simple sense in which a forest is identical with a number of trees. (2) Manifest objects are what really exist; systems of imperceptible particles being 'abstract' or 'symbolic' ways of representing them. (3) Manifest objects are 'appearances' to human minds of a reality which is constituted by systems of imperceptible particles. Although (2) merits serious consideration, and has been defended by able philosophers, it is (1) and (3), particularly the latter, which I shall be primarily concerned to explore.

First, some brief remarks about (1). There is nothing immediately paradoxical about the view that an object can be both a perceptible object with perceptible qualities *and* a system of imperceptible objects, none of which has perceptible qualities. Cannot systems have properties which their parts do not have? Now the answer to this question is 'yes', if it is taken in a sense of which a paradigm example would be the fact that a system of pieces of wood can be a ladder, although none of its parts is a ladder. Here one might say that for the system as a whole to be a ladder is for its parts to be of such . and such shapes and sizes and to be related to one another in certain ways. Thus there is no trouble about systems having properties which its parts do not have ;/ *these properties are a matter of the parts having such and such qualities and being related in such and such ways*. But the case of a pink ice cube, it would seem clear, cannot be treated in this way. It does not seem plausible to say that for a system of particles to be a pink ice cube is for them to have such and such imperceptible qualities, and to be so related to one another as to make up an approximate cube. *Pink* does not seem to be made up of imperceptible qualities in the way in which being a ladder is made up of being cylindrical (the rungs), rectangular (the frame), wooden, etc. The manifest ice cube presents itself to us as something which is pink through and through, as a pink continuum, all the regions of which, however small, are pink. It presents itself to us as *ultimately homogeneous;* and an ice cube variegated in colour is, though not homogeneous in its specific colour, 'ultimately homogeneous', in the sense to which I am calling attention, with respect to the generic trait of being coloured.

Now reflection on this example suggests a principle which can be formulated approximately as follows:

> If an object is *in a strict sense* a system of objects, then every property of the object must consist in the fact that its constituents have such and such qualities and stand in such and such relations or, roughly, every property of a system of objects consists of properties of, and relations between, its constituents.

With something like this principle in mind, it was argued that if a physical object is *in a strict sense* a system of imperceptible particles, then it cannot as a whole have the perceptible qualities characteristic of physical objects in the manifest image. It was concluded that manifest physical objects are 'appearances' *to human perceivers* of systems of imperceptible particles which is alternative (3) above.

This alternative, (3), however, is open to an objection which is ordinarily directed not against the alternative itself, but against an imperceptive formulation of it as the thesis that the perceptible things around us 'really have no colour'. Against *this* formulation the objection has the merit of calling attention to the fact that in the manifest framework it is as absurd to say that a visible object has no colour, as it is to say of a triangle that it has no shape. However, tfainst the above formulation of alternative (3), namely, that *the very objects themselves* are appearances to perceivers of systems of imperceptible particles, the objection turns out on examination to have no weight. The objection for which the British 'common sense' philosopher G. E. Moore is directly or indirectly responsible, runs:

> Chairs, tables, etc., as we ordinarily think them to be, can't be 'appearances' of systems of particles lacking perceptible qualities, because we *know* that there are chairs, tables, etc., and it is a framework feature of chairs, tables, etc., that they have perceptible qualities.

It simply *disappears* once it is recognized that, properly understood, rse claim that physical objects do not really have perceptible qualities is not analogous to the claim that something generally believed to be true about a certain kind of thing is actually false. It is not the denial *of* a belief *within a framework,* but a challenge to the framework. It is the claim that although the framework of perceptible objects, the manifest framework of everyday life, is adequate for the everyday purposes of life, it is ultimately inadequate and should not be accepted as an account of what there is *all things considered.* Once we see this, we see that the argument from 'knowledge' cuts no ice, for the reasoning:

> We know that there are chairs, pink icecubes, etc. (physical objects). Chairs, pink ice cubes are coloured, are perceptible objects with perceptible qualities. Therefore, perceptible physical objects with perceptible qualities exist

operates *within* the framework of the manifest image and cannot *support* it. It fails to provide a point of view outside the manifest image from which the latter can be evaluated.

A more sophisticated argument would be to the effect that we successfully find our way around in life by using the conceptual framework of coloured physical objects in space and time, therefore, this framework represents things as they really are. This argument has force, but is vulnerable to the reply that the success of living, thinking, and acting in terms of the manifest framework can be accounted for by the framework which proposes to replace it, by showing that there are sufficient structural similarities between manifest objects and their scientific counterparts to account for this success.[1]

One is reminded of a standard move designed to defend the reality of the manifest image against *logically* rather than *scientifically* motivated considerations. Thus it has been objected that the framework of physical objects in space and time is incoherent, involving antinomies or contradictions, and that therefore this framework is unreal. The counter to this objection has often been, not a painstaking refutation of the arguments claiming to show that the framework is incoherent, but rather something along the following lines:

> *We know* that this collision occurred at a different place and time than that collision.
>
> Therefore, the statement that the first collision occurred at a different place and time from the other collision *is true.*
>
> Therefore, the statement that the two collisions occurred at different times and places *is consistent.*
>
> Therefore, statements about events happening at various times and places are, as such, consistent.

This argument, like the one we have already considered, does not prove what it sets out to prove, because it operates within the framework to be evaluated, and does not provide an external point of view from which to defend it. It makes the tacit assumption that if a framework is inconsistent, its incoherence must be such as to lead to retail and immediate inconsistencies, as though it would force people using it to contradict themselves on every occasion. This is surely false. The framework of space and time could be internally inconsistent, and yet be a successful conceptual tool at the retail level. We have examples

[1] It might seem that the manifest framework accounts for the success of the scientific framework, so that the situation is symmetrical. But I believe that a more penetrating account of theoretical explanation than I have been able to sketch in this chapter would show that this claim is illusory. I discuss this topic at some length in Chapter 4.

of this in mathematical theory, where inconsistencies can be present which do not reveal themselves in routine usage.

I am not, however, concerned to argue that the manifest image is unreal because ultimately incoherent in a narrowly conceived logical sense. Philosophers who have taken this line have either *(a)* left it at that (Hume; scepticism), or *(b)* attempted to locate the source of the inconsistency in features of the framework, and interpreted reality as an inadequately known structure *analogous* to the manifest image, but lacking just those features which are responsible for the inconsistency. In contrast to this, the critique of the manifest image in which we are engaged is based on logical considerations in a broader and more constructive sense, one which compares this image unfavourably with a *more* intelligible account of what there is.

It is familiar fact that those features of the manifest world which play no role in mechanical explanation were relegated by Descartes and other interpreters of the new physics to the minds of the per-ceiver. Colour, for example, was said to exist only in sensation; its *esse* to be *percipi.* It was argued, in effect, that what scientifically motivated reflection recognizes to be states of the perceiver are conceptualized in ordinary experience as traits of independent physical things, indeed that these supposed independent coloured things are actually conceptual constructions which ape the mechanical systems of the real world.

The same considerations which led philosophers to deny the reality of perceptible things led them to a dualistic theory of man. For if the human body is a system of particles, the body cannot be the subject of thinking and feeling, *unless thinking and feeling are capable of interpretation as complex interactions of physical particles;* unless, that is to say, the manifest framework of man as *one* being, a *person* capable of doing radically different kinds of things can be replaced without loss of descriptive and explanatory power by a postulational image in which he is a complex of physical particles, and all his activities a matter of the particles changing in state and relationship.

Dualism, of course, denied that either sensation or feeling or conceptual thinking could in this sense be construed as complex interactions of physical particles, or man as a complex physical system. They were prepared to say that a *chair* is really a system of imperceptible particles which 'appears' in the manifest framework as a 'colour solid' (cf. our example of the ice cube), but they were not pcepared to say that man himself was a complex physical system •Much 'appears' to itself to be the sort of thing man is in the manifest .stage.

Let us consider in more detail the Cartesian attempt to integrate the manifest and the scientific images. Here the interesting thing to

note is that Descartes took for granted (in a promissory-note-ish kind of way) that the scientific image would include items which would be the counterparts of the sensations, images, and feelings of the manifest framework. These counterparts would be complex states of the brain which, obeying purely physical laws, would resemble and differ from one another in a way which corresponded to the resemblances and differences between the conscious states with which they were correlated. Yet, as is well-known, he denied that there were brain states which were, in the same sense, the cerebral counterparts of conceptual thinking.

Now, if we were to ask Descartes, 'Why can't we say that sensations "really are" complex cerebral processes as, according to you, we *can* say that physical objects "really are" complex systems of imperceptible particles?' he would have a number of things to reply, some of which were a consequence of his conviction that sensation, images, and feelings belong to the same family as believing, choosing, wondering, in short are low-grade examples of conceptual thinking and share its supposed irreducibility to cerebral states. But when the chips are down there would remain the following argument:

> We have pulled perceptible qualities out of the physical environment and put them into sensations. If we now say that all there really is to sensation is a complex interaction of cerebral particles, then we have taken them out of our world picture altogether. We wiil have made it unintelligible how things could even *appear* to be coloured.

As for conceptual thinking, Descartes not only refused to identify it with neurophysiological process, he did not see this as a live option, because it seemed obvious to him that no complex neurophysiological process could be sufficiently analogous to conceptual thinking to be a serious candidate for being what conceptual thinking 'really is'. It is not as though Descartes granted that there might well be neurophysiological processes which are strikingly analogous to conceptual thinking, but which it would be philosophically incorrect to *identify* with conceptual thinking (as he had identified physical objects of the manifest world with systems of imperceptible particles). He did not take seriously the idea that there *are* such neurophysiological processes.

Even if he had, however, it is clear that he would have rejected this identification on the ground that we had a 'clear and distinct', well-defined idea of what conceptual thinking is before we even suspected that the brain had anything to do with thinking. Roughly: we know what thinking is without conceiving of it as a complex neurophysiological process, therefore, it cannot *be* a complex physiological process.

Now, of course, the same is true of physical objects. We knew what a physical object was long before we knew that there were imperceptible physical particles. By parity of reasoning we should conclude that a physical object cannot *be* a complex of imperceptible particles. Thus, if Descartes had had reason to think that neurophysiological processes strikingly analogous to conceptual thinking exist, it would seem that he should *either* have changed his tune with respect to physical objects *or* said that conceptual thinking *really is* neurophysiological process.

Now in the light of recent developments in neurophysiology, philosophers have come to see that there is no reason to suppose there can't be neurophysiological processes which stand to conceptual thinking as sensory states of the brain stand to conscious sensations. And, indeed, there have not been wanting philosophers (of whom Hobbes was, perhaps, the first) who have argued that the analogy should be viewed philosophically as an *identity,* i.e. that a world picture which includes *both* thoughts *and* the neurophysiological counterparts of thoughts would contain a redundancy; just as a world picture which included *both* the physical objects of the manifest image *and* complex patterns of physical particles would contain a redundancy. But to this proposal the obvious objection occurs, that just as the claim that 'physical objects are complexes of imperceptible particles' left us with the problem of accounting for the status of the perceptible qualities of manifest objects, so the claim that 'thoughts, etc., are complex neurophysiological processes' leaves us with the problems of accounting for the status of the *introspectable qualities* of thoughts. And it would seem obvious that there is a vicious regress in the claim that these qualities exist in introspective awareness of the thoughts which seem to have them, but not in the thoughts themselves. For, the argument would run, surely introspection is itself a form of thinking. Thus one thought (Peter) would be robbed of its quality only to pay it to another (Paul).

We can, therefore, understand the temptation to say that even if there are cerebral processes which are strikingly analogous to conceptual thinking, they are processes which *run parallel* to conceptual thinking (and cannot be identified with it) as the sensory states of the brain *run parallel* to conscious sensation. And we can, therefore, understand the temptation to say that all these puzzles arise from taking seriously the claim of *any* part of the scientific image to be *what really is,* and to retreat into the position that reality is the world of the manifest image, and that all the postulated entities of the scientific image are 'symbolic tools' which function (something like the distance-measuring devices which are rolled around on maps) to help us find our way around in the world, but do not themselves

describe actual objects and processes. On this view, the theoretical counterparts of *all* features of the manifest image would be *equally* unreal, and that philosophical conception of man-of-the-world would be correct which endorsed the manifest image and located the scientific image within it as a conceptual tool used by manifest man in his capacity as a scientist.

VI. THE PRIMACY OF THE SCIENTIFIC IMAGE: A PROLEGOMENON

Is this the truth of the matter? Is the manifest image, subject, of course, to continual emperical and categorial refinements, the measure of what there really is? I do not think so. I have already indicated that of the three alternatives we are considering with respect to the comparative claims of the manifest and scientific images, the first, which, like a child, says 'both', is ruled out by a principle which I am not defending in this chapter, although it does stand in need of defence. The second alternative is the one I have just reformulated and rejected. I propose, therefore, to re-examine the case against the third alternative, the primacy of the scientific image. My strategy will be to argue that the difficulty, raised above, which seems to stand in the way of the identification of thought with cerebral processes, arises from the mistake of supposing that in self-awareness conceptual thinking presents itself to us in a qualitative guise. Sensations and images *do,* we shall see, present themselves to us in a qualitative character, a fact which accounts for the fact that they are stumbling blocks in the attempt to accept the scientific image as real. *But* one scarcely needs to point out these days that however intimately conceptual thinking is related to sensations and images, it cannot be equated with them, nor with complexes consisting of them.

It is no accident that when a novelist wishes to represent what is going on in the mind of a person, he does so by 'quoting' the person's thoughts as he might quote what a person says. For thoughts not only are the sort of things that find overt expression in language, we conceive of them as analogous to overt discourse. Thus, *thoughts* in the manifest image are conceived not in terms of their 'quality', but rather as inner 'goings-on' which are analogous to speech, and find their overt expression in speech—though they can go on, of course, in the absence of this overt expression. It is no accident that one learns to think in the very process of learning to speak.

From this point of view one can appreciate the danger of misunderstanding which is contained in the term 'introspection'. For while there is, indeed, an analogy between the direct knowledge we have of our own thoughts and the perceptual knowledge we have of what is going on in the world around us, the analogy holds only in

as much as both self-awareness and perceptual observation are basic forms of non-inferential knowledge. They differ, however, in that whereas in perceptual observation we know objects as being of a certain quality, in the direct knowledge we have of what we are thinking (e.g. I am thinking that it is cold outside) what we know non-inferentially is that *something analogous to and properly expressed by the sentence, 'It is cold outside', is going on in me.*

The point is an important one, for if the concept of a thought is the concept of an inner state analogous to speech, this leaves open the possibility that the inner state conceived in terms of this analogy is *in its qualitative character* a neurophysiological process. To draw a parallel: if I begin by thinking of the cause of a disease as a srbstance (to be called 'germs') which is analogous to a colony of rabbits, in that it is able to reproduce itself in geometrical proportion, but, unlike rabbits, imperceptible and, when present in sufficient number in the human body, able to cause the symptoms of disease, and to cause epidemics by spreading from person to person, there is no logical barrier to a subsequent identification of 'germs' thus conceived with the *bacilli* which microscopic investigation subsequently discovers.

But to point to the analogy between conceptual thinking and overt speech is only part of the story, for of equally decisive importance is the analogy between speech and what sophisticated computers can do, and finally, between computer circuits and conceivable patterns of neurophysiological organization. All of this is more or less speculative, less so now than even a few years ago. What interests the philosopher is the matter of principle; and here the first stage is decisive—the recognition that the concept of a thought is a concept by analogy. Over and above this all we need is to recognize the force of Spinoza's statement: 'No one has thus far determined what the tody can do nor no one has yet been taught by experience what the *foody* can do merely by the laws of nature insofar as nature is considered merely as corporeal and extended.' (*Ethics,* Part Three, Prop. II (note)).

Another analogy which may be even more helpful is the following: suppose we are watching the telegraphic report of a chess game in a foreign country.

White	*Black*
P—K3	P—QB3

And suppose that we are sophisticated enough to know that chess pieces can be made of all shapes and sizes, that chess boards can be horizontal or vertical, indeed, distorted in all kinds of ways provided that they preserve certain topological features of the familiar board.

Then it is clear that while we will think of the players in the foreign country as moving kings, pawns, etc., castling and check-mating, our concepts of the pieces they are moving and the moving of them will be simply the concept of items and changes which play a role analogous to the pieces and moves which take place when *we* play chess. We know that the items must have some intrinsic quality (shape, size, etc.), but we think of these qualities as 'those which make possible a sequence of changes which are structurally similar to the changes which take place on our own chess boards'.

Thus our concept of 'what thoughts are' might, like our concept of what a castling is in chess, be abstract in the sense that it does not concern itself with the *intrinsic* character of thoughts, *save as items which can occur in patterns of relationships which are analogous to the way in which sentences are related to one another and* to the contexts in which they are used.

Now if thoughts are items which are conceived in terms of the roles they play, then there is no barrier *in principle* to the identification of conceptual thinking with neurophysiological process. There would be no 'qualitative' remainder to be accounted for. The identification, curiously enough, would be even more straightforward than the identification of the physical things in the manifest image with complex systems of physical particles. And in this key, if not decisive, respect, the respect in which both images are concerned with conceptual thinking (which is the distinctive trait of man), *the manifest and scientific images could merge without clash in the synoptic view.*

How does the situation stand in respect to sensation and feeling? Any attempt at identification of these items with neurophysiological process runs into a difficulty to which reference has already been made, and which we are now in a position to make more precise. This difficulty accounts for the fact that, with few exceptions, philosophers who have been prepared to identify conceptual thinking with neurophysiological process have *not* been prepared to make a similar identification in the case of sensation.

Before restating the problem let us note that curiously enough, there is more similarity between the two cases than is commonly recognized. For it turns out on reflection that just as conceptual thinking is construed in the manifest image by analogy with overt speech, so sensation is construed by analogy with its external cause, sensations being the states of persons which correspond, in their similarities and differences to the similarities and differences of the objects which, in standard conditions, bring them about. Let us assume that this is so. But if it is so, why not suppose that the inner-states which *as sensations* are conceived by analogy with their standard causes, are *in propria persona* complex neurophysiological episodes

in the cerebral cortex? To do so would parallel the conclusion we were prepared to draw in the case of conceptual thinking.

Why do we feel that there would be something extremely odd, even absurd, about such a supposition? The key to the answer lies in noticing an important difference between identifying thoughts with neurophysiological states and identifying sensations with neuro-physiological states. Whereas both thoughts and sensations are conceived by analogy with publicly observable items, in the former case the analogy concerns the *role* and hence leaves open the possibility that thoughts are radically different *in their intrinsic character* from the verbal behaviour by analogy with which they are conceived. But in the case of sensations, the analogy concerns the quality itself. Thus a 'blue and triangular sensation' is conceived by analogy with the blue and triangular (facing) surface of a physical object which, when looked at in daylight, is its cause. The crucial issue then is this: can we define, in the framework of neurophysiology, states which are sufficiently analogous in their *intrinsic* character to sensations to make identification plausible?

The answer seems clearly to be 'no'. This is not to say that neuro-physiological states cannot be defined (in principle) which have a high degree of analogy to the sensations of the manifest image. That this can be done is an elementary fact in psycho-physics. The trouble is, rather, that the feature which we referred to as 'ultimate homogeneity', and which characterizes the perceptible qualities of things, e.g. their colour, seems to be essentially lacking in the domain of the definable states of nerves and their interactions. Putting it crudely, colour expanses in the manifest world consist of regions which are themselves colour expanses, and these consist in their turn of regions which are colour expanses, and so on; whereas the state of a group of neurons, though it has regions which are also states of groups of neurons, has ultimate regions which are *not* states of groups of neurons but rather states of single neurons. And the same is true if we move to the finer grained level of biochemical process.

Nor do we wish to say that the ultimate homogeneity of the sensation of a red rectangle is a matter of each physical particle in the appropriate region of the cortex *having* a colour; for whatever other difficulties such a view would involve, it doesn't make sense to say of the particles of physical theory that they are coloured. And the principle of reducibility, which we have accepted without argument, makes impossible the view that groups of particles can have properties which are not 'reducible to' the properties and relations of the members of the group.

It is worth noting that we have here a recurrence of the essential features of Eddington's 'two tables' problem—the two tables being,

in our terminology, the table of the manifest image and the table of the scientific image. There the problem was to 'fit together' **the** manifest table with the scientific table. Here the problem is to fit together the manifest sensation with its neurophysiological counterpart. And, interestingly enough, the problem in both cases is essentially the same: *how to reconcile the ultimate homogeneity of the manifest image with the ultimate non-homogeneity of the system of scientific objects.*

Now we are rejecting the view that the scientific image is a mere 'symbolic tool' for finding our way around in the manifest image; and we are accepting the view that the scientific account of the world is (in principle) the adequate image. Having, therefore, given the perceptible qualities of manifest objects their real locus in sensation, we were confronted with the problem of choosing between dualism or identity with respect to the relation of conscious sensations to their analogues in the visual cortex, and the above argument seems to point clearly in the dualistic direction. The 'ultimate homogeneity' of perceptible qualities, which, among other things, prevented *identifying* the perceptible qualities of physical objects with complex properties of systems of physical particles, stands equally in the way of *identifying,* rather than *correlating,* conscious sensations with the complex neural processes with which they are obviously connected.

But such dualism is an unsatisfactory solution, because *ex hypothesi* sensations are essential to the explanation of how we come to construct the 'appearance' which is the manifest world. They are essential to the explanation of how there even *seem* to be coloured objects. But the scientific image presents itself as a closed system of explanation, and *if the scientific image is interpreted as we have interpreted it up to this point the* explanation will be in terms of the constructs of neuro-physiology, which, according to the argument, *do not involve the ultimate homogeneity, the appearance of which in the manifest image is to be explained.*

We are confronted, therefore, by an antinomy, *either, (a)* the neuro-physiological image is *incomplete,* i.e. and must be supplemented by new objects ('sense fields') which do have ultimate homogeneity, and which somehow make their presence felt in the activity of the visual cortex as a system of physical particles; or, *(b)* the neurophysiological image is complete and the ultimate homogeneity of the sense qualities (and, hence, the sense qualities, themselves) is *mere appearance* in the very radical sense of not existing in the spatio-temporal world at all.

Is the situation irremediable? Does the assumption of the reality of the scientific image lead us to a dualism of particles and sense fields? of matter and 'consciousness'? If so, then, in view of the

obviously intimate relation between sensation and conceptual thinking (for example, in perception), we must surely regress and take back the identification or conceptual thinking with neurophysiological process which seemed so plausible a moment ago. We could then argue that although in the absence of other considerations it would be plausible to equate conceptual thinking with neurophysiological process, when the chips are *all* down, we must rather say that although conceptual thinking and neurophysiological process are each analogous to verbal behaviour as a public social phenomenon (the one by virtue of the very way in which the very notion of 'thinking' is formed; the other as a scientifically ascertained matter of fact), they are also *merely* analogous to one another and cannot be identified. If so, the manifest and the scientific conception *of both* sensations *and* conceptual thinking would fit into the synoptic view as parallel processes, a dualism which could only be avoided by interpreting the scientific image *as a whole* as a 'symbolic device' for coping with the world as it presents itself to us in the manifest image.

Is there any alternative? As long as the ultimate constituents of the scientific image are particles forming ever more complex systems of particles, we are inevitably confronted by the above choice. But the scientific image is not yet complete; we have not yet penetrated all the secrets of nature. And if it should turn out that particles instead of being the primitive entities of the scientific image could be treated as singularities in a space-time continum which could be conceptually 'cut up' without significant loss—*in inorganic contexts, at least*—into interacting particles, then we would not be confronted at the level of neurophysiology with the problem of understanding the relation of *sensory consciousness* (with its ultimate homogeneity) to *systems of particles.* Rather, we would have the alternative of saying that although for many purposes the central nervous system can be construed without loss as a complex system of physical particles, *when it comes to an adequate understanding of the relation of sensory consciousness to* neurophysiological process, we must penetrate to the non-particulate foundation of the particulate image, and recognize that in this non-particulate image the qualities of sense are a dimension of natural process which occurs only in connection with those complex physical processes which, when 'cut up' into particles in terms of those features which are the least common denominators of physical process—present in inorganic as well as organic processes; alike—become the complex system of particles which, in the current; scientific image, *is* the central nervous system.

VII. PUTTING MAN INTO THE SCIENTIFIC IMAGE

Even if the constructive suggestion of the preceding section were capable of being elaborated into an adequate account of the way in which the scientific image could recreate in its own terms the sensations, images, and feelings of the manifest image, the thesis of the primacy of the scientific image would scarcely be off the ground. There would remain the task of showing that categories pertaining to man as a *person* who finds himself confronted by standards (ethical, logical, etc.) which often conflict with his desires and impulses, and to which he may or may not conform, can be reconciled with the idea that man is what science says he is.

At first sight there would seem to be only one way of recapturing the specifically human within the framework of the scientific image. The categories of the person might be reconstructed without loss in terms of the fundamental concepts of the scientific image in a way analogous to that in which the concepts of biochemistry are (in principle) reconstructed in terms of sub-atomic physics. To this suggestion there is, in the first place, the familiar objection that persons as responsible agents who make genuine choices between genuine alternatives, and who could on many occasions have done what in point of fact they did not do, simply *can't* be construed as physical systems (even broadly interpreted to include sensations and feelings) which evolve in accordance with laws of nature (statistical or non-statistical). Those who make the above move can be expected to reply (drawing on distinctions developed in section I) that the concepts in terms of which we think of a person's 'character', or the fact that 'he could have done otherwise', or that 'his actions are predictable' would appear in the reconstruction as extraordinarily complex defined concepts not to be confused with the concepts in terms of which we think of the 'nature' of NaCl, or the fact that 'system X would have failed to be in state S given the same initial conditions' or that 'it is predictable that system X will assume state S given these initial conditions'. And I think that a reply along these lines could be elaborated which would answer *this* objection to the proposed reconstruction of categories pertaining to persons.

But even if the proposed reconstruction could meet what might be called the 'free will' objection, it fails decisively on another count. For it can, I believe, be conclusively shown that such a reconstruction is *in principle* impossible, the impossibility in question being a strictly logical one. (I shall not argue the point explicitly, but the following remarks contain the essential clues.) If so, that would seem to be the end of the matter. Must we not return to a choice between *(a)* a dualism in which men as scientific objects are contrasted with

the 'minds' which are the source and principle of their existence as persons; *(b)* abandoning the reality of persons as well as manifest physical objects in favour of the exclusive reality of scientific objects; *(c)* returning once and for all to the thesis of the merely 'calculational' or 'auxiliary' status of theoretical frameworks and to the affirmation of the primacy of the manifest image?

Assuming, in accordance with the drift of the argument of this chapter, that none of these alternatives is satisfactory, is there a way out? I believe there is, and that while a proper exposition and defence would require at least the space of this whole volume, the gist can be stated in short compass. To say that a certain person desired to do A, thought it his duty to do B but was forced to do C, is not to *describe* him as one might describe a scientific specimen. One does, indeed, describe him, but one does something more. And it is this something more which is the irreducible core of the framework of persons.

In what does this something more consist? First, a relatively superficial point which will guide the way. To think of a featherless biped as a person is to think of it as a being with which one is bound up in a network of rights and duties. From this point of view, the irreduci-bility of the personal is the irreducibility of the 'ought' to the 'is'. But even more basic than this (though ultimately, as we shall see, the two points coincide), is the fact that to think of a featherless biped as a person is to construe its behaviour in terms of actual or potential membership in an embracing group each member of which thinks of itself as a member of the group. Let us call such a group a 'community'. Once the primitive tribe, it is currently (almost) the 'brotherhood' of man, and is potentially the 'republic' of rational beings (cf. Kant's 'Kingdom of Ends'). An individual may belong to many communities, some of which overlap, some of which are arranged like Chinese boxes. The most embracing community to which he belongs consists of those with whom he can enter into meaningful discourse. The scope of the embracing community is the scope of 'we' in its most embracing non-metaphorical use. 'We', in this fundamental sense (in which it is equivalent to the French *'on'* or English *'one')* is no less basic than the other 'persons' in which verbs are conjugated. Thus, to recognize a featherless biped or dolphin or Martian as a person is to think of oneself and it as belonging to a community.

Now, the fundamental principles of a community, which define what is 'correct' or 'incorrect', 'right' or 'wrong', 'done' or 'not done', are the most general common *intentions* of that community with respect to the behaviour of members of the group. It follows that to recognize a featherless biped or dolphin or Martian as a person requires that one think thoughts of the form, 'We (one) shall do (or

abstain from doing) actions of kind A in circumstances of kind C. To think thoughts of this kind is not to *classify* or *explain,* but to *rehearse an intention.*[1]

Thus the conceptual framework of persons is the framework in which we think of one another as sharing the community intentions which provide the ambience of principles and standards (above all, those which make meaningful discourse and rationality itself possible) within which we live our own individual lives. A person can almost be defined as a being that has intentions. Thus the conceptual framework of persons is not something that needs to be *reconciled with* the scientific image, but rather something to *be joined* to it. Thus, to complete the scientific image we need to enrich it *not* with more ways of saying what is the case, but with the language of community and individual intentions, so that by construing the actions we intend to do and the circumstances in which we intend to do them in scientific terms, we *directly* relate the world as conceived by scientific theory to our purposes, and make it *our* world and no longer an alien appendage to the world in which we do our living. We can, of course, as matters now stand, realize this direct incorp-oration of the scientific image into our way of life only in imagination. But to do so is, if only in imagination, to transcend the dualism of the manifest and scientific images of man-of-the-world.

[1] Community intentions ('One shall...') are not just private intentions (I shall...') which everybody has. (This is another way of putting the above-mentioned irreduc-ibility of 'we'.) There is, however, a logical connection between community and private intentions. For one does not really share a community intention unless, however often one may rehearse it, it is reflected, where relevant, in the corresponding private intention.