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*Introduction*

Panpsychism has been developed in a variety of ways through the course of philosophy. In the first section of this chapter, I offer an introductory sketch that abstracts some common features within this variety. In very general terms, panpsychism is the view that mentality is present in all natural bodies with unified and persisting organization. Its principal advocates have excluded from its scope aggregates lacking this naturally occurring organization such as rocks, trees, and human artifacts. One of the central problems for such a view is that of specifying the range of natural bodies to which this thesis applies, and for this there are a number of alternative solutions. After surveying some of them, I outline the form of the analogical inference that constitutes the doctrine's initial rational basis. Finally, the epistemological status of panpsychism as a thesis of metaphysics is examined in a preliminary way.

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*What is Panpsychism?*

The etymology of “panpsychism” provides us some suggestions of its meaning. *Pan* is the word in ancient Greek for “all,” and *psyche* means “soul,” which the early Greek philosophers understood to be the principle of life, that whose presence distinguishes the living from the dead and inanimate. Thus, panpsychism can initially be understood as the thesis that throughout nature there are forms of life. This animistic version of the doctrine is commonly referred to as *hylozoism*.

After Gottfried Wilhelm von Leibniz, panpsychism was reformulated in psychological terms as the claim that we can justifiably attribute mentality to all natural forms. Such attribution is justified, we would say, when its object can be said to have an interested point of view, a perspective from which things around it are encountered. Such a perspective has a qualitative aspect in at least some minimal degree. It is this psychological version that is our topic.

It should be noted that we use the term “mentality” in this formulation of the panpsychist thesis, and avoid the term “consciousness” that has been commonly used. If the term “consciousness” is defined as having a qualitative perspective on an environment, there can be no objection to its use. But the term is typically used in a way that implies either self-awareness of a kind that seems unique to the human species or a type of experiencing restricted to animals. Thus, someone can be said to have not only a certain feeling (a pain in his foot), but also to be conscious of having this feeling; or of not only seeing a tree, but of being consciously aware of seeing it. Such second-order reflective awareness would seem to require the use of language, and thus cannot be attributed to lower animals (We return to this topic later). In contrast to this use of “consciousness,” Nicholas Humphrey understands it as applying to having sensations, and this seems to be the sense used by those who inquire about the evolutionary origins of consciousness.<sup>1</sup> Such a use has the effect of automatically ruling out the panpsychist thesis, however, for having sensations requires sense receptors of a kind only observed for animals. Only organisms with pain or pleasure receptors can experience pain or pleasure. At levels more primitive than the organic, mentality, if indeed present, would seem to be the capacity within certain natural bodies lacking sense receptors for a type of protoexperiencing with a qualitative aspect. Exercises of mentality as a capacity may be intermittent, as is the case for our own wakefulness interrupted by sleep. It is conceivable that there are bodies in which this capacity is exercised for only one infinitesimally brief moment during their entire careers as a type of qualitative blip. If so, they would qualify for attribution of mentality as understood here, although they would not be said to be conscious in either the sense of being aware of the exercise of their mental capacity or of having a sensation.

In addition to the capacity for consciousness, experiencing, and protoexperiencing, more recent advocates of panpsychism such as Alfred North Whitehead and Charles Hartshorne have added the char-

acteristic of having at least a minimal degree of spontaneity of behavior that we associate with some form of self-determination as a prerequisite for mentality. From the standpoint of an outside observer, this behavior can be described as probabilistic or “chance” behavior, but mental spontaneity is to be distinguished from indeterminacy as such. The claim that all organized natural bodies have a qualitative perspective is logically independent of the claim that they also possess spontaneity of behavior; indeed determinists might concede the first but would deny the second. Because of its association with Whitehead and Hartshorne, panpsychism will be understood here as endorsing both claims, and I shall not consider a deterministic version.

Understood as claiming that all natural bodies have a qualitative perspective, panpsychism is so vague that it is effectively meaningless; in one sense it would seem to be trivially true, in another obviously false. We attribute mentality to a variety of sentient forms, including mammals, reptiles, and insects. If panpsychism were to require only that mentality be present wherever there is sentient life, then none could question it: it becomes tautologously true by simply stipulating that sentience is a form of mentality. But if the doctrine is taken as holding that to everything we see around us we can attribute mentality—if *pan* is to be interpreted as literally everything—it would seem to be absurd. Objects in our environment include rocks and human artifacts like bottles, chairs, and tennis balls, and these we would judge to lack a qualitative perspective as the requisite of mentality. Some thinkers to whom the “panpsychism” label is applied have extended the thesis to such objects, and in so doing have contributed to the disrepute into which the doctrine has generally fallen. But as we shall see in the next chapter, the principal figures in the panpsychist tradition have been careful to exclude such aggregate objects as planets, rocks, and artifacts.

To avoid the opposites of triviality and absurdity, advocates of panpsychism must both extend the term “natural form” beyond what we recognize as sentient and at the same time restrict the doctrine’s application in a way that excludes rocks and bottles. An initial specification would require a subject with mental attributes to be a unified natural body sharing our evolutionary past and with an appropriate level of structure and internal organization.

The requirement that there be a natural body excludes all artifacts, including those with functional organization. We shall be considering a version of panpsychism that does not make this exclusion and considers the possibility of extending mentality to all

information processing devices, including thermostats and computers. Biological organisms with a shared evolutionary past do indeed process information, but it does not at all follow that information processors with very different origins have the same characteristics as these organisms. Such objects as thermostats and computers have functional organizations that introduce regularities into their reactions to their environments, but they certainly lack a perspective or interested point of view in terms of how these environments are encountered. Lacking an evolutionary past, they should not be included under the heading of “natural body” as used in the formulation of panpsychism.

Quarks and leptons, as the fundamental particles of physics, are by definition elements that are themselves not wholes consisting of parts, and therefore lack organizational structure. It would seem, therefore, that, like rocks and bottles, they should be excluded from panpsychism’s scope. Nevertheless, we find its principal advocates extending the scope of their doctrine to fundamental particles, and there are indeed difficulties in excluding them, difficulties which we shall postpone considering until chapter 5. For now, it is sufficient to note that because by definition they lack internal structure, fundamental particles fail to satisfy what seems to be an essential feature of the natural bodies to which the panpsychist thesis is extended.

It is also difficult to exclude crystals such as a piece of quartz because their lattice arrangements of atoms exhibit structure and a type of organization, and they certainly do have an evolutionary past. Similar considerations hold of metals like gold, silver, and iron. We would not judge such forms of organization to qualify for mental attribution: a nugget of gold certainly can’t be said to have a point of view. But on what grounds can they be excluded? An answer can be provided by requiring a structure and organization in which there is functional specialization of parts within a unified whole. Such specialization is exhibited by the organelles and macromolecules making up the cells of the human body and plants, and thus cells would meet the condition of a “unified body with an appropriate level of structure and internal organization.” It may be exhibited in certain molecules, perhaps in atoms, and even by certain particles that are the constituents of atoms. Because of its relatively large mass, there is speculation that the so-called “top quark” recently identified in the laboratory may have some internal structure, and hence not be a fundamental particle.<sup>2</sup> If so, it would qualify as a possible subject of mental attribution in a way that crystals and lumps of gold do not.

How do we determine whether an object exhibits the appropriate unity of structure and organization? How do we distinguish between a cell-like body with unity and a crystal-like object that lacks the appropriate type of organization? Here we again risk trivialization, this time in the form of circularity, for we can't say that there is "appropriate unity" only when we are able to ascribe mentality. This must be recognized as a problem for panpsychism because the nature of the "appropriate level" of organization remains unspecified. But the problem does not seem to be an insuperable one. The distinction between a unified whole with specialization of parts and an organized collection of elements is one that seems capable of extension from the cell-crystal contrast to other natural forms. Although there admittedly will be difficult borderline cases, the distinction itself seems one that we can apply to a wide range of examples.

There is an immediate qualification we must introduce, however. A dead animal is a body with a unified organization of specialized parts, and thus qualifies for mental attribution by the account just given. But it is subject to the tendency toward the increase of entropy to which all nature is subject, and over time makes the transition from organization to disorganization and degradation of structure. We must therefore add the condition that to be a possible subject of mental attribution, a natural body must maintain itself through homeostasis against the forces of the environment in which it is placed. A necessary condition for an object to be a subject of mental attribution would thus seem to be that it both exhibit unity of organization as a whole relative to specialized parts and maintain itself through homeostasis.

Are these two necessary conditions of unity and homeostasis also sufficient conditions for mental attribution? The answer would seem to depend on the version of panpsychism being defended. For what we can refer to as *restricted panpsychism*, further conditions are imposed. These typically have the effect of restricting mental attribution to organic living forms capable of metabolism and either asexual or bisexual reproduction. As we shall presently see, Aristotle's extension of the term "soul" to plants seems to represent a special form of such restricted panpsychism. Other possible forms of this version may restrict mental attributions to those organisms exhibiting learning, as for the single-celled amoeba or a primitive organism such as a protozoa. Such forms of restricted panpsychism are by no means trivial, and indeed are controversial—metabolism and reproduction themselves don't seem to require the attribution of

mentality. And even if we grant that where there is learning there is a qualitative perspective, there are many who would describe learning, even that exhibited by relatively advanced mammals, in mechanical terms that exclude mentality as understood in terms of spontaneity.

Restrictions of this kind, however, are inconsistent with panpsychism's first syllable "pan," which implies universality of scope. Far more interesting, controversial, and removed from triviality is *unrestricted panpsychism*, the version that sets no further conditions on mental attribution beyond those of unity of organization and homeostasis, and it is this version that we will be considering here, because this version of mental attribution can be extended from multicellular organisms with central nervous systems to single-celled organisms such as protozoa, to certain molecules with internal specialization, and even to atoms and certain subatomic particles. For understandable reasons, such extensions strain the credulity of many, striking some as bizarre and as an example of that fatal tendency to overgeneralize that so often marks philosophy. But cogent reasons can be given for unrestricted panpsychism, as I hope to be able to show in this chapter's next section, the historical survey of chapter 2, and in chapter 5 where the topic is the role of mentality in evolution. And as we shall see in the final two chapters, with unrestricted panpsychism rests the most plausible justification that can be given of religious belief in the eternity of mentality.

In this preliminary account of conditions for attributing mentality I have made no mention of the problem of describing the nature of mentality. As we shall presently see, it is ascribed to natural forms by analogically extending features of our own experience that include the presence of a qualitative aspect and spontaneity of behavior. But to claim *that* mentality is present in a given natural body is not to claim to know *what* this mentality is, in particular whether it is the same as or different from the physical state of this body—that is, to make a choice between materialism and dualism. As I have argued elsewhere,<sup>3</sup> both metaphysical alternatives mistakenly assume that there is a meaningful sense of identity and difference employed when we say either that the mental is the same as the physical or that it is different. There is no need for panpsychism to involve itself in a debate that is due to imposing on the very special subject matter of the mental logical categories derived from language used to refer to spatially locatable objects.<sup>4</sup> The question before us is simply whether mentality as qualitative and

spontaneous—whatever this might happen to be—is present in all self-sustaining, organized natural forms.

At this introductory stage, we should mention differences between advocates of panpsychism and philosophical humanists arguing for radical discontinuities between the mentality characteristic of humans and that of infrahuman species. Human mentality is claimed by these humanists to be marked by self-consciousness and freedom of choice, while infrahuman mentality, including that of the higher primates, at best exhibits unreflective consciousness, and as a result simply accompanies behavior that is the effect of antecedent mechanical causes. Most recent advocates of panpsychism agree with philosophical humanists in rejecting deterministic theories of human behavior. But they extend this denial also to infrahuman species of organisms, and finally to all unified, self-maintaining bodies to which we attribute mentality. Mentality, wherever it is present, is claimed to be accompanied by spontaneity with at least some degree of similarity to the freedom of choice with which we humans think we are endowed. Everyone must acknowledge the sharp discontinuities that mark the various stages in the evolution of mentality. But for panpsychism as we are understanding it here, no one stage introduces metaphysical distinctions between the free and the determined of the kind advocated by philosophical humanism. Besides distinguishing the doctrine from humanism, the claim that mentality has a spontaneous aspect distinguishes it from a view we can label *universal mechanism*, the view that the behavior of all natural forms, including members of the human species, is the effect of determining antecedent causes.

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### *Analogical Inferences*

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Throughout this introductory discussion, I have been referring vaguely to “mental attributions” without attempting to specify the forms they might take. We attribute to others beliefs, desires, and hopes, and say of them that they see, hear, smell, etc. various kinds of objects. Pleasures and pains, as well as such feelings as itches, are also attributed. One major problem we face is deciding the extent to which such attributions of mentality can be extended to other natural forms. Can we say of a dog that it believes that there is a bone under the ground, or simply that it expects to find it? Does the dog desire the bone, or simply want it? And what will be the

form of mental attributions applied to primitive organisms without sense receptors for seeing, hearing, smelling, and so forth? Is there some form of attribution that will apply to all levels of complexity of organization, or does each level have its unique form? Such questions demand that panpsychism develop some theory of mental attributions that will provide grounds for answers. It must also develop some method of extending mental terms beyond their normal applications to attribute mentality to primitive natural forms. In chapter 4 I shall be examining the nature of specific forms of mental attributions and problems related to their extension. For now we must try to understand, at least in a preliminary way, the logical basis for attributing mentality in any form to members of other species.

This logical basis is provided by what is known as an *analogical inference*. An analogical inference begins with two populations,  $A$  and  $B$ , whose members are respectively  $a_1, a_2, \dots, a_n$  and  $b_1, b_2, \dots, b_n$ . There may be only a single individual in each population. We assume that both  $A$  and  $B$  share some attributes  $P_1, P_2, \dots, P_n$  in common and that  $A$  has the further attribute  $Q$ . We then infer that population  $B$  has  $Q$  also. The form of inference is thus

$$\begin{array}{l} A \text{ and } B \text{ are } P_1, P_2, \dots, P_n \\ A \text{ is } Q \\ \hline \text{Therefore, } B \text{ is } Q \end{array}$$

The attributes predicated of the populations  $A$  and  $B$  by  $P_1, P_2, \dots, P_n$  we can refer to as the *base* of the analogy, while  $Q$  expresses the *projected attribute*. Alternatively, an analogical inference can be described as the *analogical extension* of the predicate  $Q$  from  $A$  to a population  $B$  sharing a common base with it.

To illustrate this form of inference, suppose we have a barrel of apples all of which are red and ripe and come from the same orchard (the base  $P_1, P_2, P_3$ ). We cut open half of them (the population  $A$ ) and find they are rotten inside. We may then infer by analogy that the other half of the barrel of apples ( $B$ ) are also rotten inside—that the adjective *rotten* (the projected  $Q$ ) can be extended from  $A$  to  $B$ . The larger the number  $n$  of attributes  $P_1, P_2, \dots, P_n$  that are shared by  $A$  and  $B$ , the stronger the inference, provided the shared attributes are relevant to the possession of  $Q$  by  $B$ . Size and shape of apples do not seem relevant to their rottenness in the way that coloration, ripeness, and common origin are. Therefore, if the only attributes



shared by the apples were their being all large and round, the inference to rottenness would be extremely weak.

It should be noted that while the number of attributes shared by  $A$  and  $B$  is relevant to the strength of the analogical inference, the sizes of the populations  $A$  and  $B$  are not. Very strong analogical inferences can be formed where both  $A$  and  $B$  consist of single individuals. If astronomers discover that our planet Earth and a planet orbiting a distant star are similar in mineral composition and evolutionary history, they would infer with some confidence that because water is present on Earth it is also present on the other planet. To introduce the size of  $A$  and  $B$  is to confuse analogical with inductive inferences.<sup>5</sup> For an inductive inference, the size of the sample  $a_1, a_2, \dots, a_n$  sharing attributes  $P$  and  $Q$  is relevant to the conclusion that the next individual  $a_{n+1}$  of kind  $P$  sampled is also a  $Q$ . An inductive inference from 3,000 crows being black to the conclusion that the next crow will be black is certainly stronger than an inference to the same conclusion based on a sample of 15 black crows because the increase of sample size usually is accompanied by variation within the sample and makes it more representative of the total population. We could infer from the fact that members of a selected sample of apples in our barrel are rotten to the conclusion that all of them are rotten, and in this case the size of the sample would be relevant to the strength of the inference. But this inductive inference is very different in form from the analogical inference of the previous paragraph. Analogical inferences, unlike inductive inferences, rely on similarities between populations, which may consist of single individuals, not on representativeness of samples produced by variation.

Besides strengthening an analogical inference by increasing the relevant attributes of the base shared by  $A$  and  $B$ , we can also achieve the same effect by making the projected  $Q$  more indefinite. The conclusion that members of  $B$  are all rotten is fairly specific, and needs the support of a reasonably large number of relevant attributes. But we could choose the much more indefinite attribute of having some defect or other as our  $Q$ . The conclusion that  $B$  is a  $Q$  would then require much weaker premisses, perhaps only the observation that both  $A$  and  $B$  are from the same barrel. In this way, making a more indefinite  $Q$  allows reducing the inference's base. We thus have two ways of strengthening an analogical inference: either increase its base or make the projected attribute more indefinite.

In the 19th century, John Stuart Mill argued that we can justify our mental attributions to another person on the basis of an analogical inference that starts with the observation that when we have a certain experience, it is combined with a characteristic form of behavior. For example, when I have a sharp pain in my foot I may commonly grimace, hold my foot, and hop around. I then notice that another person is exhibiting similar behavior, and infer by analogy that this person is also experiencing pain. Here I am  $a$ , the other person is  $b$ , and the base  $P_1, P_2, \dots, P_n$  are the observed behavioral similarities between the two of us. The inference is then made that because I experience pain ( $Q$ ),  $b$  does also. Mill's analogical inference has since been proposed as a solution to the "problem of other minds," the problem each individual faces of justifying the belief that other minds exist other than his or her own. We may be aware only of our own sensations and feelings, but because these are accompanied by behavior that we also observe in others, we are justified in attributing these experiences to them.

Mill's account seems mistaken for those mental ascriptions we apply to members of our own species because inferences seem irrelevant to them. Often we base our ascriptions to another of a certain belief or desire directly on the basis of what he or she says, as when someone says "It will rain" and we attribute to this person the belief that it will rain. We do this without comparison to a belief state of which we are aware. But as Ludwig Wittgenstein and Gilbert Ryle have noted, even where behavior is the basis for our ascriptions, there seems to be a direct, noninferential judgment. I see a man on the balcony of a tenth-floor apartment cautiously staying away from the railing, and judge he is afraid of heights. But this does not seem to be the result of an inference in which I notice similarities between my behavior and his, know that I am experiencing fear when I behave in such a way, and conclude he does also. I don't regard his cautious behavior as *evidence* of some unseen fear. Instead, his behavior would seem to constitute *criteria* for ascribing fear. The term *fear* means for us, at least in part, what I see before me.

For infrahuman creatures, however, the situation is very different. I see a recently caught fish flopping around on the deck of a boat. Is it experiencing pain? The fact that we can raise this question and have some initial uncertainty of its answer indicates that the flopping does not constitute a criterion for applying the word "pain." We may conclude that the fish is in pain, but this seems to be only after an analogical inference in which we compare the flopping to

the writhing behavior of those humans we describe as being in pain and judge that they are sufficiently similar to warrant the analogical extension of pain. Our inference seems to have the following form: Both humans and fish exhibit behavior that is similar in relevant respects. Humans exhibiting this behavior are in pain. Therefore, the fish is also. Clearly, the greater the anatomical and behavioral similarities between members of infrahuman species and our own species, the stronger the analogical inference. We are thus more confident about ascribing pain to a yelping dog that has just had its foot stepped on than we are to the flopping fish.

Thus there seems to be a common form of analogical inference applied both in extending “rotten” to apples in a barrel and “pain” to fish. But we should not be misled into overlooking differences between the extension of standard descriptive predicates and mental predicates. An obvious one is that there is always the possibility of independent confirmation of conclusions reached in the standard cases. We can, after all, cut open the unexamined apples to determine whether they are in fact rotten, and we may eventually determine through later space exploration whether water in fact exists on the planet similar to our own. In contrast, the *only* possible basis for concluding that the fish experiences pain is to be found in the similarities of anatomy and behavior. There can be no independent confirmation.

Another contrast exists for the meaning of the predicates being projected. We have been assuming that the term used to express the projected *Q* of an analogical inference has a meaning fixed by agreed-on criteria of application. This is certainly true of the adjective “rotten” when applied to the populations of apples. But this assumption does not seem to apply to “pain” as extended from human applications to attributions for dogs and fish; here we lack agreement on criteria of application. Our uncertainty about applying “pain” to the flopping fish seems not only to be due to the tentativeness of the analogical inference being employed, but includes also the lack of a fixed meaning for “pain.” Whether the term should be applied seems to be as much a matter of a *practical decision* on our part about the term’s application as the acceptance of a warranted descriptive conclusion. This feature seems to be shared by the mental ascriptions of the far-reaching kind advocated by panpsychism. As we shall see when considering religious implications of the doctrine, its thesis is to be judged as much on the basis of practical as well as theoretical considerations.

It is important to remind ourselves of the difference between the thesis of panpsychism and specific extensions of mental predicates. Panpsychism as a philosophical doctrine does not attribute any specific experiences to members of this or that species. Its claim is instead that mentality in general, that is, having a point of view, a perspective on things with qualitative and spontaneous aspects, can be attributed to all natural forms having an appropriate level of unified structural organization that maintain themselves over a period of time against their environments. The basis for this extended claim would seem to be an analogical inference generalized beyond applications to creatures such as dogs and fish for which there are behavioral and anatomical similarities to ourselves. Insects such as beetles, wasps, and bees have sense receptors and exhibit exploratory, communicative, and aggressive behavior. Even amoebas and protozoa exhibit learning behavior that we seem to be able to use as the basis for attributing sensitivity in the form of primitive tactile sensations. But for extensions of mentality to the molecular and atomic level we have only unity of structural organization and homeostasis as a feature shared by our bodies, those of infrahuman species, including mammals, fish, insects, and protozoa, and finally the suborganic forms to which unrestricted panpsychism attributes mentality. The persisting unity of these natural bodies constitutes by itself the base for the analogical inference to the presence of mentality.

How strong is this inference? Rather weak is the quite obvious reply. This is seen by considering our barrel of apples where we are attempting to determine the rottenness of unexamined apples. Suppose the only attribute the apples share is simply that they are apples in the same barrel, with variation in color, ripeness, and origin. Then if we find that the half we examine are rotten, we would have a very weak analogical inference to the conclusion that the remainder are also. We have seen how in attributing mentality we start with ascriptions we make to others of our species on the basis of behavioral and anatomical criteria. The fewer the respects in which behavior and anatomy of other species is similar to ours the more tentative the inference, as for our more confident attribution of pain to the yelping dog than to the flopping fish. Where we lack sense receptors and behavior, such as in inanimate suborganic forms, we are left with only unity of organization and homeostasis as common features, and at this stage the inference falters. Moreover, we are given no convincing reasons for thinking that these remaining features are

in themselves relevant to the attribution of mentality. They may be, but why they are remains to be explained.

In defense of panpsychism, it must be emphasized again that weakness due to an inference's limited base can be offset by making the projected attribute more indefinite. As we saw, by changing the projected attribute from rotteness to simply having some defect or other, with nicks and bruises as well as rotteness qualifying as defects, we offset decreases in similarity between the apples. In this way we generate a considerably stronger analogical inference, even if we continue to begin with the premiss that the only shared feature is being an apple in the barrel. Panpsychism does not claim that macromolecules with the appropriate unity of organization have pains or pleasures, nor indeed that they have any sensations whatsoever. The claim is only to the very indefinite conclusion that they have some form of mentality or other, that they have their individual perspectives on things marked by *some* qualitative aspects and *some* spontaneity over *some* duration of time, however brief. This perspective may include only minimal and intermittent traces of feeling and the presence of only infinitesimally brief spontaneity interrupting long periods of causally explained movements. The indefiniteness of this conclusion helps to offset the lower number of relevant similarities in the inference's first premiss.

Given this indefiniteness of the projected mentality, the question arises as to whether panpsychism's conclusion could be justified if the base were weakened further. Can extension of mentality to fundamental particles without structural organization be justified? How such a question should be answered is a puzzle we postpone until chapter 5. At this stage we need to pause to raise some questions about the epistemological status of the panpsychist thesis itself.

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### *Epistemological Questions*

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First of all, is the thesis intelligible? Or, in stating it, have we robbed its central term "mentality" of any meaning specific enough for us to evaluate the thesis as true or false? We have seen how in descending to more primitive natural bodies the base of the analogical inference being used is progressively weakened. As compensation, panpsychism must progressively make more indefinite the form of mentality being attributed to natural bodies lacking observable sense receptors. Does this progressive indefiniteness eventually convert

“mentality” into a vacuously general term whose only meaning is derived from the inference to the panpsychist conclusion? The answer seems that it does not. We cannot, of course, *imagine* what having a qualitative perspective might be at very primitive levels, but we can certainly *conceive* such a state. The contrast between a natural body such as a molecule having such a perspective and a stone lacking it would also seem to be one that we can conceptualize. Some might claim that mentality is present at the molecular level; others might disagree, claiming that molecules are aggregates like stones; and still others might decide to suspend judgment. Whatever our views, this disagreement seems to presuppose prior understanding of the question being posed.

Michael Dummett has defined *realism* relative to the applicability of the law of excluded middle. One is a realist about a certain subject matter if one believes that propositions about this subject matter are true or false independently of whether we possess means of confirming this judgment.<sup>6</sup> Most would probably agree that the proposition that Cleopatra wore gold earrings with embedded gems when she first met Caesar is either true or false, although we may have no relevant evidence for or against it, and may never acquire such evidence. We are therefore realists regarding propositions about the past. Should we also be realists for the panpsychist thesis? Let’s assume that we never have any means of determining whether a certain molecule has or lacks a qualitative perspective on things. Is the proposition that it has this perspective nevertheless true or false? The answer seems to be, I think, yes. If this is correct, then the general claim that every natural body with unity of organization and homeostasis has a qualitative perspective and spontaneity is a realist thesis in Dummett’s sense.

Realism has many forms, however, and we must be careful not to read into panpsychism’s special version features of standard descriptive language. In particular, to describe a natural body as having a qualitative perspective is not to describe some special matter of fact about that body. The mental ascription simply functions to compare that natural body with ourselves and establish the appropriateness of attitudes toward it that differ from those for stones and bottles. Exactly how mental language performs these functions will be examined in chapter 4 where we discuss its interactive aspects.

This leads us to another and more difficult question. How do we determine whether the realist panpsychist thesis is true or false? The contrast between the typical use of an analogical inference and the

special use of it described in the previous section shows the difficulty of answering this. Normally, we have some means of independently confirming or falsifying the conclusion of such an inference. The apples we infer by analogy to be rotten can be split open and checked; the planet we infer by analogy to have water can be probed by some future space vehicle. Analogical inferences are typically used within science to provide some initial plausibility to a hypothesis as a candidate for further testing. Their conclusions are rarely accepted until this later testing is carried out. In contrast, the conclusions of the analogical inferences in which mentality is attributed to infrahuman creatures can *never* be independently confirmed. The *only* basis for concluding that mentality of any form is present are the behavioral and anatomical similarities used as the first premisses of the inferences. In this respect the panpsychist thesis does not qualify as an empirical hypothesis.

It is, instead, properly classified as a thesis of metaphysics. Through the influence of Immanuel Kant and the logical positivists, the term “metaphysics” has been applied to the discipline investigating what “transcends the world of experience.” Any sentence purporting to describe this special domain was by that very fact not testable by any observation, and was thus excluded as meaningless by the positivists. This sense of metaphysics obviously has no application to panpsychism, because the panpsychist thesis makes no claims that the mentality it ascribes to natural bodies constitutes a special domain distinct from the subject matter of the natural sciences. To be sure, some of the historical advocates of panpsychism I will be presently discussing also held dualistic views that postulated such a distinct subject matter, but others did not. In general, panpsychism is consistent with a naturalistic view that denies the existence of special types of objects or activities beyond the scope of the sciences. Its thesis is therefore not metaphysical in this Kantian sense.

There is a second sense of metaphysics derived from Aristotle that applies instead. Metaphysics in this sense is the discipline that describes observable phenomena in one domain and analogically extends these descriptions to a more inclusive domain, just as Aristotle developed a conception of a substance derived from objects such as statues and animals and extended it to all of nature. Analogical extensions can take the form of generalizing from features of human experiences and language use to infrahuman natural bodies, and panpsychism represents one such project. But they can also take the

form of generalizing from mechanical forms of behavior at infrahuman levels to reach conclusions about human behavior. The alternative of universal mechanism introduced in chapter 3 represents this latter project. What distinguishes metaphysics in this Aristotelian sense from the empirical sciences is not that it has a special subject matter. Nor is it distinguished by reaching conclusions independently of experience by a priori reasoning. What distinguishes it, rather, is its use of analogical inferences with observational premisses but with very general conclusions that cannot in principle be independently confirmed or falsified.

Some may argue that this distinction between metaphysics and the empirical sciences cannot be maintained in the light of W. V. O. Quine's criticisms of the analytic–synthetic distinction. Quine argued that individual sentences cannot be classified as either analytic (true or false by virtue of meanings of constituent terms) or synthetic (true or false by virtue of observational tests). All sentences of any empirical theory are instead more or less vulnerable to falsification. Some, such as the logical law of excluded middle and physics' principle of the conservation of energy, are relatively invulnerable, while others such as observational reports of data are easily revised. An empirical theory consists of an indefinite number of sentences with varying remoteness from observation, including background assumptions often not made explicit. When anomalous results occur, the revision of a theory requires choices between those parts relatively close to observations and central assumptions that may be very remote. If Quine's account is correct, the fact that the panpsychist thesis cannot be directly tested by observation should not lead us to exclude it from the domain of the sciences, since this is a feature shared by many sentences of a scientific theory.

This attempt to assimilate metaphysics into science should be rejected, however. Quine's criticisms of the analytic–synthetic distinction has the effect only of showing that it cannot be applied to individual sentences. But it can be applied to blocks of discourse as combinations of sentences about some topic and with accepted methods for gaining consensus. We can easily distinguish a theory of pure mathematics with its questions of whether theorems can be proven from its axioms from a scientific theory whose acceptance by the scientific community is dependent on empirical testing. The panpsychist thesis should not be regarded as a single sentence to which the traditional epistemological classifications are applied; these classifications have no application to sentences as such. The



thesis should instead be regarded as a part of a general metaphysical theory formulated in a form of discourse governed by a methodology of comparing features of human experience and language use to what is observed in primitive natural forms. It is distinguished from science in its use of analogical inferences in which its premisses include descriptions of our experience and language use and a conclusion that cannot be independently tested.

The use by metaphysics of analogical inferences without independent confirmation helps explain the persistence of controversies throughout its history. As has often been remarked, everything is in certain respects both similar to and different from everything else. Analogical reasoning requires the selection of attributes that are relevant to the conclusion being inferred, but what is relevant to some may be judged as irrelevant by others. Indeed, if the sole basis for panpsychism were the analogical inference used as its initial rational basis, this metaphysical view should rightfully be looked on with suspicion. To earn our support it requires supplementation derived from the requirement for continuity in evolution and practical needs derived from the religious attitude. This supplementation will be provided in later chapters.