III. IS CONSCIOUSNESS PHYSICAL?

I

1. It is an interesting fact that much of the literature on the so-called mind-body problem concerns the relation between sensations—and, in particular, the sensation of pain—and bodily states as in principle describable by the natural sciences.

2. In these lectures, as elsewhere, I have been stressing the radical difference between sensory states and conceptual states, between, say, a state of sensing a-cube-of-pinkly and a state of thinking about something, e.g., the Straits of Bosphorus. If we think of the mind-body problem as that of how to fit conceptual acts and bodily states into one coherent picture, then we should also be prepared to entertain a sensorium-body problem.

3. Certainly, to take care of the one is not, ipso facto, to take care of the other. And the troubling fact is that, as noted above, much of what purports to be discussion of the mind-body problem has actually been about the sensorium body problem.

4. Now it is exactly the sensorium-body problem which I propose to discuss on the present occasion. Consciousness is a many-splendored thing, but as used in the title it refers to sensory consciousness, the sort of consciousness we have simply virtue of feeling a pain or sensing a cube-of-pinkly.

5. The point of the 'as such' is to alert the reader that an attempt will be made to implement the familiar, if controversial, distinction between sensory states—in Kantian terms, the 'manifold of sense'—and the states of awareness as four which are so intimately connected with the former in perceptual consciousness.

6. Awareness as is a special case of conceptual consciousness. I have had something to say about it in the first lecture. An adequate account would require a full scale treatment of the categories of intentionality, and hence would far exceed the available space. I have, however, explored the topic at depth on other occasions and shall feel particularly free to draw upon the fruits of that analysis, since it preserves familiar features of the classical theory of conceptual acts—even though, in the process, some new wine is poured into venerable bottles.

7. I certainly do not wish to suggest that full justice can be done to the sensorium-body problem in an hour. But the main moves in the historical dialectic are sufficiently familiar that brief allusions will prepare the reader for an attempt to carry the argument one step further, by putting to use the ontological framework sketched in the preceding lecture.

II

8. I have been writing as though we could take for granted that persons have such sensory states as, shall I say, sensing bluely, and that there is general agreement as to what such states might be.

9. On the other hand, I have been emphasizing that if there are such sensory states, the idea of such a state is not to be confused with that of an awareness of a sensing bluely as a sensing bluely.

10. If there are states of sensing bluely, they obviously do not present themselves as such—otherwise the very existence of a controversy about their existence would be inexplicable.

11. If we are aware of states of sensing bluely, we are, at best, aware of them as blue items—cases of blue—and not as states of ourselves. And the awareness of a sensing as a case of blue is, we have argued (following Moore) four logically distinct from the sensing itself.

12. But I am getting ahead of my story. To see why this is so, we must take another look at the earlier stages of the dialectic. Let us begin, once again, with the manifest image and examine the status in that image of the qualities of sense.

13. Consider my well-worn example of a manifest object—a pink ice cube. It presents itself to us as a cubical volume of pink. Indeed, as we saw in the first lecture, it presents its very pinkness to the standard perceiver in standard conditions. This pinkness does
not consist in a power to bring about experiences of pink. Rather we think of the ice cube as having this power because it is pink in the occurrent or non-dispositional sense.

14. To pick up a point I was making a moment ago, the volume of pink of which we are aware does not present itself to us as a sensory state of ourselves—even though, at the end of a long (and familiar) story, that is what it turns out to be.

15. Rather, it presents itself to us as—we are aware of it as—over there, in physical space, cheek by jowl with other objects, including our bodies, which present their own expanses and volumes of color.

16. Now we are all aware that according to the scientific image of the world, the pink ice cube consists of molecules of H₂O, along with some molecules of dye-stuff. When philosophers have attempted to combine this fact with the above account of the ice cube as experienced, it has proved only too easy for them to become trapped in a complex pattern of puzzles which, to make a long story short, can be regimented along the following lines.

17. Consider the following four propositions, any three of which are inconsistent with the fourth:

1. A piece of ice can be pink in the occurrent sense.
2. A piece of ice is identical with a whole consisting of molecules.
3. Molecules of H₂O—or any other substance—are not colored in the occurrent sense.
4. A whole cannot be colored in the occurrent sense unless its ultimate parts are.

18. When one attempts to respond directly to this inconsistent foursome, one is confronted by four alternatives.

I. Accept 1, 2 and 3; reject 4
II. Accept 1, 2 and 4; reject 3
III. Accept 1, 3 and 4; reject 2
IV. Accept 2, 3 and 4; reject 1.

I shall refer to I as the emergentist alternative; II as the camel-swallowing alternative; III as the instrumentalist alternative; IV as the Cartesian alternative.

19. Of these alternatives, I propose to reject III, instrumentalism, out of hand. In other words I shall assume, without argument that scientific realism is true.

20. I shall also leave out of account the second alternative, which I referred to as swallowing the camel. I shall take it to be a conceptual truth about molecules that they do not have color in the occurrent sense of the term.

21. This leaves us with alternatives I and IV. But before considering the Cartesian alternative, let us take a closer look at I. It represents an attempt to combine by a head on collision, as it were, the core features of the two images.

22. This position, Reconciliationist Scientific Realism, we might call it, seems to leave us with two alternatives with respect to the occurrent pinkness of the cube:

A: The occurrent pinkness of cube O is a reducible attribute of O in the sense that O's being pink consists in the fact that its parts severally have certain attributes and stand in certain relations. Schematically,

\[ \text{Pink}(O) = \sum \phi_i \cdot \sum R_j(x_1, x_1) \]

where O is the conjunctive individual \( x_1 + x_2 + x_3 + \ldots + x_n \) and \( \phi \) and \( R_j \) represent appropriate predicates which they satisfy. [Compare

\[ \text{Checkerboard}(O) = \sum (x \text{ is square} \cdot x \text{ is } \phi) \cdot \sum R(x, x) \]

where \( \phi_i \) represents each of any pair of contrasting color predicates and where \( \sum R_j(x_i, x_j) \) tells us that the components are suitably arranged.]

B: The occurrent pinkness of O is a wholistic or nonreducible attribute of O. This attribute, however, would presumably be correlated with a reducible attribute of O, e.g., one
which consists in its parts exemplifying certain electromagnetic properties and relations.

23. The reducible correlate of occurring pinkness in alternative B might be represented by the predicate ‘pinkₚ’ as contrasted with ‘pink’ simpliciter.

24. According to alternative A, occurring pinkness is itself a reducible attribute. According to alternative B it is correlated in a lawlike way with a reducible attribute. The law would have the form

(x) Pink x = Pink x

25. Both of these alternatives are puzzling. Indeed, A is on the face of it absurd, unless we tacitly admit colors, in the occurring sense, as values for ‘φ’, i.e., unless we grant that the parts of O which we are considering—molecules—have color in the occurring sense. How, we would surely expostulate, can an object’s having occurring pinkness consist in facts about its parts, none of which facts involves occurring color?! On the other hand, if we admit occurring color into these facts, we contradict what we have taken to be a conceptual truth about molecules.

26. But we seem to be little better off with B. For it involves the concept of ‘emergent’ properties in one sense of this much abused expression, i.e., properties of wholes which do not consist in properties of and relations between their parts. In other words, it is in direct conflict with those intuitions which underlie the theses of logical atomism.

27. Fortunately, however, there is another way of looking at Reconciliationist Scientific Realism which will get us further into the dialectic, while by-passing issues pertaining to reducibility and logical atomism.

28. Thus notice that the options we have been considering have in common the fact that they are formulated in terms of occurring pinkness as a possible attribute of a system of molecules.

29. The reconciliationist thesis, however, can be given a radically different formulation; one which construes occurring pinkness, at least in its primary mode of being, not as an attribute, but rather as a stuff—as matter in the pre-Socratic, Aristotelian sense.

30. Thus consider the following reformulation of the reconciliationist thesis:

I': There are two objects in the region occupied by the pink ice cube: (a) a cubical volume of pink; (b) a cubical whole consisting of molecules of H₂O (plus some aniline dye).

31. In this new framework, the previously mentioned law which ostensibly relates occurring pinkness as an attribute of the ice cube to reducible pinkness as an attribute of the whole of molecules is reinterpreted as a law correlating the being occupied of a region of space by a pink whole of molecules with its also being occupied by a volume of manifest pink.

32. Notice that according to this picture, the volume of pink is not identical with the volume of H₂O. Rather, there is a supervenience of one object, which is not a whole of actual parts, namely the volume of pink, on another, the volume of molecules, which is.

33. In this framework, occurring pinkness as an attribute of the ice cube is a derivative concept which is to be understood in terms of the ingredience in the ice cube of a particular which satisfies the predicate ‘is a cubical volume of pink’?

34. Notice, also, that what corresponds in this framework to what we have called the Cartesian alternative (IV) is not, in the first instance, the claim that the ice cube lacks the attribute of occurring pinkness, but rather the claim that there is no volume of pink over there where the ice cube is.

35. This should not be construed as the denial that the experience contains anything which can legitimately be called a cubical volume of pink. It manifestly does! It should rather be construed as the idea that we have a natural tendency to take volumes and surfaces of color which are not, in point of fact, constituents of physical objects, to be exactly that. How this is to be understood is a topic for the next stage of the dialectic.
III

36. When one comes to think, as we eventually must, of sense impressions as theoretical constructs, it is tempting to follow a familiar paradigm and to think of the theory as introducing a new domain of entities, e.g., sensations of volumes of pink, as microphysics introduces a new domain of entities, e.g., molecules.

37. One would think of the theory as inventing predicates to be satisfied by these postulated entities and formulating principles to describe their behavior, as kinetic theory invents predicates and formulates principles pertaining to molecules.

38. If one follows this paradigm, of course, one will be disposed to acknowledge that these predicates and principles are not invented out of whole cloth. One will stress the role of models and analogies in theoretical concept formation.

39. One would, therefore, be disposed to think of the pinkness of a pink sensation as analogous to the pinkness of a manifest pink ice cube, as the elasticity of a molecule is analogous to the elasticity of a tennis ball.

40. One would, however, grant that in the last analysis the ascription of attributes and behaviors to sense impressions, like the ascription of attributes and behaviors to molecules, is to be justified solely in terms of the explanatory power of supposing there to be such items.

41. Thus, one who is captured by the paradigm could easily be led to grant that the postulated analogies would be justified only to the extent that they contribute to the explanatory power of the theory, and to allow that in principle sense impressions need no more have attributes interestingly analogous to those of manifest objects, than micro-physical particles need have attributes interestingly analogous to those of middle-sized things.

42. Or, to put the same point in a less extreme form—but one which is directly relevant to the history of the problem—might not this philosopher be led to admit that certain complex physicalistic attributes (rougly, attributes definable in terms of 'primary qualities') might be both interestingly analogous to the perceptible features of manifest objects and, when ascribed to sense impressions, satisfy the requirement of explanatory power? And also led to allow that the demand for a nonphysicalistic attribute to play these roles might be just another example of 'pirotorial thinking'?

43. The possibility of such a challenge should make it clear that while there is much good sense in the above strategy for dealing with sense impressions, it is not quite on target.

44. And it is not difficult to see what has gone wrong. For the argument of the first lecture has should have made it clear that the theory of sense impressions does not introduce, for example, cubical volumes of pink. It reinterprets the categorial status of the cubical volumes of pink of which we are perceptually aware. Conceived in the manifest image as, in standard cases, constituents of physical objects and in abnormal cases, as somehow 'unreal' or 'illusory', they are recategorized as sensory states of the perceiver and assigned various explanatory roles in the theory of perception.

45. To make this point, one refers to them by the use of the category neutral (i.e., in scholastic terminology, transcendental) expression 'entity'.

46. Obviously there are volumes of pink. No inventory of what there is can meaningfully deny that fact. What is at stake is their status and function in the scheme of things.

47. The pinkness of a pink sensation is 'analogous' to the pinkness of a manifest pink ice cube, not by being a different quality which is in some respect analogous to pinkness (as the quality a Martian experiences in certain magnetic fields might be analogous to pink with respect to its place in a quality space), but by being the same 'content' in a different categorial 'form'.

48. The controversy over 'secondary qualities' is most fruitfully viewed as a series of attempts to recategorize the proper sensible features of experience. My aim in this lecture is to put the concepts and distinctions developed in the previous lectures to use in developing a recategorization which resolves some, if not all, of the puzzles which have generated this controversy—and, incidentally, to solve the sensorium-body problem.
49. But before I can undertake this task, other stages of the dialectic remain to be explored.

IV

50. In the Cartesian recategorization, the cube of pink which the perceiver takes to be a feature of his environment is in point of fact a state of himself.

51. The perceiver is caused to sense a cube-of-pinkly in standard conditions by a whole of molecules which is pink, and, by virtue of this fact, reflecting electro-magnetic radiation of such and such a frequency.\(^\text{10}\)

52. In other circumstances the total cause of a cube-of-pinkly sensing may involve an object which is not pink. Indeed it may involve no external object at all, but be an abnormal state of the perceiver's organism.

53. In all these cases the perceiver takes the cube-of-pinkly sensing to be a cube of pink, out there in physical space.\(^\text{11}\)

54. At this stage the Cartesian is likely to meet with the following objection: 'It is all very well to recategorize the cube of pink of which we are aware as a sensory state of ourselves, in an attempt to explain the relation between normal and abnormal perception. But why take, as you do, the further step of denying that whatever our perceptual state, when there is a pink ice cube in front of us there is a cubical volume of pink where the molecules are?'

55. Notice that this objection does not take the form it would if the Cartesian had introduced sensations of a cube of pink as new entities in the manner explored in the previous section. In that case, it would have read: 'It is all very well to introduce sensations of a cube of pink as additional items which are analogous to cubes of pink. But why take, as you do, the further step of denying that there are cubes of pink out there where the molecules are?'

56. This objection takes it for granted that cubes of pink are categorically suited to be over there in physical space. From this point of view, the objector is asking lor a good reason to deny that there are surfaces and volumes of color out there where molecules are—even though there might be.

57. Traditionally, the answer to this objection was that an adequate account of how we come to have the sense impressions we do finds no job for surfaces and volumes of color as constituents of physical objects.\(^\text{12}\)

58. This reply argues, in effect, that if there were proper sensible features in the physical world they would be causally epiphenomenal. They would play no role in the explanation of the causal properties of physical objects with respect to each other or with respect to their impact on percipient organisms.

59. Historically, counters to this 'scientific' reply have taken a metaphysical turn.

60. Thus some have argued that 'primary qualities' are 'mathematical' or 'structural' and cannot exist apart from 'content'. The only content perceptual experience presents us with is the proper sensibles. Thus there is good philosophical reason for supposing the primary qualities of physical objects to be embodied by proper-sensible content, e.g., color—even though these proper-sensible features play no role in scientific explanation.

61. To this we can expect the Cartesian to reply that we can perfectly well conceive of content features which are not found in sense experience. The Cartesian, in short, would attack 'concept empiricism'. I shall not follow this familiar debate on the present occasion.

62. Others (e.g., James Cornman)\(^\text{13}\) have argued that the mere fact that common sense believes that physical objects have proper sensible features provides a prima facie reason to accept the hypothesis that they do, even though these features play no role in scientific explanation.

63. This move is obviously open to a counter move which offers a better justification of the common sense belief than does the abstract appeal to a principle of charity.

64. But all of these dialectical moves take their point of departure from the second form of the objection to the Cartesian denial
that the proper sensibles exist in the physical world, that is to say
the one which involves a built in categorial contrast between cubes
of pink—of which it makes sense to say that they are located in
physical space—and sensations of a cube of pink—of which, as
states of the perceiver, it does not.

65. Notice, therefore, that if we turn our attention to the first
form of the objection, the situation is quite different. This time the
objector is suggesting that manifest cubes of pink might exist both
as objects in physical space and as sensory states of perceivers. To
this the Cartesian need only reply that if the cube of pink of which
we are perceptually aware is a state of ourselves as perceivers, then
neither it nor anything resembling it could be an object in physical
space.14

66. On the Cartesian recategorization, then, the esse of cubes
of pink is percipi or, to use a less ambiguous term, sentiri. Of

70. In this case he would say that sense impressions are states
of a person’s sensorium.

71. We would have

72. But whether or not these reifications are to be taken, with
Aristotle, as façons de parler or, with Descartes, as ontological
truth, is a question which has not yet arisen.

73. It does arise, however, when we take into account the fact
that the scientific image soon threatens to engulf the person.

74. Continuing, as before, to work within the framework of
scientific realism we are now confronted with the idea that persons
have actual parts—micro physical particles. When we attempt to reconcile this idea with the unity of the person, we find familiar strategies.

75. In the first place there is Substantial Dualism. The mind or, for our purposes, the sensorium is construed as one non-composite substance which is intimately related to a material substance, the body; and, in particular, to a proper part of the body, the central nervous system (CNS).

76. The state of sensing a-cube-of-pinkly, which, at the previous stage of the dialectic was construed as a state of a person, is now construed as a composite state, one element of which is a state of the sensorium, the other being a physical state of the CNS. The former is taken to be the final categorial transposition of the original cube of pink.

77. The person senses a-cube-of-pinkly by virtue of including as proper parts a sensorium which senses a-cube-of-pinkly and a CNS which is in a correlated physical state, which can be represented by the predicate '{senses a-cube-of-pinkly}'.

78. Just as in the pre-Cartesian stage of the dialectic pertaining to the pink ice cube we were led to think of such nomologicals

\( (x) \text{ Pink } x = \text{ Pink}_p x \)

or, in the pink stuff version,

Region \( R \) contains a cube of pink \( \equiv R \) contains a Pink volume of molecules

so we would now think of such nomologicals as

Sensorium is sensing a-cube-of-pinkly \( \equiv CNS_i \) is [sensing a-cube-of-pinkly].

or, to use a picture,

79. Prima facie a second alternative is Reductive Materialism. According to it a person is a complex system of micro-physical particles, and what really goes on when a person senses a-cube-of-pinkly consists in this system of micro-physical particles being in a complex physical state.

80. Coming forward at this stage of the dialectic, however, the position is absurd, as the reader can readily see by reviewing section III. For what we are being offered is no longer a recategorization of the original entity, an unproblematic cube of pink, but a recategorization of a supposedly postulated entity, a sense impression of a cube of pink. The mistake involved in Reductive Materialism is pinpointed in paragraphs 40–2 of section III.

81. What is often confused with Reductive Materialism is an ontological thesis concerning the status of sensing a-cube-of-pinkly.

82. This thesis is not, so to speak, that all states of a person—including sensings—are complex motions of atoms in the void, but rather the thesis that the only objects involved are atoms in the void. Sensing a-cube-of-pinkly is a state rather than an object.

83. Thus the force of the thesis is to deny that when a person senses a-cube-of-pinkly, there is a cube of pink as an object. It is an attack on 'sense data' as phenomenal particulars.

84. When it is made explicit that the sensory state is not a reducible or physical state of the system of micro-physical particles, the position turns out to be an old friend: Emergent (or Wholistic) Materialism.

85. According to it, sensing a-cube-of-pinkly is a state, \( \sigma \), of the physical system which is correlated with, but not reducible to, a complex physical state, \( \sigma_p \), of the system.

86. Pictorially:

\[ \text{System is in state } \sigma \equiv \text{system is in state } \sigma_p \]
System is in state $\sigma \equiv$ system is in state $\sigma_p$

87. Clearly, the difference between this position and the dualistic position presented above is purely ontological. The basic objects of the latter include both micro-physical particles and sensoria (or, if you prefer, minds). The ontology of Wholistic Materialism includes only micro-physical particles.

88. A third familiar ontological strategy is Epiphenomenalism. Like Substantial Dualism it has two basic categories of objects. This time, however, the nonmaterial objects are not sensoria, but sense-particulars. Or, as they have been called, sensa.¹⁶

89. In a sense, of course, Epiphenomenalism is a form of Dualism; but not of Substantial Dualism, for it does not construe its sensible items as states of a substance—the sensorium.

90. In our picture, we would have—and I put in the mental (conceptual) act of awareness as to highlight the points made in the above footnote:

91. Notice that although I have introduced a mind into the picture, its ontological status is left open. I am not coping in this essay with the mind-body problem. As far as anything I have said is concerned, conceptual acts might be complex physical states of a highly organized system of micro-physical particles.

92. In this ontological framework, the successor concept (categorial transposition) of a person sensing a cube of pinkly is that of a composite state of affairs consisting of the body as a complex physical system being in physical state $\sigma_p$, and the existence of a correlated sensible cube of pink.

93. This time the nomologicals ('psycho-physical laws') take the form of correlations between certain states of the physical system, the $\sigma_j$ of previous diagrams, on the one hand, and, on the other, the kinds of, and sensible relations between, the sensa belonging to the person whose body is the physical system in question.

94. Roughly, the domain of sensa belonging to a person consists of the sensa 'caused' or 'brought into existence' by these bodily states.

95. The embarrassment experienced by the Epiphenomenalists in speaking, in this connection, of causality is notorious. And if we reflect on it, we will gain insight into a theme which, though it stands out most clearly in the case of Epiphenomenalism, is also lurking in classical forms of Substantive Dualism and Wholistic Materialism. This insight will take us to the final stage of the dialectic—at least the final stage as far as I shall pursue it here.

96. It is a defining trait of Epiphenomenalism that sensa themselves are, so to speak, fifth wheels when it comes to the causality involved in the sequence of physical states of the CNS. We get the familiar picture...
where the ‘ϕ’'s represent physical states of the CNS and the ‘ψ’s represent the associated patterns of sensible objects.

97. The idea is that the occurrence of a ϕ-state is adequately explained by the occurrence of another, preceding ϕ-state, no reference to the associated ψ-object being necessary. Thus the only nomologicals to which (in principle) appeal need be made are laws formulated in terms of ϕ-states.

98. Of course, in the Humean sense there would be ‘causal laws’ of the form

\[ <ϕ_1, ψ_i \text{ at } t> = <ϕ_j, ψ_i \text{ at } t'> \]

so that \(<ϕ_1, ψ_i \text{ at } t>\) and, indeed [by virtue of the laws pertaining to the supervenience of ϕ-objects:

\[ <ϕ_i \text{ at } t> = <ψ_i \text{ at } t> \]

\[ <ϕ_j \text{ at } t'> = <ψ_j \text{ at } t'> \]

\(<ϕ_1 \text{ at } t>\) and \(<ψ_1 \text{ at } t>\) would be Humean ‘necessary and sufficient’ for \(<ϕ_j, ψ_i \text{ at } t'>\), \(<ϕ_j \text{ at } t'>\) and \(<ψ_j \text{ at } t'>\).18

99. But the acknowledgement of these Humean uniformities should not obscure the fact that from the standpoint of explanation, the basic role is being played by the ϕ-states. For, (a) the ϕ-state laws are autonomous, i.e., stand on their own feet; (b) the ψ-object sequences are themselves explained in terms of ϕ-state laws and ϕ-ψ laws of supervenience.

100. The idea that sensory items do not play an essential causal role in the behavior of the bodies of sentient beings was not a direct empirical finding by psycho-physicists, but rather a consequence of the dualistic picture of man characteristic of the early modern period.

101. To be sure, this dualism did have an empirical core, but this core was not directly a matter of psycho-physics, but rather an inference from the sufficiency of explanation in terms of mechanistic variables in the case of objects in the inorganic realm.

102. This sufficiency of mechanistic variables, combined with the almost tangible thingishness of physical objects and with an impact paradigm of causation made it difficult to conceive of a mode of causation in which the development of a system of material particles might be influenced by nonmaterial items, whether states of a ‘mind’ or Hobbesian objects (‘appearances’).

103. This difficulty made it only too tempting to extend the autonomy of mechanical explanation to the bodies of sentient beings. As bodies they are merely extremely complex systems of material particles.

104. That the proper sensibles—e.g., shades of color—could function alongside of mechanistic variables in psycho-physical laws in such a way that the mechanical variables by themselves did not constitute a closed system with respect to necessary and sufficient conditions (as they do for Epiphenomenalism) made no more scientific sense, given the paradigms of the day, than would a Compatibilist attempt to involve the proper sensibles in the laws of motion.

105. Notice that a parallel problem arose in the context of human action. The modern (as opposed to the theological) problem of free will arose in the form: How, given the causal autonomy of the physical, could conscious volitions make a difference? Must they not have physical counterparts, ‘material volitions’ in Cartesian terminology,19 to be the necessary and sufficient causal links in
the development of purposive behavior. Leibnitz's 'pre-established harmony' is the mirror image of the then current treatment of sensory consciousness.

106. Epiphenomenalism is the tidiest translation into ontological terms of what I have been calling the autonomy of the mechanical. The category of 'epiphenomena' reifies the causal impotence of the proper sensibles as Substantial Dualism and Wholistic Materialism do not.

107. After all, sensoria could intervene in CNS 'machines' by ghostly impact, as minds were conceived to do (by interactionists) by virtue of their desires, emotions and volitions.

108. And proper sensible variables could play an essential role in laws pertaining to the material states of the CNS, as many wholistic materialists conceived conscious thoughts to do.

109. But in point of fact, for reasons highlighted in paragraph 105, whichever ontology they espoused, the scientific ideology of the autonomy of the mechanical led them to conceive of the sensory features of consciousness as obeying psycho-physical laws having what might be called the epiphenomenalist form.

\[
\psi_i \quad \psi_i \\
\Downarrow \quad \Downarrow \\
\Phi_i \quad \Phi_j
\]

110. For the substantial dualist, the '\(\phi\)'s would represent states of the CNS, the '\(\psi\)'s would represent states of the sensorium. For the wholistic materialist, the '\(\phi\)'s would represent physical states of the CNS; the '\(\psi\)'s, proper sensible states (physical, but not physical) of the CNS. The diagram is the same; only the ontology is different.

111. Now in the preceding lecture I sketched an ontology of absolute processes. If we take it seriously, then we no longer are committed to a sharp ontological distinction between objects and object-bound processes on the one hand, and absolute processes on the other.

112. Objects and object-bound processes would, in traditional terminology, be 'logical constructions' out of, i.e., patterns of absolute processes.

113. Physical objects would be patterns of actual and counter-factual physical absolute processes, i.e., absolute processes which suffice to constitute what goes on in non-living things and insensate organisms. Let me call them \(\phi_2\)-ings.

114. What exactly there are in the way of \(\phi_2\)-ings is a matter of ultimate scientific truth. The only constraint we non-Peirceans can put on them is that they be the sorts of absolute processes which permit the definition of structures which behave in first approximation as do the micro-physical particles of contemporary theory. In a humorous vein we might refer to them as electronings and quarkings.

115. In addition to \(\phi_2\)-ings, the domain of absolute processes would include \(\sigma\)-ings (e.g., C ings, reddings), the transposition of sensa into the framework of absolute process.

116. Philosophers who ponder the sensorium-body problem from the perspective of Scientific Realism, and who resonate to the dialectical structure of the problem as it has been developed up to this ontological turning point, are likely to find that they have been thinking of the CNS as consisting of objects (e.g., neurons, consisting of molecules, consisting, say, of quarks, . . .) and of the relevant physical processes as object-bound processes.

117. And that as a result they have been taking a form of ontological epiphenomenalism for granted. In this form the category of 'epiphenomena' would be cashed out as the category of absolute sensory processes, and the traditional dualism of 'epiphenomena'
and 'matter in motion' would be viewed, more penetratingly, as a contrast between absolute processes and V-ings of such objects as neurons, molecules, or, say, quarks.

118. They would, accordingly, keep the diagram of paragraph 108, but reinterpret the 'φ's as standing for object-bound physical processes in the CNS, and the 'ψ's for determinate kinds of absolute sensory processes.

119. But if they were to accept (programmatically, of course) an ontology of absolute process, they would immediately be freed from this last refuge of metaphysical dualism. If the particles of microphysics are patterns of actual and counterfactual φ2-ings, then the categorial (indeed, transcendental) dualism which gives aid and comfort to epiphenomenalism simply vanishes.

120. And once this picture has gone, they would be in a position to realize that the idea that basic 'psycho-physical' laws have an epiphenomenalist form is a speculative scientific hypotheses which largely rests on metaphysic considerations of the kinds we have been exploring.

121. Psycho-physical theory, to the extent that it is well confirmed, does, indeed, entail that uniformities pertaining to the occurrence of φ-ings specify that they occur in the context of φ2-ings which belong to patterns of absolute processes which constitute specific kinds of neuro-physiologic be nomologically autonomous.

122. Nor does it require that neuro-physiological objects which have φ2-ings as constituents, have only φ2-ings as constituents. φ-ings could in a legitimate sense be constituents of neuro-physiological objects.

123. That is to say, whereas the objects of contemporary neuro-physiological theory are taken to consist of neurons, which consist of molecules, which consist of quarks, . . . —all physical objects—an ideal successor theory formulated in terms of absolute processes (both φ-ings and φ-ings) might so constitute certain of its 'objects' (e.g., neurons in the visual cortex) that they had φ-ings as ingredients, differing in this respect from purely physical structures.

125. The way would be open to a bundle theory of persons. A person would be a bundle of absolute processes, both φ-ings and φ2-ings.24

126. Notice that φ-ings would be physical, not only in the weak sense of not being mental (i.e., conceptual), for they lack intentionality, but in the richer sense of playing a genuine causal role in the behavior of sentient organisms. They would, as I have used the terms, be physical, but not physical. Not being epiphenomenal, they would conform to a basic metaphysical intuition: to be is to make a difference.26

127. Thus the answer to the question which gives this essay its title is affirmative with respect to sensory consciousness. As for the further question, Is conceptual consciousness physical? a whole new dialectic must be followed. I have developed the main lines of this dialectic on a number of occasions, most extensively in Science and Metaphysics and Naturalism and Ontology.

VIII

128. By way of conclusion, it might be useful to point out that this essay, along with the preceding essay, can be construed as a restatement and refinement of the argument of "Philosophy and the Scientific Image of Man."27 It should throw some light on what I was trying to say in the following, rather cryptic, paragraph from that essay:28

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 continuum 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.

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NOTES

1. I shall use this phrase to refer to states of being aware of an item as being of a certain quality or as being related in a certain way to something else.


3. See paragraphs 152–56 of Lecture I.

4. Paragraphs 53–76.


6. I am, of course, tacitly excluding certain properties which satisfy this definition, e.g., an object's property of standing in a certain relation to another object which is not a proper part of itself. In traditional terminology, I am limiting my attention to "intrinsic" properties of wholes.

7. A view of this form which rejects scientific realism might identify the pink ice cube with a volume of pink as having the causal properties characteristic of ice, e.g., the property of cooling hot tea. If the manifest coolness of the cube is given equal treatment, one is confronted with the problem of understanding the connection between the cube of coolness and the cube of pink. This problem arises in other forms as the dialectic continues.

8. See, in particular, Section IV.

9. Clearly, to spell out this metaphor would require an adequate theory of the categories and, in particular, of predication and propositional form. For a recent attempt at such a theory, see my Naturalism and Ontology, cited in n.2, above.

10. That the story of color perception is far more complicated than a simple correlation of perceived quality with the wave length or frequency of the radiation which impinges on the retina, has been made clear by the work of Edwin Land. The refinements which his theory introduces, however, do not affect the main ontological issues with which we are concerned.

11. This does not entail that the perceiver believes that there is a cube of pink, out there. The taking is a propositional tokening which is essentially a response. Whether or not the perceiver comes to believe that there is a cube of pink out there involves thinking in the question-answering sense of this term, as contrasted with thinking that as a conceptual response to a stimulus.

12. Compare, for example, Aristotelian type theories according to which the standard cause of a sense impression of a cube of pink would involve the transmission of the proper sensible form pink as well as the common sensible form cube through a transparent medium, and their reception by the eye.


15. Roughly, those features of objects are physical, which are, in principle, definable in terms of attributes exemplified in the world before the appearance of sentient organisms, i.e., attributes necessary and sufficient to describe and explain the behavior of 'merely material' things. Physical, features, on the other hand, are any which belong in the causal order. I introduced this terminology in discussions of the mind-body problem at the Minnesota Center for Philosophy of Science.

16. The terminology must be watched like a hawk, for many philosophers have used—and, for that matter, still do use—the term 'sensus' to stand for an object of an act of sensing, construed as a special kind of awareness as. Much of what has been said about acts of sensing is highly problematic. (See my "Sensas or Sensings: Reflections on the Ontology of Perception," in Essays in Honor of James Conman, Keith Lehrer, ed. [Dordrecht, Holland: 1981].) The key point is that sensing, thus construed, is an epistemic rather than, as in our construal, an ontic notion. As we have been using the term, to sense a cube of pink is not to be aware of a cube of pink as a cube of pink, but is rather the very 'mode of being' of sensed cube of pink. I would have used Ayer's carefully introduced expression 'sense content,' were it not for the fact that the act-content terminology is at least as troublesome as that of act and object.

17. It must be remembered that Epiphenomenalism, like Substantial Dualism and Holistic Materialism, is a philosophical, indeed a metaphysical, gambit—not a part of scientific theory. To the extent that scientists think along these lines, they are taking a philosophical stance. The importance of this point will come out shortly.
18. For simplicity of formulation—because none of the points I wish to make hinge on it—I shall assume the absence of "multiple causes."

19. Cf. Descartes' use of the phrase 'material ideas' to refer to the states of the pineal gland which correspond to conscious sensations in the mind.

20. It is worth pondering Spinoza's remark to the effect that "No one hitherto has gained such an accurate knowledge of the bodily mechanism, that he can explain all its functions . . . . " (Ethics, Part III, Prop. II[Note]). He is, in effect, arguing that while we are not scientifically able—at least not yet—to conceive in specific terms the sort of material state of the body which could be the sufficient cause of purposive behavior, the possibility of there being such a state cannot be ruled out on logical or empirical grounds, while systematic considerations require it.

21. It should be obvious to students of Kant that his solution of the problem of free will is in essence the same as that of Leibniz and Spinoza, though lacking in theological overtones. For Kant, as for Spinoza, it suffices that it cannot be shown to be impossible that there be, in the required sense, material counterparts of volitions. Of course, Kant is in deeper trouble when the question is posed with respect to rational thinking generally.

22. Of course, tough-minded materialists have conceived of thoughts as identical with material states of the brain, in which case their causality would be a special case of a functional correlation of physical variables. The wholistic materialists referred to in effect are metaphysical cousins of interactionistic dualists. The latter rely the functional correlation of variables of radically different kinds (mental and material) by assigning them as states to different substances (minds, bodies).


24. Reflection should make it clear that the main flaw in Hume's bundle theory is that he includes only sensory items (impressions and ideas), whereas the unity of the self—its imminent causation—requires the inclusion of bodily states; in our terms, φ-ings as well as ψ-ings.

25. After all, 'physical' functions traditionally as a contrastive term.

26. Compare Plato: "We set up as a satisfactory sort of definition of being, the presence of the power to act or be acted upon in even the slightest degree." Sophist, 248C; H. N. Fowler trans. (London: Loeb Classical Library—Heinemann, Ltd., 1961).

27. Frontiers of Science and Philosophy, Robert Colodny, ed. (Pittsburgh: Univ. Of Pittsburgh Press, 1962) [reprinted as chap. 1 in SPR].

28. SPR, p. 37.

REPLY TO SELLARS

Sellars discusses a wide variety of philosophical problems in his Carus Lectures, and everything he has to say about those problems deserves very careful attention. But it seems appropriate for me to confine my remarks to his first lecture, which he calls "The Lever of Archimedes." He pays me the compliment of taking as a starting point for this lecture a paper of mine, "Coherence, Certainty, and Epistemic Priority," published by The Journal of Philosophy in 1964. Although the paper deals with very general conceptual and epistemological issues, its orientation is influenced by the fact that it was written for a memorial symposium on the philosophy of C. I. Lewis.

Lewis construed coherence theories as denying the existence of something he called 'the given'; and Sellars therefore says that I was concerned in my paper to explore the contrast between epistemological theories that stress the given and those that stress coherence. It should be noted, however, that I avoided the term 'given' in my own discussion of issues that distinguish the coherence theory from its alternatives. This term, along with terms like 'sense-datum', sometimes has causal implications. To maintain that there is something given in perceptual experience might be to maintain that there is a constituent of perceptual experience that is not influenced by the perceiver's beliefs, attitudes, and other psychological states. This causal doctrine has of course been challenged—and in my opinion convincingly—by the gestalt psychologists and others. The basic epistemological issue, however, still remains. We can still ask whether some of our beliefs about sense experience, whatever the genesis of sense experience may be, have more warrant than we can account for by the way they cohere inferentially with other beliefs. If they have even the slightest degree of such noninferential (or "initial") warrant, then the pure