

BOOK REVIEW

Globus, G. G., Maxwell, G., and Savodnik, I. (Eds.) *Consciousness and the Brain. A Scientific and Philosophical Inquiry*. Plenum Press, New York, 1976, pp. xii-365.

The dialectics of the philosophical and scientific approaches to the Mind-Body problem form the focal point for the eleven chapters of this volume.

The classic answers are outlined by WEIMER in the first chapter: *Manifestations of Mind: Some Conceptual and Empirical Issues*. An ontological solution of the problem is forever precluded, according to Weimer, by the fact that consciousness, known "by acquaintance," and patterns of neural activity, known "by description," belong to different epistemological spheres. While Weimer has admittedly nothing to say about a possible neutral substrate of mind and brain, he suggests that these are different phases of a single, deep ambiguous structure. No causal interaction can exist between the two surface structures. Causality is exclusively intraphasic, so classic interactionism is mistaken. Scientific data may be important but not decisive, as it cannot overcome the epistemological impasse. Weimer's concept of consciousness will probably be found rather equivocal and apt (pp. 11 and 12) to favour a noxious restatement of the problem in mind-left hemisphere terms.

The following chapter, *The Mysterious "Split": A Clinical Inquiry into Problems of Consciousness and Brain*, by KNAPP, contains a psychoanalyst's reflections upon the ontogenesis of the split between inner and outer reality, from which the Mind-Brain problem originates.

Knapp's paper is conveniently followed by SAVODNIK's Chapter entitled *Mind, Brain, and the Symbolic Consciousness*. Here, the problem is shown to be a function of Cassirer's "symbolic consciousness," whose three forms may be recognized through the phases of the psychoanalytic process. The Mind-Brain problem does not exist at the level of the "expressive" form of symbolic consciousness, where there is no distinction between symbol and object; it emerges from the establishment of the "representative" function, where symbol and object become dissociated. According to Savodnik, contemporary philosophy, centered on the metaphysical aspect of the problem, could gain some new insights by addressing itself to the "primary experience which each of us has of each portion of our experience" at the level of the expressive function of the symbolic consciousness.

ECCLES' point of view is stated in the chapter *Brain and Free Will*. The existence of an autonomous and immaterial mind, apt to influence the pattern of neural activity of the cerebral cortex, is advocated as a necessary premise of free will. As free will itself is not above discussion however, Eccles' argument appears to be "begging the question." It is claimed that the impact of mind on the brain manifests itself in the "readiness potential," which can be recorded from a large area of the cortex, starting about 0.8 sec before voluntary movement. With reference to data from split-brain research, it is then argued that the conscious self is exclusively connected to the dominant hemisphere, though "it is not denied that some other consciousness (?) may be associated with the intelligent and learned behaviour of the minor hemisphere." The same allowance is made for animals. This view, leading to confusion of consciousness and lan-

guage, is hardly, if at all, compatible with the claim that readiness potentials (detectable from both cortices and with no demonstrated origin from the left hemisphere) are the physically indeterminate events raised by the freely willing, immaterial mind in the material substrate of the "liaison cortex." On the other hand, the evidence coming from split-brain studies does not conduce acceptance of Eccles' solution of the Mind-Brain problem, a solution involving questionable corollaries as the denying of consciousness to aphasic patients.

The difficulties of dualism, in both its parallelistic and interactionistic versions, are dealt with by SAVAGE in his chapter *An Old Ghost in a New Body*; a not always clear confutation of Eccles' theory, which is, in Savage's opinion, unable to provide an adequate explanation of the nonphysical interaction between mind and body. The paper ends with a defense of materialism and with an affirmation of its intrinsic humanistic qualities.

Eccles' polemical rejoinder to Savage's attack follows in chapter 5: *How Dogmatic Can Materialism Be?*

Consciousness emerges from mental events as a whole emerges from its parts. This is the view expressed by SPERRY in the chapter *Mental Phenomena as Causal Determinants in Brain Function*. Consciousness and mental events are therefore mutually dependent. This conception sounds materialistic to the extent that consciousness does not appear to be meant as a metaphysical entity released from its physical substrate. Sperry, however, seems to be intolerant of such a label. He expounds his theory as a compromise between dualism and materialistic monism. According to him, causal potency acknowledged to consciousness in brain function "allows degrees of freedom in any voluntary choice far above that envisaged in traditional materialism or atomistic determinism." As such degree of freedom are not claimed to be extrinsic to the physical brain, however, the ultimate results is a kind of monism admitting a tolerably free will as a property of the matter: which is not a novelty in philosophy. The problems raised by cerebral disconnection are also taken into consideration by Sperry. In his opinion, consciousness is unitary in the intact brain but largely split by commissurotomy. Contrary to Eccles, self-consciousness is not denied to the right hemisphere. The question about the distinction between conscious and unconscious patterns of neural activity is eventually asked. The former are envisaged as "special types of cerebral events, unique as far as we know and yet to be discovered."

The understanding of emergence and of the regulative function of an entity resulting from the global activity of the nervous system is aided by DEWAN's chapter *Consciousness as an Emergent Causal Agent in the Context of Control System Theory*. An analogy is here suggested between consciousness and the "virtual governor" emerging in a power grid from the connection of several individual oscillators. The analogy is quite interesting within its limits, but the crucial point, the self-awareness of consciousness, still remains elusive. A consciousness like the virtual governor might equally as well emerge in the mechanism of a robot.

In chapter 8, *Reductionism, Levels of Organization, and the Mind Body Problem*, WIMSATT argues that emergentism is not incompatible with reductionism. His analysis of the latter is somewhat lengthy and difficult, but it is necessary for a correct approach to the Mind-Body problem. Wimsatt points at a reductionist's possible objection to Sperry's interactionistic emergentism: an entity (consciousness) is claimed to be the cause of its own behavior under different

description (brain events). Nonetheless, he tries to give Sperry's position a practical and provisional justification, which is not fully convincing.

A new ("structural") formulation of the psychoneural identity thesis is proposed by GLOBUS in the chapter *Mind, Structure, and Contraditicon*: the structure of mind and brain is one and the same but their properties are respectively a function of an unbounded intrinsic and of a bounded extrinsic perspective of the same entity. The suggestion is appealing but its major difficulty is conspicuous: which entities are endowed with consciousness? The answer may range from panpsychism (towards which Globus seems to be mystically inclined) to a much more restrictive view, according to which only a part of the brain is involved in consciousness.

PRIBRAM (*Problems Concerning the Structure of Consciousness*), indeed, maintains that instead of asking how consciousness and brain interact we must investigate how the organization of basic brain events differs in the states characterized by automatism and in the states characterized by consciousness. The latter could be subserved by junctional and dendritic mechanisms. Once again, Pribram's known hypothesis of an olographic structure of consciousness is advanced.

The eleventh, and last chapter, *Scientific Results and the Mind-Brain Issue: Some Afterthoughts*, by MAXWELL, is prefaced by the transcript of a conversation among the philosophers and scientists attending the conference to which the volume is related. Maxwell considers the various theses proffered, coming to the conclusion that all are implausible. The solution to their shortcomings could be seen in a non-naive (Russellian) realism, holding that we know the *structure* of physical entities, not their matter. The structure of mind and brain is the same, or, more exactly, "all mental events are physical and some physical events are mental."

Resulting from an interdisciplinary effort, the book will probably provide hard reading to both scientists and philosophers. The multiplicity of the answers scored by the problem may be dismaying unless the reader finds a way out of the epistemological pessimism towards the more (to him) plausible solution. Whatever the option may be, it should remain essentially private and devoid of aggressive charges like those underlying the Eccles-Savage conflict. The issue, however, is ineluctably tied to profound emotional feelings; from those related to the political abuse of both dualistic and monistic conceptions to those concerning the morality of and the limits to animal experimentation (a subject merely touched on by Savage). Though occasional prolixities and the heaviness and obscurity of many pages could perhaps have been avoided, praise is surely due to this engaging and challenging book.

Edoardo Bisiach