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Foreword

Because he seeks a particular truth in objective experience, the scientist rarely makes a contribution to the philosophy of morals. He hoes the fields of knowledge without looking far into the landscape or deep within himself. Trying to keep his mind on the facts and task at hand, he resists involvement in loose speculation or passionate argument. The successful scientist must have disciplined thought and be dedicated to unbiased investigation agreeing always to conditions which can be identified and measured in terms that are universally acceptable. The nature of creative inquiry draws his mental focus into such a narrow channel that he may tend in time to know much less than his neighbors about human affairs, about beliefs and perspectives regarding life as a whole, and especially about the irrational sources of interpersonal life.

And yet, from time to time it is a scientist who changes the way all of us perceive ourselves and each other, as well as the way we look at the world. Thus the young Charles Darwin's reflections of nature's patterns forced him to challenge some of the deepest values of men he admired and of family near and dear. Some of Darwin's researches after he became a devoted naturalist were extremely specialized, even pedantic in detail; an encyclopedic work on barnacles drove him to desolation. Yet, detecting an undeciphered message in nature, he continued his examinations on orchids and honey bees, volcanoes and fossils, exploring and struggling for half a century to interpret this message—until he became the most discussed thinker of his age.

In its highest form, the scientific belief in nature may even lead

to a spiritual insight that can stand against bigotry and superstition in established dogma. Einstein wrote of a cosmic religious sense that comes from mystic revelation and from the most advanced contemplation of the intricate order in nature. He claimed that this cosmic awareness might become a higher, more developed form of religion which would increase the sense of meaning, without supplanting pantheistic appeasement of nature's threats or human-centered religious codes that more commonly comfort loneliness and the anguish of adversity.

Roger Sperry's scientific life, directed largely to mysteries within man's inner being, has been guided by a persistent quest for understanding of one of nature's greatest riddles—the relation of mind to brain. Like Darwin and Einstein, he is led through his pursuit of science to a changed view of the world and to a religious philosophy in which the cosmic order of evolving nature is seen to transcend, though not exclude, the more immediate personal values and needs of mankind. He sees current mind-brain science upholding a framework for moral values in which the human psyche, though the prime, crowning determinant of nature, is not the final measure of all things. His argument demands that more "godlike perspectives," referent to all creation, be placed above otherwise compelling humanitarian rules of conduct when the two appear in conflict.

The contributions of Sperry to the conceptualization of mind and brain require change in the basic philosophy of science itself. Traditional mechanistic determinism of twentieth-century science is replaced by a new philosophy in which nature's highest and most evolved manifestations attain causal control over the fate of entities at lower levels. This concept of a causal potency in consciousness capable of holding influence downward over all component orders of cerebral function, with the linked theory that values inherent in the patterns of the mind are the key determinants in all decision-making and a natural topic for scientific as well as philosophical enquiry, form the heart of his argument.

Sperry's philosophical message is firmly rooted in a masterly knowledge of the life of the brain starting with its growth in the embryo. In early experiments on the plasticity and developmental

specification of brain circuits that gained him fame before he was forty, Sperry showed step by step that every main type of linkage in the brain could have its significant structure determined from within the developmental process itself. He concluded that the patterns of experience, or the layout of environmental stimulation, were insignificant for the fundamental plan of this development. The immediate environment was not the sole informant of the more complex psychological functions, as had been assumed in the reflex physiology of Pavlov and in Watson's behaviorism. The surgical and experimental techniques and the strategy of interventions in Sperry's work on formation of nerve circuits were brilliant and established him in a unique lead position among the then small band of researchers who sought a biological theory of psychological function.

It was his work on the surgically divided brain that led Sperry to a direct confrontation with the creative force of consciousness. Begun in the early 1950s with Ronald Myers in Chicago, and continued with a succession of graduate students and other associates at the California Institute of Technology, psychological studies on split-brain animals led the way to startling discoveries on human beings who had undergone similar surgery for control of intractable epilepsy. The findings, concerning a strangely divided mental state in which two different consciousnesses may cohabit the same skull in harmony, have profoundly interested philosophers and opened a great new territory of inquiry. They have brought psychologists and neurologists to consider more closely than before the relationship between functions of the mind and of the brain, and to ponder the anatomy of the "self." Although the thinking behind Sperry's theory of consciousness as a causal force in brain activity had a considerable history, it was these studies on the surgically divided mind that prompted the first developed expression and publication of the new philosophy in the mid-sixties.

The issues of consciousness, brain, and moral values have since become increasingly the subject of hot debate in professional journals of philosophy, psychology, neuroscience, and even religion. Few brain scientists, however, have attempted to counter

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Sperry's proposals, which after all imply a major shift in neurobiological thinking. Although his mind-brain concepts have been used to bolster old dualist arguments, on the one side, and materialist mind-brain identity philosophy on the other, Sperry prefers to think of his position as neither one of these, but more correctly described as a distinct, intermediate framework of thought. Under labels such as "mentalist monism," or "emergent interactionism," it offers the one coherent theory of self-regulated motives for consciously controlled actions, and it is built of concepts that flow directly from research on the brain. For this reason, if for no other, these ideas are unique. The novel insights of this volume promise to guide both speculative philosophy and scientific examination of the evidence for years to come in the search for a new foundation of belief. This search must acknowledge the inherent wisdom and power of the human mind and its necessary fitness to the nature of experience. If Sperry is right, the psychobiological approach will create values to guide humanity to a higher path of survival than that uncertain course we presently follow.

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