

Editorial

The real core of human nature is not any particular body but an enduring pattern of flow. The flow pattern is generated by the interaction of the energy and boundary conditions set by habitat (or cosmotype), genotype, and culturetype, resulting in unending successions of ever-evolving levels of living forms.

Ralph Wendell Burhoe

When I first selected the articles for this *Zygon* issue on "Nature, Mind, and Method" and then reviewed what we had published for the year 1980, I thought to myself that some readers might wonder about the dramatic shift between 1980 and 1981. During 1980 we published four issues that in one way or another focused directly on the relationship between facts and values: "Is Ethics a Science?" "The Is/Ought Question," and the set of issues on "Sociobiology, Values, and Religion." In this first issue of 1981, however, facts and values no longer appear on center stage. Instead the reader finds articles addressing questions of how we know about the world and of the similarities and differences between the methodologies of scientific and religious inquiries. Why should a journal, even a journal of science and religion, make such dramatic shifts of emphasis? The reader who was just becoming comfortable with discussion of the relationship between facts and values might well ask: What is *Zygon* trying to accomplish?

The same question can be asked when one broadly surveys the first fifteen years of *Zygon's* publication and when one looks to upcoming 1981 issues. Sampling the previous volumes, one finds such articles as "Life, Hope, and Cosmic Evolution," "The Role of Faith in Physics," "Thermodynamics of Flow and Biological Organization," "Biological Aspects of Aggression and Violence," "Human Values and the Technology of Weapons," "Genetics, Justice, and Respect for Human Life," "Theological Implications of Modern Biogenetics," "Heilbroner's Historicism Versus Evolutionary Possibilities," "Teilhard de Chardin and the Concept of Purpose," "Information Process, Systems Behavior, and the Study of Religion," "Ecology, Theology, and Humanism," "Bridging Science and Values: A Unifying View of Mind and Brain," and "The Neurobiological Bases of Myth and Concepts of Deity." Looking ahead for the rest of this year, one sees a similar diversity of interests. Such articles as "On Lao Tzu's Ideal of the Self," "Moral Development, Religious Thinking, and the Question of a Seventh Stage," "God and the Statistical Universe," and "Nature, Technology, and Politics in a Global Context" are just a few that have been selected.

This diversity suggests that *Zygon* is concerned with a wider range of problems than are some other journals. Others are publishing fine work on questions of medical ethics, environmental ethics, or philosophy and technology, and on important thinkers such as Alfred North Whitehead or Pierre Teilhard de Chardin and the implications of their thought for the interrelationships among science, philosophy, and theology. Periodicals that focus on concerns such as these are very important for furthering constructive thinking that attempts to bridge the discoveries and insights of various disciplines. *Zygon*, however, seeks more. It attempts to provide an overarching perspective that fuses the spectra of a variety of religious beliefs and practices with

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knowledge from the contemporary sciences to light the way in our human search for life's meaning and general moral direction.

The perspective of *Zygon* concerning humanity's place, meaning, and duty in the scheme of things can be viewed through various, already evolved color filters, such as those of Christian theology, of Hindu philosophy, or of modern science. In the combined lights of Christian theology and modern science, *Zygon* is analyzing the work of God's spirit throughout the universe as it continually tears down and builds up and thus continually transforms the physical world, life, and human thought and behavior. How God continually creates systems in which "all things work together for good" is what *Zygon* is trying to understand. In the combined hues of science and philosophical Hinduism, *Zygon* is exploring the unfolding of Brahman in the phenomenal world of multitudinous forms or, in more personalistic Hindu terms, the activity of the god Shiva dancing out the universe. In the spectra of the modern sciences, *Zygon* is attempting to illuminate the universe, including humanity, as a continually evolving system of interacting physical-chemical, biological, and cultural (including religious) subsystems.

The phenomena of this fundamental perspective on human destiny, seen in the combined light of the several more limited spectra, suggest that a more universal view of life's meaning and purpose is available. This view shows that human individuals and the individuals of the various other species all play a role in the continual creation of the universe.

From this perspective we can begin to see how many of the diverse articles begin to fit together. The articles mentioned above address such topics as thermodynamics and creation, the role of ecosystems in shaping and being shaped by humanity, and the relationship between genetic programs for behavior and the value systems of various cultures. They consider the structure of the human brain as a mechanism (shaped by culture and religion as well as genes) by which humans respond to information from their environment, how the human brain conceivably gives rise to concepts of a reality that transcends the experienced world, and how experiences of that transcendent reality might be scientifically understood. They analyze how religious traditions and other cultural institutions interact with a biologically created human nature to form an individual self that both competes and cooperates with other such selves in a large society. Finally they ask how knowledge about such things from the contemporary sciences fits together with more traditional insights about the cosmos, human nature, and humanity's place in the scheme of things. What *Zygon* attempts to do is to explore in some depth with the best information available—with information tested and refined in the crucible of hard-headed scientific inquiry and information tested historically through countless generations of human living—the entire process of the evolving universe, or, as some traditional Christian theologians have suggested, the natural reflection of the mind of God.

When we further realize that all that we perceive and conceptualize about reality, whether it is considered to be natural or divine, is filtered through the human nervous system and processed in terms of languages and concepts that we inherit, we can say that every human being is a microcosm of the universe. Every human is a synthesis of three strands of information: the genetic strand consisting of naturally selected information from the past encoded on threads of deoxyribonucleic acid (genotype), the strand of language, concepts, and values that we inherit as we grow up in a particular society and culture (culturetype), and the strand of experiences of and constraints imposed on us by other forms of life and nonlife that make up the environment

in which we live (cosmotype). In terms of this "trinitarian" view of nature and human nature advanced by Ralph Wendell Burhoe in many of his writings, *Zygon* is attempting to spotlight all of the macrocosm as it is reflected in the microcosm of ourselves. The diversity of *Zygon* articles is thus an attempt to provide a source book and to develop an integrated understanding of all that goes into making up our human nature and destiny.

Coming back to the apparent disparity first mentioned between the 1980 issues on the relationships between facts and values and this current issue on "Nature, Mind, and Method," we can now see all these issues as simply highlighting different facets of the picture of an evolving universe as it is reflected in different aspects of the human enterprise here on earth. The question of the relationship between facts and values is really the problem of how to relate inherited genetic dispositions and inherited cultural values with the ever-new circumstances in the world around us so as to achieve effective guides for human action. Similarly this March 1981 issue attempts to integrate the three strands of genotype, culturetype, and cosmotype; however, their relationship to human action is less direct because this issue focuses on our perception and conceptualization of ourselves in the world in order to understand better our humanity as self-conscious, knowing creatures.

In the light of *Zygon's* comprehensive evolutionary perspective, we are now examining in greater detail three types of relationships, all of which involve human cognition. The first of these is the interrelationship between ourselves as knowing agents and the physical world. Edwin H. Land argues that it is not possible to separate the human knower from the rest of the world; instead we humans evolved perceptually in such a manner as to be in polar partnership with the world around us. By analyzing the clues to the perceptual process given by the Brewster stereoscope, Sir Charles Wheatstone's cubes, Bela Julesz's random-dot stereograms, and the human ability to characterize the surface of objects with a color name largely irrespective of the wavelength composition of light falling on the object or reaching the retina from the object, Land concludes that our perceptual mechanisms are so interlocked with the rest of reality "that there is no tremor in what we call the 'outside world' that is not locked by a thousand chains and gossamers to inner structures that vibrate and move with it and are a part of it." What makes Land's paper so interesting is that this conclusion is not reached by subjective introspection of human states of perceptual consciousness but instead by the more objective analysis of modern science. In other words, Land gives us an example of how science can use its materialistic, objective mode of analysis to shed light on how the human being achieves perceptual organization of its world. In this manner physical science can assist the more introspective, rational, psychological, and philosophical analysis in developing a more nearly complete and integrated picture of the human knower.

If Land focuses on the interrelationships between the human knower and the rest of nature, the articles by Garrett Green, Holmes Rolston III, and Wolfhart Pannenberg call our attention to the need to interrelate various conceptual schemes that arise in the process of cultural evolution. In this regard *Zygon* hypothesizes that both various religious traditions and various modern scientific schemes are produced by evolution or the ongoing creative activity of divine reality. If this hypothesis has any validity, then it causes those who are trying to achieve a comprehensive conceptual picture of humanity in relation to the rest of the universe and/or the divine to relate the specific methods (and their results) of ancient religious and modern scientific traditions. Green and Rolston do this by analyzing the parallels and differences

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between scientific and religious inquiry: Green argues that the role of imagination, understood in terms of a Kuhnian functioning paradigm, is basic to both science and religion; Rolston analyzes the similarities in the logical forms of scientific and religious thinking and then contrasts the scientific interpretation of experience based on causality with the religious interpretation based on meaning. Pannenberg, on the other hand, from the point of view of Christian theology calls scientists, along with theologians, to reconsider certain fundamental problems of science and theology: inertia and divine conservation; contingency, irreversibility, and history; the Bible and biology on the origin of life, eternity and space-time, and Christian eschatology and the scientific "universe."

Finally this issue of *Zygon* explores the interrelationship between the human being as knower as analyzed introspectively and subjectively in terms of mind and as viewed objectively in terms of brain. George A. Riggan's overview of a symposium sponsored by the Center for Process Studies, published as *Mind in Nature: Essays on the Interface of Science and Philosophy*, critically considers papers on the evolution of mind, on quantum physics and our perception of essential order in the universe, on the primacy of mind or of subjective knowledge in our experience of ourselves and the universe, and on the conceptual synthesis of Whitehead and the implications of his thought for a philosophy of the sciences.

The huge canvas upon which *Zygon* is attempting to paint a comprehensive picture of human nature in history and the universe and the broad brush strokes used by many authors in attempting to suggest responses to the questions of human meaning and morality may not appeal to everyone, especially to those who are content to work within more limited frameworks or specialized approaches. Ultimately the comprehensive picture must be filled in with the detail of more limited studies while at the same time the specialized inquiries must be integrated into a larger general pattern of coherence. Still *Zygon's* appeal is apt to be more to the muralist type of thinker than to the intellect who works on a smaller canvas. I therefore appeal to current *Zygon* readers to seek out from among their friends and colleagues those who might be interested in *Zygon's* overarching perspective and to acquaint such people with the journal. In this way we can begin to enlarge the community of those who are searching out ways to enlighten human living today by relating constructively the wisdom of the world's religious and philosophical traditions with well-tested insights of the contemporary sciences.

K. E. P.