

## *Editorial*

A primary objective of *Zygon* is to explore seriously and sympathetically various ways in which the “culture” of the sciences can be yoked with the “culture” of religion, philosophy, and the other humanities. Many *Zygon* articles have conducted these explorations from an evolutionary perspective. From this point of view it is possible to formulate, on the basis of contemporary scientific knowledge, a picture of our human nature in which the basic emotions, drives, principles, and values that guide our behavior are shaped by ongoing, complex genetic and cultural interactions. The same genetic and cultural processes also have produced our brain/minds, which are capable of recognizing conceptually that the genetic and cultural programs guiding human behavior are not always in harmony within themselves or with each other. Furthermore, our brain/minds are capable of resolving conflicts between the various things that guide behavior, and thus each of us has opportunities to participate in the further creation of values.

This picture of humanity suggests two ways of relating constructively the sciences and inquiry about values. The first is to explore more precisely with the help of various sciences how human beings are created as, in George Edgin Pugh’s phrase, “value-driven decision systems.” Upcoming issues on “scientific fact and value affirmation” and on “sociobiology and religion” will present essays that carry this approach often used in *Zygon* still further. The second way is to explore to what degree the human thinking that attempts to resolve conflicts between values might be scientific.

The plausibility of the second approach becomes more apparent when we recognize that in various areas of life we are constantly in the position of having to decide between alternatives. This holds true in our quest for knowledge in which the situation is not just determining whether a single idea is true but is more likely one of having to decide between alternative hypotheses. Similarly when it comes to deciding what to do it is often not just a matter of deciding whether a particular action ought to be taken but which of several alternative courses of action is the most desirable. In other words, human beings continually find themselves attempting to answer two basic types of questions in the face of multiple alternatives: “What ought I to believe?” and “what ought I to do?”

Behind these two questions, however, are two methodological questions: “How do I decide what I ought to believe?” and “how do I decide what I ought to do?” In answer to the first of these, modern science has been developing a variety of empirical and rational procedures for deciding what to believe about human nature, our society, and the world in which we live. When decisions about belief are deemed to be solidly grounded in reason and experience we say that the beliefs are true. In the words of a famous essay by the nineteenth century American philosopher Charles Sanders Peirce, there results scientifically “the fixation of belief.” One question that this issue of *Zygon* attempts to address is whether there can be a similar “fixation of action.” In considering alternative courses of action can we decide what ought to

be done by a method that is identical with or analogous to the rational-empirical procedures of the sciences?

The papers by Abraham Edel, R. B. Brandt, and Marcus G. Singer were presented originally at a symposium on "Is Ethics a Science?" at the 1980 annual meeting of the American Association for the Advancement of Science. This symposium was sponsored by the section on history and philosophy of science of the AAAS, developed and directed by Carl P. Wellman (University of Washington) and Elizabeth Flower (University of Pennsylvania), and chaired by Archie Bahm (University of New Mexico). These papers explore the degree to which ethics is a science, the degree to which it can become a science, and also whether ethics ought to become scientific. In this complex exploration a number of issues are addressed. One is the question what it is to be "scientific." To what extent does the discipline of physics provide the model for all scientific enterprise? Can such disciplines as political science and jurisprudence be deemed sciences? The answer to whether ethics is a science depends in part on how narrow or broad the concept of science is. A second major issue is, if ethics is a science, what kind of science is it? Is it, for example, an applied science, like medicine or engineering and hence able to benefit from psychological, sociological, economic, and even biological findings about human nature and society? As an applied science can it make decisions in a scientific manner about what kind of scientific research ought to be done or how scientific knowledge ought to be used? A related issue is whether the various sciences themselves require a branch of ethics to help resolve questions about professional codes of conduct much the same way clinical ethics has developed as a branch of medicine. The essay by Bruce B. Wavell addresses a fourth issue: whether even the hard sciences, in deciding which of alternative hypotheses to believe as true, make value judgments. If evaluation (as well as description, analysis, and explanation) is a part of scientifically deciding between alternative ideas, and if description, analysis, and explanation (as well as evaluation) are part of deciding what to do, then science and ethics are in methodological harmony.

While it is generally recognized that it is possible to test proposed courses of actions as to how effectively they realize basic human objectives, there is still the further question whether it is possible to test rationally empirically such things as fundamental values or fundamental religious ideas about the world that provide a context for ethical decision making. If it is not possible to test basic values and assumptions in the humanly constructed laboratories of science, is it possible that they can be tested in the "laboratory of history"? In the latter case, human beings themselves are not the primary evaluators; rather the primary evaluator of both human thought and action is the larger, evolving system of reality of which human beings are a part. However, perhaps human beings can foresee to some extent the future judgments of history and nature on human thought and action. Such a possibility is suggested by Garrett Hardin. Hardin argues that the Judeo-Christian concept of Providence, which in recent centuries has become linked with the idea of inevitable human, material, and social progress, may be selected against by certain natural limits, which ecological science is discovering. Thus not only do human beings decide among alternatives what they ought to believe and do, but the human decisions—and the fundamental principles, values, and other conceptions used in reaching such decisions—are further tested in the long run by Nature.

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Finally, in an essay that offers a change of pace to the other essays, this issue of *Zygon* reminds us that most ethical and religious reflection has been earth bound. Ernan McMullin calls scientists and theologians to consider seriously the implications of life elsewhere in the universe for theological thought. He then reviews the fallacies that rational thought must avoid when we attempt to expand our ethical-religious horizon in twentieth-century Columbian voyages of the mind from spaceship Earth outward to the stars.

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