Reviews

Darwinism Defended: A Guide to the Evolution Controversies. By MICHAEL RUSE. Reading, Mass.: Addison-Wesley Publishing, 1982. 356 pages. $12.50 (paper).

In his introduction to *Darwinism Defended* Ernst Mayr writes, "Most opposition to Darwin [i.e., to his theory of evolution] is based on committed ideologies and on some rather basic misconceptions" (p. xi). Certainly much of the opposition is so grounded, and one can only welcome Michael Ruse's book as helpful in clarifying many of these often confused issues and as reassuring those who have taken note of the recent controversies that, despite declarations to the contrary, the synthetic theory (neo-Darwinism) is not being overthrown. The volume is timely not only for its refutation of so-called scientific creationism—an increasingly dreary and boring exercise however necessary—but, more importantly, for the better understanding that it makes possible of the significance of recent evolutionary models—both orthodox and heterodox—and of their relation to traditional Darwinian theory. Generally, the book does not presuppose either a great degree of historical or scientific knowledge on the part of the reader.

Ruse has two overall purposes. First, he argues that Darwin was a good scientist, even by today's standards, and not a "bumbling amateur" (p. 23), as some still depict him. Second, he shows why Darwin's ideas have had lasting importance and utility for both the sciences and the humanities. Ruse does not seek to defend the letter of Darwin's text or to present him as a prescient genius who anticipated all future developments in evolution theory. He defends contemporary Darwinism, not as *the* truth but as a sound, valid scientific theory that compares favorably with the best in scientific work. Admittedly, this is a partisan book. Ruse seeks not neutrality but an informed defense of Darwinism (more particularly of neo-Darwinism) and an equally informed assault on its critics. He does not expect that anyone will like all of it.

He is probably right in that expectation. The short historical introduction, for example, which deals with Lamarckism, uniformitarianism and catastrophism in geology, Darwin's voyage on the *Beagle*, and his early work on evolution after his return to England, among other things, will make some specialists uncomfortable on a number of scores; but, generally, it is not seriously misleading. The point of the book, after all, lies in what follows the introduction: a defense of Darwinism.

In defending Darwin himself Ruse claims, quite properly I think, that the *Origin of Species* is a work that, even by present-day standards, remains "a skillfully constructed work of genius" (p. 30). He sets out the arguments of Darwin's book lucidly and explains why some of its features (e.g., natural and artificial selection) were thought doubtful even by Darwin's fellow evolutionists. Such doubts, however, would appear to be no longer justified in the light of Ruse's review of twentieth-century developments in biology.

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The fusion of Mendelian genetics and classical Darwinism created a conceptually rich and stimulating theory that in turn gave rise to population genetics, which is the real core of neo-Darwinism and which has a strong record of empirical confirmation and has proven to be as valuable an organizing principle in allied disciplines as was Darwin's original theory. Ruse believes that objections that natural selection is a tautology or that neo-Darwinism is not scientific rest on an ignorance of what Darwinians are doing, on "an inability to grasp the implications of the balance hypothesis, with its claims about the ready supply of variation available whenever selection pressure demands it" (p. 135) as well as on a somewhat literalistic and naive application of philosophy of science to the real world of scientific work.

At present, Ruse sees the most opportunity for Darwinism in such areas as the origin of life, ecology, sociobiology (in which he thinks Darwin for once achieved the prescience so often claimed for him), and paleontology. Paleontology has traditionally been the most troublesome of the affiliated disciplines and one which is now in the process of reassessing neo-Darwinism under the challenge of punctuated equilibria theory, species selection, and other strongly nonadaptationist ideas. These, Ruse says, constitute a major departure (at least in their extreme forms) from Darwinian orthodoxy, a departure which began as a revolt against phyletic gradualism in the name of neontological Darwinism but which has since moved in non-Darwinian directions. However, orthodox neo-Darwinism has not been routed. Ruse makes a strong case on that side. Neontology, he says, does not sufficiently support the kind of evolutionary departures desired by the reformers, nor are the processes needed for their saltations clear, nor is the fossil record as out of line with neo-Darwinian expectations as they say. But Ruse objects most of all to the reformers' emphasis on nonadaptation and sees this as the weakest part of their position: there is just too much evidence on the other side. He suggests that the extreme "punctuated equilibria theory [is now] not much more than a fad, espoused by one particular clique of paleontologists" (p. 224). He expects to see no more than a modification of the neo-Darwinian theory, if that, when the dust has settled.

The most controversial area in which Ruse looks for Darwinian advances is human sociobiology. While admittedly largely speculative at present he feels this new field has strong empirical support in the area of incest barriers and sexuality. He is sensitive to the ideological problems so notoriously present in sociobiology (by repute at any rate) although he does not think they are real problems. Yet, as in the case of the evolution of ethics, which he also treats, Ruse thinks the potential rewards in understanding are worth the gamble and that something important is there to be found. "Darwinism," he writes, "is more than just a self-contained theory. It touches at chords and beliefs of the most fundamental kind, stirring us in a way that only the greatest ideas can" (p. 281). Because of this, Darwinism has many enemies, today as in the era of its birth. It will probably always require defenders.

In the final analysis, Ruse's position is that, if one accepts modern science, one must also accept evolution on both logical and evidential grounds, and that neo-Darwinism is the most adequate explanation of evolution to date. Perhaps it was necessary to present the propriety of modern science as virtually self-evident, but one wishes he had given more attention to why one should accept it. The layperson, one presumes, is the anticipated reader of this volume; should he be inclined toward "scientific creationism," he is not likely to be persuaded to change sides by being told that "Evolution is a fact, *fact*, FACT!"

(p. 58). It would be unfair, however, to leave the impression that Ruse is dogmatic. He is only persuaded. He also is persuasive and readable. *Darwinism Defended* deserves a wide audience.

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Genetic Alchemy: The Social History of the Recombinant DNA Controversy. BY SHELDON KRIMSKY. Cambridge, Mass.: MIT Press, 1982. 445 pages. $24.95.
Algeny. By JEREMY RIFKIN. New York: Viking Press, 1983. 299 pages. $14.75.

Sheldon Krimsky and Jeremy Rifkin are not geneticists, but both have passionate concerns about the uses of recently developed and swiftly developing techniques of modifying genes. While certainly not blind to the potential benefits of the new biotechnology, they are more sensitive to its putative dangers and hypothetical risks to humanity and natural ecology.

As a teacher of urban and environmental policy at Tufts University, Krimsky also has been closely associated with the wide controversy about which he writes, namely, whether there are such latent hazards in recombinant DNA research that its practitioners must either impose restraints upon their own laboratory work or else accept limitations and constraints imposed by the government. His book is the definitive history of that struggle as it raged within the ranks of microbiologists from 1971 to 1979.

Rifkin is a writer and lecturer on issues of science and social philosophy. He works mainly in Washington, D.C. as a member of the new profession called public advocacy. What anyone advocates is naturally determined by his commitment to certain moral, ideological, and political positions. His book, like *Entropy* (New York: Viking Press, 1980), is a whistle-blowing, red flag-waving caveat against the oncoming wave of biotechnology.

It is coincidental that both titles play on the word "alchemy." While Krimsky thinks the term may be applied analogically to DNA research, Rifkin regards it as obsolescent because it belongs to the passing era of pyrotechnological culture. The five thousand year-old span of human preoccupation with fuels for fire and energy derived from combustion is ending in our time, he claims. "We are moving from an age of pyrotechnology to the age of biotechnology" (p. 7). For the former "alchemy" served as the "convenient conceptual metaphor"; for the latter it is "algeny" (p. 15). This word, coined by the microbiologist Joshua Lederberg (did he not coin "phenotype" also?) means "to change the essence of a living thing from one state to another" (p. 17). In the former age the goal of human inventiveness was to bring natural materials and processes to perfection, just as base metals were to be transmuted into gold. In the era of algeny, however, the goal of achieving perfection of efficiency is extended to include living organisms. Rifkin's whole book is, in effect, a brooding meditation over this Spenglerian *Untergang* of the alchemist's quest and the dawn of an epoch of biological transmutation. Krimsky is not concerned to philosophize over the long-range historical implications of the DNA revolution.

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The main theme common to both books is the problem of risk and its negative outcome, danger. Treating this theme with respect to laboratory hazards and possible epidemic diseases caused by escaping pathogenic bacteria, Krimsky unreels slowly and with careful attention to detail the now familiar saga of Asilomar. Three earlier books by Clifford Grobstein (*A Double Image of the Double Helix* [San Francisco: W. H. Freeman, 1979]), June Goodfield (*Playing God* [New York: Harper, 1977]) and Nicholas Wade (*The Ultimate Experiment: Man-Made Evolution* [New York: Walker, 1977]) have competently recounted this historically significant effort of molecular biologists to impose upon themselves a temporary suspension of potentially dangerous research. Krimsky augments their books with much information drawn from the recollections of more than a hundred participants in the drama. These were recorded by the Oral History Program at the Massachusetts Institute of Technology. He also has the advantage of using the latest evaluative publications.

A useful chronology is appended which reminds us of the developments of the controversy, notably: 1971—the cloning of animal tumor viruses in *Escherichia coli* (*E. coli*), and first discussions of dangers by Paul Berg, Robert Pollack, Michael Oxman, David Baltimore, and others; January 1973—the Gordon Conference publicizes recombinant DNA techniques and warns of unknown risks; 1974—prominent microbiologists publish in *Science* their warning on biohazards; 1974—National Institutes of Health establish Recombinant DNA Advisory Committee (RAC); 1975—international conference at Asilomar, California identifies risky experiments and appropriate methods of containment, though lacking consensus of participating scientists; 1975—series of hearings by a United States Senate committee, chaired by Senator Edward M. Kennedy; 1976—open forum by National Academy of Sciences; 1976—local regulations debated in Ann Arbor, Michigan and Cambridge, Massachusetts; 1980—National Institutes of Health (NIH) guidelines declared voluntary rather than mandatory.

This is not a popularized narrative, although Krimsky holds the reader's attention by numerous references to persons and their disagreements as well as by the lucid presentation of biological data. Repeatedly he explains the positions of certain persons or of a meeting by reconstructing their premises and their logical, or at least reasoned, conclusions. The nonscientist reader is thus enabled to understand the subtleties of experimentation as well as the diverse influences which affect the attitudes of scientists. Similarly, he elucidates the continuing disputation which went on in the RAC of NIH, in the United States Congress, and in the Cambridge city hall. Occasionally he changes to first person singular, recollecting his own experiences in these places.

Beyond the meticulously described history, which will probably remain the standard reference, what emerges from Krimsky's writing? First, the manifest fact that he is on the side of the constructive critics of biological science and technology means that he does not conceal his views behind a deceptive cloak of declared objectivity. It is hard not to be subjective concerning a scientific innovation about which many pace-setting scientists are apprehensive. He is ever ready to give prominence in the story to dissenters from the widely held notion of the autonomy of science and its consequent immunity from either popular or governmental regulation. A sentence from the Cambridge report, 1977, declares their objection: "Decisions regarding the appropriate course between the risks and benefits of a potentially dangerous scientific inquiry must not be adjudicated within the inner circles of the scientific establishment" (p. 307).

Second, without going into the matter of the rapidly emerging commercial implications of DNA research and gene-splicing, Krimsky shows why the contention over control of the scientific enterprise is perhaps of greater importance than anticipation and avoidance of risk. As he observes,

> The stakes in the rDNA controversy were very high: the control of science and the control of an immensly powerful and potentially profitable technology. Scientists wanted to keep that control to themselves, and commercial interests were satisfied to give it to them. It was a tradition with which both were comfortable. But others believed that this kind of technology was too powerful, both for its positive and negative potentials, to leave to scientists. It is no wonder that the actual nature of the evidence should be secondary since control, not "safety," was to a large extent the main issue. . . . And the battle was won by the scientists, for better or for worse (p. 243).

Worse, not better, is the verdict of Rifkin, referring not only to the rDNA story but to the undeterred march of these technologies which, in his view, threaten the essentially good aspects of human life and of nature. In effect, he deals with the microbiological innovations in the way Lewis Mumford has dealt with machines and Jacques Ellul with "technique." Although Rifkin gives capsule descriptions of the latest and soon to be achieved accomplishments in experimentation, the book is not a sensational, journalistic appraisal of science. Rather, he wants to explore the currents of intellectual attitude which have led to the dangerous condition today.

Darwinian evolutionary theory is singled out for particular criticism, especially because of its recognized ties with Adam Smith's economics, Thomas Malthus's population theory, and the consequent attitude of evolutionary fatalism. He does not see that the neo-Darwinian synthesis with genetic knowledge has corrected these earlier faults. Therefore, he finds comfort in the recent attacks of various scientists upon the fact of evolution, and in S. J. Gould's theory of punctuated (*per saltum*) evolution.

The desacralizing of nature is another object of his scorn and dismay. This he equates with the attitude which has encouraged the spoliation of natural resources for the sake of human satisfactions. Although he does not repeat the idea that the biblical doctrine of man's dominion over nature has been the efficient cause of ecological wasting, he attributes it to the general character fault of human pride. And he foresees the same attitude leading paradoxically and ironically to the self-corrupting of the human race.

The time is at hand when cybernetic theory reduces a human being to a certain quantum of information; when miraculous silicon chips in microprocessing will be displaced by organic cells; and when gene-splicing techniques will move from plant life, pharmaceuticals, and modification of mice to the therapeutic engineering of human somatic cells and even of human germ-line cells. The realization of algeny will be the genetic reconstruction of disease-free, umblemished human beings. He discusses these likely developments with increasing alarm and rhetorical verve, but also, it must be noted, with decreasing disposition to explain exactly why he is so concerned. If he were basing his critique upon a theistic doctrine of creation and a natural law concept of morals, his argument would not appear to be different from what it is. But such basis is not even hinted. This reviewer perceives, instead, a kind of romantic naturalism as Rifkin's basic presupposition, with implied apostrophes to nature and cosmos, before which humanity is warned, Do not disturb! Where William Temple related *Nature, Man and God* (New York: St. Martin's Press, 1964), Rifkin's nature and humanity equal the cosmos, and God is unmentioned. Or,

is his cosmos God? One cannot be sure. If we do not impose strict restraints on biotechnology, he concludes, "the cosmos wails." Meaning exactly what?

In their quite different ways, Krimsky and Rifkin keep us alert to the risks and potential dangers of the newest technologies in microbiology. Krimsky draws lessons from a recent, instructive past. Rifkin looks about himself, frowns, and points a warning finger toward the menacing future.

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A Relational Metaphysic. By HAROLD H. OLIVER. The Hague: Martinus Nijhoff, 1981. 228 pages. $32.00.

Harold H. Oliver states that reflection on religious experience is the basis for this book which he regards as a work in philosophy. Over against the philosophy of language school, he wishes to reestablish the respectability of metaphysics so that it can be used as the point of departure for the philosophical enterprise. "Metaphysics is the study of reality. Its method is the generalization of experience for the purpose of identifying fundamental entities. The principal question to be given metaphysical priority is: 'What is real?' If instead, priority is given to epistemological questions, such as 'What can I know?' it becomes virtually impossible to make progress toward the systematic constructive tasks of metaphysics. The primary reason for this fact is that epistemological questions begin by bifurcating reality into knower-known in such a way that idealism becomes the inevitable conclusion" (p. 1).

Oliver continues by arguing that the Kantian question about the possibilities and limits of human knowledge leads to doubt and is consequently fatal for metaphysics. The only way out of this impasse, he believes, is to inquire about the nature of reality in a way that does not predetermine our subsequent inquiry. To avoid these alleged pitfalls, he follows the "lead established by Martin Heidegger" (pp. 1, 33f.) and restates the whole problem in the question, What is a thing? While following Heidegger's path for the reinterpretation of Immanuel Kant, he fails to deal with the question of Heidegger's trustworthiness in this enterprise. For example, Heidegger has flatly stated that in interpreting Kant's alleged position regarding "being," he does "violence" to Kant's actual words in order to bring forth what Kant "intended to say" (Martin Heidegger, *Kant and The Problem of Metaphysics*, trans. James S. Churchill [Bloomington: Indiana University Press, 1962], pp. 203, 206, 207).

Oliver claims to do metaphysics that is not grounded in transcendence or in "transexperiential" thought. Therefore he must base his metaphysics on experience. However, he then immediately turns to the generalized and quasi-mystical notions of experience propounded by Charles Pierce and Alfred North Whitehead. His program also includes an attempt to overcome the subject-object scheme of thinking and knowing, which he regards as a "paradigm" inherited from the classical period of Western thought as symbolized by Isaac Newton and Kant. He defines a paradigm as a prevailing conceptual framework which determines the ways in which physical and

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metaphysical problems are conceived and the systematic treatment they receive (p. 4).

The author sees the eighteenth century as the period in which mechanism was combined with materialism to produce what Samuel Taylor Coleridge called "a universe of death" (pp. 39, n135). The universe, ultimately, consisted of hard, impenetrable Newtonian particles. Ignoring Kant's piety and the sense of transcendence and awe expressed in the "Conclusion" of his *Critique of Practical Reason* (trans. and ed. Lewis White Beck [Chicago: University of Chicago Press, 1949], pp. 258-60), Oliver flatly states that Kant lived in the Newtonian "materialistic" world of "disenchanted" phenomena (p. 39). Such passages indicate that Oliver shaes with Whitehead, and with much contemporary phenomenology, the tendency to reject classical physics not simply on technical and scientific grounds, but because there is a religious/mystical desire to interpret the cosmos as somehow alive, somehow purposive, and somehow responsive to human desires and needs.

The central theme and the main thesis of the book intentionally reflect Whitehead's assertion, "elegantly" expressed in *The Concept of Nature* (Cambridge: Cambridge University Press, 1920), that nature is relatedness. The author understands Whitehead's works to be not only an interesting system but a passionate vision. He correctly observes that one has to enter into that vision to overcome the aura of strangeness that puzzles the initiate (pp. 68, 69).

Oliver's goal is to establish a new paradigm for science and metaphysics in the future. This paradigm assumes not only that "relation is fundamental," but that "only relations are real" (p. 155). He states that idealism assigned fundamentality to mind; realism assigned reality to an objective world. In most of Western philosophy, there have seemed to be no alternatives beyond these two polarities. His new relational philosophy is designated as a *transpolar* system, that is, one that transcends these two limiting poles (p. 101).

The indispensable axiom of this relational philosophy is the doctrine of internal relations. He notes that Whitehead propounds the doctrine of internal relations on behalf of process philosophy in *Process and Reality* (New York: Macmillan, 1929) and also in *Science and the Modern World* (New York: Macmillan, 1926). He then quotes Brand Blanshard's "clear statement" on the distinction between external and internal relations: "A relation is internal to a term when in its absence the term would be different; it is external when its addition or withdrawal would make no difference to the term" (p. 125. Quoted from Blanshard, *The Nature of Thought*, Muirhead Library of Philosophy [New York: Macmillan, 1940], 2:449). This doctrine of internal relations has extremely far-reaching implications. One postulates or "experiences," first, the universal logical and causal relatedness of all aspects of reality, second, the givenness of the most distant relations in one's immediate "experience," and, third, the universality and necessity of the law of noncontradiction (p. 125). Consequently, the doctrine of internal relatedness postulates the intelligibility of reality for the human mind.

Upon this foundation of internal relations, Oliver builds his "categorical law of transpolar thought": "Given any classical entitative polarities, fundamentality is to be assigned to their relation" (p. 151). The classical entities, "pseudofundamentals," include the polarities of mind-matter, mental-physical, subject-object, mind-brain, and God-world. All such entities are dissolved by his categorical law of transpolar thought (pp. 151-52). Using Whiteheadian terms, this means that relations are the "true entities" (p. 154). Finally, Oliver is able to derive a kind of theological stance from this argument.

He replaces the notion of the ultimacy of physical reality with the notion that "the Totality of Relations is a relation" (his capitals, p. 175). This is somewhat reminiscent of Whitehead's notion of God as an integral part of an unconscious but rational cosmic process.

Oliver assumes that the knower must not be split from the known, that is, epistemological bifurcation is taboo. For him, when Kant posited the existence of the subject, he necessarily lost the possibility of having an object. "Epistemology, if made the initial question of philosophy, is a jealous god; it virtually prevents progress toward other questions" (p. 185). This argument is crucial to Oliver's entire system and it elicits the following criticisms: First, it seems to be an extremely specious piece of reasoning to say one can responsibly develop a metaphysics without first employing an epistemic theory to justify our alleged knowledge of truth and of reality. The doctrine of internal relations certainly requires epistemological treatment in view of the attack upon universal rationality and causality by the Copenhagen school of theoretical physics, especially Niels Bohr and Werner Heisenberg. Second, it seems quite untrue to insist that epistemology prohibits progress to other questions. Rather, epistemology may tend to prevent one from attributing objective reality to abstract cerebral or mystical speculations that are incapable of any kind of verification. Third, it simply is not true that epistemological questions necessarily lead to idealism. Many dualistic philosophers have begun with epistemology and concluded with materialism or with agnosticism about the fundamental nature of reality. Fourth, any reader not already participating in the Whitehead or Heidegger type of mysticism might wonder what is achieved by arguing that reality is ultimately constituted by relations. Why was it worth all the effort? Oliver still has to oscillate out of the relationalism and back into subject-object categories and language in order to conduct an experiment or to communicate the results of that experiment. Fifth, relations have to be *between* something; those "somethings" must be at least as fundamental as their relations. Consequently, reality is no more reducible to relations than it is to those entities that are being related.

As a final comment, this book displays a vast array of scientific and philosophical research, presented in a clear and organized manner. For those who pursue this tradition, it may, indeed, offer a step beyond the positions of Whitehead and Heidegger.

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Religion and Truth: Towards an Alternative Paradigm for the Study of Religion. By Donald Wiebe. The Hague: Mouton, 1981. xiv + 295 pages. $37.50.

Donald Wiebe, trained in the University of Guelph, Ontario, and Lancaster, England, is currently a teacher of divinity in Trinity College, University of Toronto. He is well versed in philosophy of religion in both analytical and continental forms and is knowledgeable about the discussions of methodology that have taken place within the field of religious studies over the past century

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and more. From a more personal point of view, perhaps, he wishes for a positive answer to the question, Can the academic study of religion properly deal with truth?

Religion and Truth provides an occasion for a thorough analysis of the question and some typical responses. To safeguard a positive response, one needs to deal with all the arguments that might suggest either a negative answer or no clear answer at all. To render the positive response in forceful terms, one needs to identify those allies who have taken similar positions, then establish their convictions on certifiable grounds.

The form of this book is an extended conversation with writers past and present who have taken interest in the topic. In every situation, Wiebe wishes to contend that it is appropriate indeed for the scientific study of religion to deal directly with questions concerning the truth of religion. Put in other words, the proposal is that religious studies should play much more than a descriptive role when examining religious phenomena and studying the religious traditions.

Religion and Truth makes a positive contribution to an understanding of the intention and scope of the scientific study of religion. Yet, if its author intended his argument to be anything more than prolegomena, the book failed. Wiebe argues his one point forcefully, though not always with utmost clarity. But he never quite discloses what the truth of religion might be, or what truth he has found in approaching it in the manner he recommends.

The book I would like to read would be his next one, wherein he feels less obligation to check with all of the authorities and simply plunges in, revealing more specifically how his proposal, taken seriously, would change things.

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Does God Exist? An Answer for Today. By HANS KÜNG. Translated from the German by Edward Quinn. Garden City, N.Y.: Doubleday, 1980. 839 pages. $17.50. $8.95 (paper).

"The question 'Does God exist?' can now be answered by a clear, convinced Yes, justifiable at the bar of critical reason" (p. 702). *Does God Exist?* is not a mystery novel; no suspense is spoiled by announcing Hans Küng's conclusion in advance. What is important in this book is the course Küng charts on the way to his answer. He cuts a broad but selective swath through more than three centuries of western intellectual history to substantiate his claim that God exists.

Küng devotes more than half of this intellectually demanding book to sharpening the title question. In four chapters seven major historical figures are enlisted to bring into focus the modern challenge to belief in God. First, in "Reason or Faith?" René Descartes and Blaise Pascal pose the dilemma between reason and faith. Descartes's *cogito, ergo sum* marks the decisive Enlightenment turn to the thinking subject. This turn opens the door to the separation of reason and faith and to a rationalism that ignores or denies faith. Pascal, on the one hand, affirms faith as the existential prerequisite of life, but raises the

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danger that faith becomes irrational. In "The New Understanding of God" Küng's second step is to use G. W. F. Hegel as the chief example of the attempt to reconceptualize God through a philosophical synthesis in which reason and faith are united. Third, in "The Challenge of Atheism" the breakdown of the Hegelian synthesis is traced through the critique of Ludwig Feuerbach to the sociopolitical atheism of Karl Marx and the psychoanalytic atheism of Sigmund Freud. The fourth and final step, "Nihilism—Consequence of Atheism," pushes the issue to its logical extreme in the nihilistic thought of Friedrich Nietzsche. Each chapter is marked by a careful and sympathetic exposition of each major figure, by critique and countercritique of that person's position, and by a set of interim results in which Küng gives an evaluation and summary in the form of theses. This format allows nonexperts to catch their breath and check their understanding, helps experts to focus lines of discussion, and facilitates using the book as a reference.

Having descended to the depths of nihilism and atheism, Küng uses the final three chapters to reconstruct a modern belief in God. At each stage an alternative is faced, a rational but not rationalistic decision is made, and the various facets of the affirmation are presented. First, in "Yes to Reality—Alternative to Nihilism" Küng says that although nihilism cannot be disproved, neither can it consistently be lived. A fundamental trust in reality is the rational foundation of the self, of cognitive knowledge, and of ethical behavior. Second, in "Yes to God— Alternative to Atheism" the case is made that although atheistic trust in reality is possible and cannot be disproved, belief in God provides an ultimately justified and justifiable basis for fundamental trust. Finally in "Yes to the Christian God" Küng argues that the living God of the Bible and specifically the God of Jesus Christ give God a name and a face and provide a concrete foundation for fundamental trust. At the end of these three successive steps, Küng arrives at his answer of "a clear, convinced Yes" to the question of the existence of God.

When Küng presented a seminar on this book at the University of Chicago, an interplay of parallels and divergences between his chosen course and the perspectives of a diverse group of American students emerged. Certainly Marx, Freud, and Nietzsche as masters of suspicion are academically *de rigueur* in America as they are in Europe. Yet the challenge to faith in America is weighted more toward agnosticism and secularism than toward atheism and nihilism. Here, where religion is granted at least benevolent tolerance as a private option and is even paraded publically on occasion as legitimation of one cause or another, belief in the existence of God is more likely to die from banalization and bastardization than from philosophical deconstruction. Given this difference in conditions, however, it is surprising how well Küng's argument stands up on American soil. His may well prove to be a prophetic voice as American religion faces the sustained, thorough, and militant challenges of atheism and nihilism which have until now been more prevalent in Europe. Even today Küng's hard-nosed argumentation is a refreshing and stimulating alternative to the polite indifferentism and mindless enthusiasm between which American religion often alternates.

Küng's central line of presentation and his discussions of major figures are complemented by a host of cameo appearances and more specific considerations. Of particular interest to *Zygon* readers is the third section of the first chapter. In "Against Rationalism for Rationality" Küng traces a line from Ludwig Wittgenstein through Rudolf Carnap and Karl Popper to Thomas S. Kuhn. Küng uses this progression to argue against rationalism in general and

against positivist critiques of theological language in particular in favor of a legitimate use of theological language and in favor of a "critical-dialogic cooperation between theology and natural science in face of the one world and the one humanity" (p. 115). Wolfhart Pannenberg's treatment of a similar trajectory in *Theology and the Philosophy of Science* (Philadelphia: Westminster Press, 1976, pp. 29-71) provides an interesting comparison. Küng and Pannenberg agree in rejecting the positivist critique of theological language, but unlike Küng, Pannenberg moves on from this conclusion through a much broader body of scientific material to argue that theology should be given a place among the sciences as the science of God (Pannenberg, pp. 297-345). One of the central issues in the discussions between theology and science is the question of the relationship between theology and scientific disciplines. Küng and Pannenberg set before us two current options. Clearly, both reject certain extreme positions. Theology and science are not disjoint realms with nothing to say to each other, nor are they identical to each other, nor can one be subsumed under the other. However, a difference is evident between their two approaches. Küng emphasizes theology's independence and the distinct ground on which theology stands; dialog and interdependence stem from this initial distinction. Pannenberg, on the other hand, is more willing to commit theology to the scientific method and to specific scientific criteria of judgment. Dialog and distinctness are established within this common scientific frame of reference. Küng seeks neutral ground on which each party can speak in its own way; Pannenberg enters the scientific camp and adopts its rules and methods. In my opinion, both approaches are theologically useful, and each serves to complement and correct the other.

Küng's adoption of critical rationality provides the methodological and philosophical underpinning of the entire book. Just as Küng declines to commit theology to a specific scientific methodology, he also refuses to align his theology with a specific metaphysical system. His response to Hegel, to Immanuel Kant, to Alfred North Whitehead, and to Martin Heidegger is in each case a yes and a no. This may leave the reader with a sense of metaphysical confusion. For example, having severely criticized the theological failure of Hegel's dialectic of negation and sublation, Küng later turns around to claim that the God of the Bible "sublates" the God of the philosophers (p. 666). It would be uncharitable to say that Küng uses Hegelian dialectic, Kantian distinctions, Whiteheadian process, and Heideggerian existentialism opportunistically; nonetheless Küng's metaphysical eclecticism cannot be judged to be totally satisfactory. Küng's carefully gathered and stated issues and arguments would benefit from a more explicit standard for weighing the resultant piles. On the other side of the balance sheet, however, Küng's critical rationality offers several advantages. Most important, it allows Küng to be critical yet fair toward the thinkers he considers, whatever their theological or philosophical stance. Second, the reader is not required to adopt a philosophical school along with Küng's argument for the existence of God. Third, as a practical matter, Küng's method makes for easier reading for those who are not experts in philosophy.

Critical rationality is also at the heart of Küng's presentation of the doctrine of God, which, as the title suggests, is the central concern of the book. Küng seeks to develop a modern understanding of God which stands up as credible and meaningful against the challenges of atheism and nihilism without retreating to supernaturalism or authoritarianism. It is an impressive and largely

successful effort. Here again, however, critical rationality leaves some unresolved tensions. In Küng's critically rational view, God is both an independent reality and the ground, support, and goal of all reality. This way of affirming the transcendence and immanence of God appears to reopen the supernaturalist/authoritarian escape hatch, although Küng himself declines to use it. What does Küng mean by the independence of God? Either a dangerous haven is given to irrationality, or a more careful consideration of the notion must be undertaken. Another nagging question is what it means for God to exist. Perhaps, *pace* Paul Tillich, it is impossible for a theologian to say that God does not exist without being misunderstood; but Küng pays surprisingly little attention to the final word of his title. In what way does his transcendent-immanent God exist? Despite these issues, I find Küng's presentation of God to be rich, attractive, and persuasive. There is a rational foundation in this book for personal faith, for ecclesial proclamation, and for scholarly discussion.

My chief disappointment with this book came in the final chapter. The problem is that the God of the philosophers, presented in the previous chapter, is already quite sufficient to provide an alternative to atheism and nihilism. The biblical God adds a name (p. 621) and Jesus Christ a face (p. 690), but still christology appears to be an afterthought because the basic question is already settled. Is christology only a making explicit of what is already implicit? Or has Küng, in fact, already built a Christian perspective into his "God of the philosophers"? In any case, what is surprising is that the principle of justification by grace through faith in Jesus Christ, the solidly christological foundation upon which Küng began his career a quarter of a century ago in his pioneering ecumenical thesis on justification, has virtually disappeared in this book. The soteriological side of christology is particularly neglected. Sin, forgiveness, atonement, and salvation are treated largely outside the section on Jesus Christ, if they are treated at all. A fuller christology would strengthen Küng's case against atheism and nihilism.

Despite these questions and criticisms, my overall judgment is that Küng has made a significant contribution to the discussion between theology and contemporary philosophies and ideologies. *Does God Exist?* is unlikely to be matched in the near future as both a widely readable and an academically serious treatment of the existence of God. Küng's scholarly and ecumenical breadth (the footnotes alone are worth the price of the book; Küng has gone out of his way to include references usable by those whose primary language is English) make the reading of this book a fascinating intellectual adventure and a thought-provoking challenge to our reflections on the existence of God.

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A Cultural History of Religion in America. By JAMES G. MOSELEY. Westport, Conn.: Greenwood Press, 1981. 183 pages. $25.00.

James G. Moseley, a professor at the New College of the University of South Florida, knows that religious studies fields do not, at the moment, need a new

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comprehensive narrative about the American religious past. A shorter book by Winthrop Hudson, *Religion in America* (New York: Charles Scribner & Sons, 1965) and a giant by Sydney Ahlstrom, *A Religious History of the American People* (New Haven, Conn.: Yale Univ. Press, 1972) cap a tradition that began in 1844 with Robert Baird, *Religion in America* (critical abridgement by Henry W. Bowden. New York: Harper & Row, 1970).

In addition to work in this canon, there are hundreds of monographs by historians, most of them following conventional narrative molds. Unfortunately for understandings of religion in America, not many history departments use these books to teach secular American history and not many religion departments or programs use history to teach religion. It is at this point that Moseley enters the field. He sees his work, however brief, as an integrative endeavor, one that will help others make the connections he deems vital for understanding and participating in American life.

"Religion wants wholeness of life," wrote William James, one of Moseley's heros for the way James dealt with pluralism and aspired to reintegrate the various aspects of life. The wholeness theme courses through Moseley's work, and he sometimes pauses to deal with it systematically. In some ways, though he does not sit down to develop the plot with full coherence, the main pattern of American life has been increasing differentiation.Whenever we slice into that life, we find it already considerably chopped up.

On these terms Moseley complains about the disjunction between religious or sacred and secular, a cutting apart that seems to represent something of "the Fall" in American life. Americans chopped apart ideas and experience, intellectual and practical life, and, in religion, the wholeness of the religious or Christian experiences through the invention of denominationalism. Disciplines, fields of learning, competing perceptions—all these are further signs of differentiation, diffusion, overspecificity, the modernization process gone wild. Yet Moseley does not fundamentally regret or scorn processes that seemed inevitable. He wants to provide his readers with tools and instruments that will make it possible for them to see their national and spiritual environments in new ways and thus to regrasp some measure of wholeness.

None of this is done leadenly. Moseley is deft and subtle; if anything he does not help the reader enough. At times one wishes he would insist on a single theme to carry the narrative, however this is not his choice. He follows a fundamentally chronological line; this is, after all, a history. He also likes to deal with a sequence of themes, since it is part of his thesis that new episodes—the Great Awakening, the Revolution, the Gilded Age—pose whole new issues and topics in culture for Americans. Finally, he employs a variety of methods which he feels are appropriate for the sequence. Does he suggest that each method is bounded to the episode? That is, is the history of religion discipline particularly attuned to Puritanism but less helpful on the Gilded Age? Not likely. But Moseley does not often given hints as to why a particular subfield of study works best with a specific episode. One has the feeling that the applications are somewhat arbitrary. On these terms, the book is a display of virtuosity. Perhaps it grows out of a classroom experience in which "wholistic" minded Moseley has set out to show students that no matter where one begins, the instruments of cultural analysis can help minister the task of overcoming the spiritual malaise that results from overdifferentiation of spheres of life.

Ordinarily one need not refer to alma mater when reviewing a book. In this case, the fact that Moseley studied doctorally at the University of Chicago

Divinity School is relevant, since this school's way of organizing reality seems to provide the substructure for him. Chicago has seven fields or areas, born as a result of efforts to bridge seminary disciplines like biblical studies and theology with university fields like sociology, literary criticism, and psychology. Living in that academic world long enough, and students live there long enough, one gets the impression that the wider world is put together the way the school is. I find myself cataloguing new books and perceiving reality along such lines.

So Moseley uses the history of religion to interpret Puritanism. This is one of the less successful chapters since we never learn enough about the history of religion approach or Puritanism to make the connection. Yet there are in all this some efforts to see how both primitive and intended wholeness begin to break down in cultural pluralism.

For the first Great Awakening, Moseley draws on what Chicagoans call religion and psychological studies. This means he draws upon Sigmund Freud and, to a greater extent, William James to understand the psychology of Jonathan Edwards, preacher of awakening. By now there are monographs on the experiences of listeners to preaching, and Moseley would have served us well by extending his curiosity past the preacher to the awakened. More successful is his use of Chicago's ethics and society field, especially the sociological side of this field, to understand how denominationalism, a chopping of religious community, resulted from the competition in the Second Awakening—differentiation, again.

The same ethics and society discipline is called upon to illumine civil religion in the age of the American Revolution or, Moseley would say, complex of revolutions. He is thoroughly at home with what the Chicago Divinity School links as religion and literature, an area in which he gained mastery. He applies it appropriately to the Transcendentalist experience. Ethics and society come back as he discusses pluralism in the Great Awakening. Biblical studies is never employed, but systematic theology comes to the fore in Moseley's most conventional but not therefore unhelpful chapter on the brothers H. Richard and Reinhold Niebuhr.

Finally, when discussing modernity and its discontents he returns to and summarizes the differentiation theme. The closing chapters and an epilogue allow him to muse on the meanings of cultural pluralism and the quest for wholeness.

My review may suggest that the parts are greater than the whole. Each chapter is a quiet *tour de force*, a mini-display, sometimes of subtle and sometimes of dazzling character, of Moseley's skill. His knowledge of secondary sources is impressive, although only in the chapter on Ralph Waldo Emerson-Herman Melville does his closeness to original source material become apparent. The book does have its overall theme, as I have tried to make clear. If it is used in college classrooms, teachers can inform students about meanings of America and help them gain tools for developing curiosities and satisfying some of them. The reader at a desk or in a parlor will not use this as a first book on American religion but will profit from its employment as an aid for gaining new angles of vision.

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Mind in Nature: Nobel Conference XVII. Edited by RICHARD Q. ELVEE. San Francisco: Harper & Row, 1982. 173 pages. $7.95 (paper).

The Nobel Conferences are held annually at Gustavus Adolphus College. The 1981 topic, "The Place of Mind in Nature," originated "in the conversations of Gustavus physicists and theologians wishing to explore further the revolution in physical thought that was moving the mind and the apparatus of the human observer to the center of the inquiry about the ultimate nature of things" (p. xi). This conference of leading thinkers in physics, biology, philosophy, and theology provided an opportunity for clarification and evaluation of the oft-voiced claim that the world view implied by twentieth-century physics is more open to a religious interpretation than the "scientific world view" dominant in previous centuries. However, judged on the basis of the papers and the printed discussion, it was largely a missed opportunity.

John Wheeler and Eugene Wigner were the two physicists. Wheeler reviewed the attempt by Albert Einstein to show that quantum theory is self-contradictory, and he suggested that the solutions to the seeming absurdities are to be based upon Niels Bohr's central insight that no phenomenon is a phenomenon until it is a *registered* phenomenon. Wheeler went on to suggest that acts of "observer-participancy" constitute the creative building material of the universe. Wigner pointed out that most extensions of the area covered by physics have meant an alteration in its basic principles and that a physics extended to deal with the higher forms of life and especially the human mind will likewise involve a basic alteration.

The other scientist was neurophysiologist Ragnar Granit. He argued that mind is an emergent property (an organizational system in the brain) that evolved to increase control, and that its purposiveness is a factor that cannot be dealt with by fragmentary analysis but must be included in evolutionary theory.

These three certainly provided ample material for philosophers and theologians to probe, to seek to clarify issues, and to advance the discussion. And surely there has been a plethora of material written by physicists and interpreters of physics (e.g., Fritjof Capra, Gary Zukav, and David Bohm) about the philosophico-religious implications of physics, material which begs for philosophical examination.

It was here that the opportunity was missed. Wolfhart Pannenberg was the theologian invited, Karl Popper and Richard Rorty the philosophers. Pannenberg certainly seemed an excellent choice. Among theologians, he has intellectual acumen and breadth of interest and knowledge second to none, and he has written specifically about the relation of theology to philosophy of science (*Wissenschaftstheorie*) and also about the nature and origin of life. But he chose to orient his own presentation primarily to Biblical suggestions about "spirit" rather than to engage directly the current discussion about the implications of the physical sciences.

A major reason, beyond anyone's control, that the discussion was not more fruitful was surely that Popper was unable to come, due to illness. He probably would have pressed for clarification and expansion at many key points which were otherwise simply let go. His paper presented a nice summary of his views about conjectures, the distinction between truth (which is objective and absolute) and certainty (which is not to be achieved), the distinctions among

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Worlds 1, 2, and 3, and the need to supplement "passive Darwinism" with "active Darwinism." Active Darwinism would emphasize the increasingly important and irreducible role played by mindlike behavior, that is, preferences, in evolution. But his most important contribution would have been, I suspect, his interaction with the other participants.

Rorty was invited, we are told, "as a positivist control on the potentially out-of-hand speculations about the mind" (p. xii). There is no indication as to whether the committee considered the need to have someone there to help keep Rorty's positivism from getting out of hand! More seriously, it could be argued with the wisdom of hindsight that a more important consideration would have been to choose a philosopher likely to encourage others at the conference to expand and clarify those of their suggestions which point beyond the hitherto prevailing orthodoxy in regard to the place of mind in nature, and hence of the study of "mind" in natural science, and hence of the relation between religion and natural science. The biggest disappointment of the book (which is quite excellent in regard to the individual essays) is that the implications of various suggestions of this type were very seldom explored in the discussion. This seems largely due to the absence of Popper and the present commitments and attitudes of Rorty.

In particular, Rorty rejects the correspondence theory of truth in favor of a pragmatic view that the truth is whatever we find useful in coping (pp. 76, 77, 95, 149); nonetheless, even though it seems contradictory, he accepts the view that the account of ourselves given by reductionistic, materialistic science is what best corresponds to reality (pp. 70, 75, 86, 87). Then he combines both these views with the idea that we need helpful self-images; and, since materialistic science (a tautology) cannot provide these, we should create other self-images—ones that are "worthy of our species" even though they are "not true to the nature of [our] species or false to it" (p. 88). Hence it seems that we are to let science settle the mind-body problem (pp. 86, 87), but that this answer is irrelevant to our self-image, since as *poetic* beings "we can rise above questions of truth or falsity" (p. 88). This position seems to make Rorty guilty of what he criticizes in others: "transforming the 'mind-body problem' into a *scholastic* issue—an issue whose outcome doesn't make a difference to anything else, one which only specialists could care about" (p. 61). In any case, Rorty's materialistic, reductionistic, and behavioristic tendencies lead him to deny that the term *mind* refers to any reality worth talking about (pp. 71, 75, 86-87, 93); his rejection of truth as correspondence in favor of functionalism leads him to encourage others to overcome the inclination to raise certain kinds of questions, since an answer to them would not help us cope (pp. 149, 150); and his view that we can create self-images to live by which we do not believe to be true leads him to think that the question of the place of mind in nature is not very important anyway (pp. 64, 87)—unless it is simply equated with the question of what self-image we should have (p. 62).

The remoteness of Rorty's viewpoint(s) from the concerns of all the other participants was most clearly brought out in regard to the very purpose of the conference. The others, including the three scientists, said we must talk of mind as an explanatory factor in evolution. But Rorty denied that the notion of mind is an explanatory notion and hence that it is worth preserving in a scientific context (pp. 93, 150). He concluded in effect that the conference was based on a bad question, saying "we shouldn't try to answer questions like, 'What are the implications of this or that scientific development for mind?'" (p. 93). When his scientistic mood is prevailing over his functionalistic mood,

Rorty sees that the question behind the conference at least makes sense; he grants that science itself "might lead us back towards a religious conception of mind . . . and away from the positivistic outlook of the nineteenth century" (p. 150).

Of course, the point is not to criticize Rorty for the deficiencies of the interchange. He did what he should have done—expressed his own point(s) of view and raised the questions that seemed most pertinent to him. (There is much that can be criticized in regard to his views, in regard to their self-consistency and their adequacy to our experience and needs, but this is another issue for another place.) Rather, I am only trying to account for what occurred—and failed to occur. The moral is that philosophers representing the hitherto dominant forms of Anglo-American philosophy will probably not be the most helpful in the new dialogue that needs to emerge.

What are some of the issues which might have been pursued, given the topic and the occasion? I shall suggest five. First, strangely, there was no discussion of the question of whether mind (i.e., entities with what Popper calls "mindlike properties") is a pervasive, primordial reality, rather than something which emerges out of totally insentient matter. Granit and Popper both implicitly deny it, seeing mind as an emergent property (pp. 39-40, 98); Rorty mentions panpsychism only to reject it (p. 67); Pannenberg seems to affirm it (p. 145); Wheeler's notion that the history of the universe is constituted by billions of billions of elementary acts of "observer-participancy" (p. 21) seems to imply it; and one might think that Wigner's recognition of universal interaction (p. 131) is more compatible with it than with an ontological dualism. But the issue is never *discussed*.

Second, most of the participants believe that mind is an active factor in the world and even needs to be included in an explanatory account of biological evolution. This implies that science must deal with mind. Popper wants an active Darwinism that would recognize the role played by preferences, which must be thought usually to precede anatomical changes (p. 42f.); Granit has a similar position (pp. 107ff.); and Wigner stresses that quantum physics is incomplete since it cannot discuss experience (p. 126f.). This would seemingly imply a fundamental change in the very conception of what natural science is, since it has hitherto been thought to be limited to the use of purely objectivist categories, and to exclude all subjectivist ones such as experience, purpose, and will. This is what behaviorism was all about: behaviorists assumed that psychology could only be accepted as a science if it excluded all subjectivist categories. Wigner's suggestion that the extension of physics to include life and mind would involve an alteration of basic principles seemed to beg for a serious discussion of this issue. There is a two-sentence interchange in which Wheeler indicated that to think of life as outside physics would be to think of it as "something magic," to which Wigner replied that it is only outside *present-day* physics (p. 130). In another interchange Wigner denied and Wheeler affirmed that mind could be accounted for in terms of current physical laws (p. 195). But beyond this the subject is not broached.

Third, closely related is the question as to whether science can be clearly demarcated from metaphysics and theology. Popper still thinks so, in terms of whether the conjectures are testable or not. But the testability of conjectures seems often to be a matter of degree, rather than of definitively or not at all. Examples are conjectures about the origin of our universe and about the origin of life. Allowing subjectivist categories such as preference into science would seem to increase the number and kinds of conjectures that are only susceptible

of somewhat "soft" tests. Here Popper himself seems to contribute to overcoming the hard distinction between science and metaphysics. To be sure, he regards both passive Darwinism and his own active Darwinism as metaphysical, not scientific, conjectures, since they are not testable in his sense of the term (p. 44). But Darwinism, of whichever type, is almost universally considered a scientific theory. Popper's absolute line of demarcation seems artificial.

A fourth question that one might well expect to have been discussed is whether indeterminacy in quantum physics is relevant to the question of freedom in humans. The question of freedom comes up when Pannenberg points out that the problem of accounting for the correspondence of our ideas with reality arises precisely because our minds are active, not merely passive receivers (pp. 144, 151), and because Wheeler, Wigner, and Popper also explicitly reject determinism (pp. 24, 40, 131). Further, the question of the relation between human self-determination and the nature of subatomic particles is implicit in Rorty's two-fold view that there is nothing to us beyond our simplest components (pp. 70-75) and that we are the poetic species, capable of changing ourselves (p. 88). But no one explicitly raises the issues that have been much discussed elsewhere, namely, does the epistemic indeterminacy betoken an ontological indeterminacy or self-determinacy in nature itself and, if so, is this relevant to the question of human freedom? Most people have assumed that, even if the answer to the former question were positive, the answer to the latter would be negative, due to the "law of large numbers." But this begs the question, which is precisely whether humans and other animals have a mind which makes each of them into a "compound individual" (to use Charles Hartshorne's term), rather than a mere aggregate, like a rock, which has no organizing center. Granit's views on hierarchial biological systems would be relevant here. But those questions were not raised.

A fifth question that would have been natural to raise in regard to the conference's topic, especially since it arose in discussions between scientists and theologians, is whether it is necessary and permissable for science to speak of a universal mind which influences finite minds. Thinking in such terms would not have been very natural in a scientific world view in which mind was thought not to be an active ingredient in reality but only an epiphenomenon at best. Also, Rorty repeats the conventional view that "God" cannot be an explanatory concept (p. 93). But in a world view in which an irreducible causal efficacy is assigned to *preferences* and in which mindlike activity is seen as pervasive, an attempt at an adequate account might well decide that the persistent rise of novel preferences pointed to the influence of a universal mind, especially if it were recognized that many preferences are unrelated to mere survival needs. Pannenberg's suggestion that life and mind arose within a "spiritual field" points in this direction. Also, Wigner dared to suggest that there is "an evolutionary force driving the development" of mind, to which Rorty replied that Darwinian mechanistic accounts do not need the notion of an evolutionary drive, although we can go on being romantic in our attitude towards ourselves without needing any support from science (p. 89). But beyond this brief exchange there was no discussion of the idea of this possible meaning of the idea of "mind in nature." Further, in regard to this interchange the idea that a nonmechanistic physics should lead to a nonmechanistic biology was not raised.

It is to be hoped that the Nobel committee will make the place of mind in nature central in many future conferences. It can reasonably be claimed that this is not just one among many issues but *the* theoretical issue of our century. If through sustained attention to this topic, the Nobel Conferences could help us

as a culture make real progress in sorting out the issues and coming to a new and coherent vision of the world, they will have performed an immeasurable service.

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