Reviews

GRIFFIN RESPONSE TO PETERS

The review (26/3, September 1991) by Ted Peters of two books I edited, *The Reenchantment of Science* and *Spirituality and Society,* was generally positive. He found, however, one major problem in the organismic model proposed: it tries to treat obvious nonorganisms, such as rocks and machines, as organisms.

But in making this charge, Peters's usual perspicacity left him. In my introductory essay in *The Reenchantment of Science* (New York: SUNY, 1988), I pointed out that Aristotelian organicism was problematic because it attributed "purposive or final causation to everything, most notoriously saying that a falling stone seeks a state of rest" (22). I then said:

> Postmodern organicism holds that all primary individuals are organisms who exercise at least some iota of purposive causation. But it does not hold that all visible objects, such as stones and planets, are primary individuals or even analogous to primary individuals. Rather, it distinguishes between two ways in which primary organisms can be organized: (1) as a compound individual [there is here a reference to Charles Hartshorne's essay, "The Compound Individual"], in which an all-inclusive subject emerges; and (2) as a nonindividuated object, in which no unifying subjectivity is found. Animals belong to the first class; stones to the second. In other words, there is no ontological dualism, but there is an organizational duality which takes account of the important and obvious distinction that the dualists rightly refused to relinquish. (Griffin 1988, 22–23)

The duality between these two ways in which organisms can be organized is no trivial point within this school of thought. Hartshorne has hailed Leibniz's articulation of this distinction as his greatest, but generally unrecognized, contribution to philosophy. The distinction is referred to by other authors in the volume: Charles Birch contrasts organisms and machines (Griffin 1988, 71); Frederick Ferré points out that whereas we cannot understand how machines can give rise to organisms, we can understand how organisms can give rise to machines (Griffin 1988, 96); and John Cobb distinguishes between individuals, which are internally related to their environments, and machines, which have only external relations to their environments (Griffin 1988, 107–9). And, in my own contribution, immediately upon introducing the term "panexperientialism," I provide three ideas that "make Whiteheadian-Hartshornean panexperientialism less counterintuitive than it otherwise would be," the first of which is that

> a clear distinction is made between *aggregates* and *genuine individuals,* with the insistence that only the latter have (or *are*) experiences. Accordingly, sticks and stones and stars are not thought to have an experience as wholes. The *pan* in

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panexperientialism thereby means that all actual things either *are* experiences or *are composed* of individuals that are experiences. This point distinguishes this position from most other "animistic" positions. (Griffin 1988, 152)

It is noteworthy that the only textual evidence cited by Peters for his claim that organisms and nonorganisms are confused in my position is Brian Swimme's statement that "every rock is a symphony." In my introductory essay, after saying that Whiteheadian postmodern organicism is expounded in the essays by Birch, Cobb, Ferré, and myself, I added that it was embodied only to some extent by Swimme. And here there was a referenced endnote, which reads, "Swimme is unconvinced of the appropriateness and helpfulness of the distinction between compound individuals and nonindividuated objects, developed below" (Griffin 1988, 43, n. 87).

At the conference from which most of the papers in these two volumes came, incidentally, this issue, with Joanna Macy's Styrofoam cup serving as the focus of the dispute, was discussed with some intensity. (The intensity was such, in fact, that Charlene Spretnak was moved to observe wryly that the passion aroused around the table by this issue exceeded that evoked by the possibility of nuclear war!) Swimme and one or two others held that the cup should be considered an experiencing, purposive individual, whereas most of us held that it should not. One of our points was that, besides the issue of truth, the failure to make a clear distinction between genuine individuals and nonindividuated aggregates makes the panexperientialist position subject to ridicule and easy dismissal. (Peters is simply one more in a long list of critics, among whom are numbered Karl Popper, John Eccles, and Roger Sperry, who have made this type of charge.) I agree with Peters that a panexperientialism that treats rocks and machines as experiencing, purposive individuals is to be rejected. What I fail to see is how I could have made it any clearer that the panexperientialism I advocate is not of that type.

This point aside, I am grateful to Ted Peters for a fair, even generous, review.

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Creation or Evolution: Correspondence on the Current Controversy. By EDWARD O. DODSON and GEORGE F. HOWE. Ottawa: University of Ottawa Press, 1990. 175 pages. $27.95; $17.95 (paper).

I have in my hands a copy of *Creation or Evolution: Correspondence on the Current Controversy.* The book reports the correspondence between two biologists over a five-year period concerning the relationship between contemporary scientific theories of evolution and the Bible. Neither man is a professional theologian; both are professional biologists. Edward O. Dodson, evidently

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the editor of the letters in the form in which we have them now, is an emeritus professor of biology at the University of Ottawa. George F. Howe is chair of the Division of Natural Sciences and Mathematics at The Master's College in California.

Both men classify themselves as believers. Dodson represents the position of mitigated rationalism, stemming ultimately from Augustine of Hippo. In accord with the Augustinian tradition, Dodson believes that both faith and reason have a place within human thought. Ultimately, since truth is one, faith and reason must be in harmony. If there is some contradiction between the two, it is only an apparent one: either an error has been made in the reasoning process, or revelation does not contain what it was thought to contain. Dodson sometimes seeks a biblical exegesis other than the literal one in order to harmonize faith and reason. At other times, he scrutinizes the real intent of the human author. In no case does he use faith to restrain scientific research. Scientific fact is to be respected; biblical authority is to be preserved. Howe, though he might agree verbally with the above description, represents a far different tradition. Revelation has furnished much scientific data. We must therefore hold them by faith. Any scientific research that contradicts the literal meaning of the Bible must be forsworn. Historically, this position has been termed fideism, and it is the position of fundamentalist theologians today.

In Dodson's view, the theory of evolution, while it remains in the philosophical and scientific sense of the term a theory, has so much scientific evidence in its favor that we must hold it to be true. He therefore interprets the relevant biblical passages (specifically Gen. 1–2) in accord with his evolutionary thesis. He denies neither creation nor the dependence of all things upon God, but maintains that creation came about through natural processes under the guidance of God. In Howe's view, God acted miraculously in creating the universe in six days some six thousand years ago. There can be no acceptable scientific evidence to challenge this. The literal meaning of the first three chapters of Genesis must be maintained. The distinction between these two positions on faith and reason, so obvious to theologians, is important because the scientific community, often of a rationalist bent, is not aware of it. Among many scientists, Howe's position is taken to be *the* Christian position. Dodson's view, however, has been the mainstream Christian position since the time of Augustine.

It is equally important for us to realize that evolution remains a scientific theory. The nature of scientific theories is that we can prove them to be false but cannot prove them to be true. They can only be very likely explanations. From fundamental logic, for example, we know that an argument involving a conditional proposition of the form *if x, then y* can be valid only if we either posit x or deny y. Thus a reasoning process involving a conditional proposition *If evolution is correct, then y phenomena will be observed* can only be in correct form if the first clause is posited or the second one is denied. The observation of y phenomena does not prove the theory of evolution since the phenomena could take place under many other conditions. We might change the proposition to read *If phenomenon x takes place, then evolution is proved.* If we observed phenomenon x, evolution would be proved true. However, we do not know that this conditional proposition is correct. In this sense, science cannot prove theories to be true; rather, it can only prove theories to be false. Nevertheless, the more phenomena

that are explained by a given theory, the more likely the theory is to be true. And it is in this sense that the theory of evolution is very likely.

Likewise, Dodson (118) is certainly correct that science makes numerous philosophical or metaphysical assumptions. He lists five of them: (1) nature is orderly; (2) this order is discoverable; (3) sensible evidence is at least potentially reliable; (4) nature is inadequately described in terms of space, time, energy, and mass; (5) the human mind is a trustworthy instrument. While one might argue with the precise wording of some of these assumptions, and while one might make more explicit what is implicit in them (that is, that an extramental reality exists and that we know that reality to a great extent as it is), a philosopher of my position would in general agree with them. In particular, I would like to emphasize the link between the first two principles and Aristotle's fourth cause, final causality. Order and design have been taken to indicate purpose. In my opinion, order and design, at least on the "micro" level, are evident in the world. Do contemporary scientists by and large agree that there is such a thing as final causality? Or are they only interested in efficient causality? For example, is DNA only an efficient cause, or is finality present also? Does the fact that the mating of two Dobermans only produces Dobermans suggest that there is finality or not? I would have liked to hear more from Dodson on this point.

A great part of the discussion in the latter part of this correspondence deals with the distinction between macro- and microevolution. The latter describes the changes within species, and both Dodson and Howe regard this as proved. Macroevolution is the evolution between species, and it is here that the two part company. Dodson deems this a very likely hypothesis; Howe considers it as both unproved and impossible since it contradicts the apparent literal meaning of the Bible. In this regard, Pierre Teilhard de Chardin becomes a controversial figure in their correspondence. Teilhard is, of course, *the* macroevolutionist in Roman Catholic thought. His speculation is generally accepted by Dodson, though he seems to have been embarrassed by the Jesuit's perhaps unwitting participation in the Piltdown hoax, something discussed into the present day. Howe is enamored of neither Teilhard's scientific nor theological analysis (his comment that Chardin was not theologically well trained is certainly in error). The general objections to Chardin's thinking are well known: that it is a strange *mélange* that is neither scientific nor theological. It is difficult for the works of one individual to contain both theological and anthropological judgment. It must be the goal of both science and theology to find the solution to the question of evolution while compromising neither theological nor scientific truth. The mitigated rationalist knows this to be possible.

Of course, the real theological problem arises in trying to integrate original sin with macroevolution. Howe holds that such a reconciliation is in fact impossible. Dodson, on the other hand, argues that a synthesis is possible. Saint Augustine, from whom the "completely worked out" theory of original sin comes down to us, held that the theory of original sin demanded the biological unity of the human race since the sin was passed on by physical generation. According to the Bible, this biological unity existed. Thus, we all participate in the sin of Adam.

Many theologians today question whether biological unity is necessitated by the theory of original sin, as Saint Augustine thought. At the time when,

as a young theologian, I studied this question in detail some twenty-five years ago, many scientists suggested that, if a jump in nature from some preexistent form to *Homo sapiens* took place, it was reasonable to conclude that such a jump could easily have happened more than once. Today, however, the burden of proof is on those who would hold that such a jump occurred more than once. The complexity of particular circumstances for such a jump in nature to materialize is such that the likelihood of its happening more than once is remote. Dodson makes a similar point when he says that it is likely that only a few jumps could have occurred and, further, that there would be a likelihood that all the males and females involved would eventually engage in common intercourse. Thus, Dodson preserves the unity of the human race. And in doing this, Dodson, a contemporary scientist, supports the position of Augustine, the ancient theologian. I would hope that such convergence of thought will be pursued by scientists and theologians on other matters.

A curious repartee takes place throughout the correspondence concerning publication. Howe contends that the editors of scientific journals are biased against creationist scientific views and refuse to publish research supporting creationism. While granting that Howe may at times be correct in this regard, Dodson nevertheless continually urges his colleague to publish his legitimate scientific findings in scholarly journals. If Howe were to publish numerous scientific articles in recognized scientific journals, thereby establishing his scholarly reputation nationally and internationally, he would then be able to publish articles promoting his creationist views which would be given a serious hearing by the scientific community, because of the reputation he earned through earlier publication.

We may observe parenthetically that the general public places great stock in scientific research. However, the results of such research, at least so far as published in the popular press, are often inaccurate, in that popular presentation suggests more evidence for positions that are at best the tentative conclusions of scientists, often based merely on statistical evidence. The popular press may have quite a different reason for the premature publication of scientific research other than a researcher's natural bias toward his or her own conclusions. But the scientific community would do well to ensure that the tentative and conditional quality of many of its conclusions be made clear (this would be analogous to what in earlier days the Catholic theologians did in their science in appending a theological note, such as common theological opinion) and to make clear that incomplete research can yield only tenuous conclusions. I am not suggesting that the scientific community is biased in its publication, but I am aware that scientists may be under various pressures to publish. Society at large is at least partially to blame for being willing to place too much faith in the conclusions of science and for asking from science more than it can deliver. And I am well aware, as the general public is not, that empirical science makes progress by replacement of one theory by another. But contemporary society, as well as contemporary science, would save itself much time and effort if it would give scientific conclusions only as much credence as they are intrinsically worth.

This volume also contains two appendixes and a glossary which may be useful for biologists as well as for theologians. Appendix 1 is an index of names appearing in the text. Appendix 2 is an indexed presentation of the

biblical passages cited in the letters, taken from several English translations. The glossary includes the scientific terminology employed by the authors.

This work is not at all the last word on the theological and scientific question of evolution. It does not pretend to be. Nor is it even an adequate contemporary *status quaestionis* on either the theological or the scientific subject of evolution. For example, secular scientists are almost totally excluded from the discussion, save for a few mentioned by Professor Dodson. However, the work does represent two Christian approaches to the question of evolution in particular and science in general. As one who has spent a lifetime as a mitigated rationalist, I can only wish Dodson well in his endeavors.

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God and the Process of Reality. By DAVID PAILIN. London and New York: Routledge, 1989. 235 pages. $42.50.

For David Pailin, "The fundamental problem for theism is that [its] credibility is currently questioned." What is incoherent cannot be true, and so a rational articulation of the theistic position is a pressing necessity. Admirable as that aim may be, one might note in passing that modern physics warns us not to be too hasty in deciding questions of coherence. Who would have thought that wave and particle were reconcilable, unless forced by experience to countenance that possibility? Pailin is aware that theological thought must be judged not only by criteria of rationality but also by criteria of adequacy to religious experience, but he fears "the danger that theistically adequate descriptions may show the impossibility of the reality which they purport to identify." The risk must be taken, because "attempts to define theism by ignoring the question of truth are fundamentally atheistic. They worship human wishes rather than reality."

Pailin believes he perceives a way out of the dilemma. It is provided by process theology, but in a radically revised form. In particular, the Whiteheadian metaphysic must be corrected, for its account of an event-centered reality is both too episodic ("it jerks along rather than flows") and too panpsychic. In Pailin's view (and mine) "the psychical description of reality as a whole seems to be either meaningless, misleading, or deeply obscure." The world is indeed endowed with becoming, and so is God, for a mere Boethian notion of eternity "implies that what appear to be the *processes* of reality are in fact an illusion. In reality—that is, in the ultimate state of reality as known totally by God—all events are simultaneous." Such a conclusion is unacceptable. God's nature must, therefore, be dipolar, though the Hartshornian duality of existence/actuality is to be preferred to the Whiteheadian duality of primordial/consequent natures. Yet Hartshorne, too, is criticized for his predilection for proceeding by attempting an exhaustive a priori listing of possibilities. This attempt needs to be

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augmented by "the need to test understanding against the reality as experienced." I am all in favor of the acknowledgment of the necessity for experience-assisted logic.

God is "Eternal-Temporal Consciousness, Knowing and including the World." I believe there are great difficulties in the latter, panentheistic phrase, both in relation to the religious experience of the "otherness" between Creator and creation, and also in understanding how a God conceived as partially embodied would not be unacceptably in thrall to the radical transformations of the universe (from quark soup to present diversity to future collapse or decay). It leads to the scientifically questionable notion of an everlasting material universe. Pailin does not address in his book questions arising from contemporary scientific understanding.

One of the crucial questions for any kind of process thought is the degree to which it can accommodate an experientially adequate account of God's interaction with the world. Pailin wishes to emphasize that "the dipolar panentheistic" concept of God, such as that developed by Hartshorne, includes a notion of authentic divine activity. The form this "eminent activity" will take is through divine "lure": "God's activity is accordingly to be conceived as the luring activity of love which respects the proper integrity and intrinsic value of all others." One may acknowledge the justness of the condition imposed by the second half of that sentence without feeling that the first half provides an adequate concept of divine action. Pailin attaches great force to persuasive power—"a sufficiently attractive 'lure' may be compelling, perhaps even more compelling, than coercive might"—and, interestingly, this raises questions of theodicy for him, questions that ask why the lure does not seem to be exercised more effectively. Yet to me it seems that this idea of how God interacts is just the divine counterpart of the old liberal fallacy in relation to human action, that *all* one needs is to offer the right advice and exhortation.

There is also, of course, the problem of how the lure can be exercised on the universe at large, or once one has abandoned a panpsychic metaphysic. Pailin criticizes Arthur Peacocke's account of continuous creation through the shuffling explorations of happenstance as being little more than the story of a deistic Absent Landlord, yet when he comes to articulate his own position, it is strangely similar, with the addition of "an intrinsic urge towards combination in increasingly complex patterns." A scientist would probably wish to begin to account for the latter by reference to non-equilibrium thermodynamics and its capacity to generate order out of chaos. I personally believe that modern physics helps us to conceive of a more genuinely effective mode of interaction by God, through the input of information into complex situations endowed with a true openness to the future.

What God does or does not do is intimately connected with the religious question of the nature and reality of a lasting hope. There is no reference to the Resurrection in this book. One of the defects of process thought, to my mind, is its etiolated notion of hope. This notion seems to rest principally on God's recollection of all that has been, with a consequent accumulating richness in the reservoir of the divine memory, so that "the proper goal of divine creativity is not to be envisioned as the attainment of a particular state of affairs but as the continued pursuit of aesthetic enrichment." For Pailin's God, it seems, it is better to travel hopefully than to arrive.

Not only does such a God preserve on the divine videotape the memory of Hitler quite as much as that of Saint Francis, but such a God also affords no ground for the deep human hopes for purgation, healing, and fulfillment in a destiny beyond death, which I believe to be basic insights of religious experience.

This is an interesting but ultimately unpersuasive book, written with passionate integrity, in a style which is neither obscure nor exiciting. If we were really faced with the choice between a God conceived of as a Cosmic Tyrant and the God spelt out for us here as the Perpetual Persuader, then the latter might well be the better choice. But that is not the case. There are options provided by others. One of the defects of the presentation is a tendency to caricature alternative possibilities. Neither Jürgen Moltmann nor Keith Ward is mentioned in the book, but their very different writings present us with a concept of God that does not deny God's essential involvement with time but that also succeeds, not only in remaining close to the central tradition of Christian experience and understanding, but also in giving us the concept of a God neither overweening nor impotent, but continuously interactive in a way that provides the ground of lasting hope.

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Theology for a Scientific Age. By ARTHUR PEACOCKE. Oxford: Basil Blackwell, 1990. x + 221 pages. $39.95.

Whether loud or soft, rapid or slow, simple or embellished, no matter how it is played or sung, one recognizable melody distinguishes all Arthur Peacocke's compositions. It is this: "Theology needs to be consonant and coherent with, though far from being derived from, scientific perspectives on the world" (x). The purpose of *Theology for a Scientific Age,* then, is clear: to rethink religious conceptualizations in light of the perspective on the world afforded by the sciences.

Methodologically, Peacocke correlates critical realism in the natural sciences with a "critical-realist" theology. Both rely upon metaphor and both construct models. Both engage realities that may be referred to and pointed at yet are beyond the range of any completely literal description. Peacocke's objective in this book is to examine the relations between the realities to which each refers.

One such reality is mystery. God is mysterious. Natural theology paints a picture of an ineffable and transcendent God beyond human comprehension. The special revelation of God experienced in the person of Jesus Christ only enhances the mystery of the divine. Yet mystery is by no means confined to theology. Twentieth-century science is characterized by a new appreciation of the mystery of existence. Quantum physics and such ideas as indeterminacy and vacuum fluctuations have increased our knowledge,

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while at the same time they have humbled our previous hubris for assuming causal explanations would be right around the corner. The foundation of physical reality is more elusive than once thought. "So the mystery-of-existence question becomes even more pressing in the light of the cosmic panorama disclosed by the natural sciences" (101). Also mysterious is human personhood, arising as it does from the biological sphere to that of consciousness and then becoming itself a top-down cause. Peacocke believes that "this recognition of an ultimate ineffability in the nature of the divine parallels that of our ultimate inability to say what even things and persons are in themselves" (102).

On the other hand and perhaps even paradoxically, Peacocke celebrates intelligibility. He quotes with favor Albert Einstein's exclamation, "The eternal mystery of the world is its comprehensibility. . . . The fact that it is comprehensible is a miracle" (81). Empirical observation and rational reflection do in fact produce knowledge. With this in mind, Peacocke sees the task of theology in explanatory terms, with the function of an explanation being to make the world more intelligible. To speak of God makes the world more intelligible than not to do so. "In other words, the affirmation of the existence of *God as the supremely rational Creator* is strengthened and its truth rendered more, rather than less, probable by the increasing success of science in discovering the inherent, but in content ever-surprising, rationality of the cosmos" (104).

What is happening is that Peacocke's rethinking of theological conceptions in light of natural science is leading him to assert here as he has done in previous works certain things about God: beyond the eternity of the divine being God is engaged in temporal *becoming*; beyond *creatio ex nihilo* God is engaged in *creatio continua*; God creates and dynamically "lets be"; God is the ultimate source and ground of both necessity and chance; God has a self-limited omnipotence and omniscience, thereby permitting necessity and chance in the history of nature; the divine act of self-limitation for the good of the creation warrants our saying that *God is love*. These reconceptualizations lead finally to a theopaschism: "God suffers in, with and under the creative processes of the world" (126).

Some interpreters of Peacocke assign the label *temporal critical realism* to Peacocke's work. Perhaps this is appropriate, for Peacocke writes, "In giving being to entities, structures and processes in time, God cannot have a *static* relation to that time which is created with them. Hence we have to speak of a dynamic divine 'becoming' as well as of the divine 'being' " (184).

The value of the Peacocke project is that it accomplishes what it proposes; namely, it rethinks theological doctrines in light of the scientific understanding of the natural world. As a theological method, this work demonstrates the utter seriousness with which a theologian can work with culture, in this case scientific culture. As a doctrinal program, this work has started down the road in the direction of a full systematic theology. After his methodological prolegomenon, Peacocke takes up the doctrine of a becoming God in relation to a becoming creation. When the now-clothbound edition gives way to the paperback somewhere around 1993, Peacocke will add a corresponding discussion of anthropology: the human person as a physical, biological, psychological, and sociological being. The stage will be set for the drama of salvation and the remaining loci that make up a theological system.

This constitutes a small but noticeable change in direction. Peacocke's masterwork to date, *Creation and the World of Science* (Oxford: Clarendon, 1979), is organized somewhat like a systematic theology. Yet there the scientific agenda drove the project. Here in *Theology for a Scientific Age* the theological agenda has taken the driver's seat. Distinctively theological commitments are being rethought in light of scientific apprehensions of nature.

Perhaps the book's greatest virtue is its lucid presentation of the vitally important but otherwise forbidding field of science-religion dialogue. Peacocke's writing is clear and his arguments interesting. The book's greatest drawback, however, is its even more forbidding price. Unfortunately, the high purchase price may limit this commendable work to a rather small reading audience.

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The American Empirical Movement in Theology. By DELORES JOAN ROGERS. New York: Peter Lang, 1990. 246 pages. $47.95.

Any adequate grasp of the relation between science and religion is driven by ideas that span and reach beyond science and religion themselves. In twentieth-century America, the theological movement designated empirical theology probes just such overarching ideas and argues that they demonstrate the close interdependence between science and religion. This theology relies on empiricism (knowledge yielded by experience alone) and presupposes a world of continuous process rather than static structure.

Empirical theology almost died during and after World War II, but now it is only in remission. In *The American Empirical Movement in Theology,* Delores Joan Rogers explores two figures in the history of religious empiricism and through this exploration introduces the reader to the larger American empirical movement. The book does not describe directly the whole movement, as her title suggests; but it does offer a window to the movement, as well as comment on its current revival and its continuing contribution to the science-religion dialogue. "The 'Empirical' theologians," Rogers says, "are attempting to formulate a new language adequate to express the new insights of sciences such as physics in relation to their understanding of religion and God" (221). Her own account of empirical theology explains straightforwardly much of that language, its presuppositions, and its theological conclusions. In the concluding sentence Rogers explains, "Indeed, I was prompted to write this book by my concern to make this movement more accessible to the general reader in theology" (225). Her promptings were answered. In addition and because of her penetrating insight, the book offers to the specialist a new perspective on empirical theology.

While *The American Empirical Movement in Theology* does not center on the

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science-religion dialogue, it does introduce two religious empiricists who contribute powerfully to understanding that dialogue. On the surface the book is an exposition and comparison of the major writings of Mordecai Kaplan (1881–1983), a Jewish philosopher-theologian and founder of the Jewish Reconstructionist movement, and Bernard Meland (1899–), a Christian theologian and living model for those rebuilding empirical theology in what once was (but is no more) the tradition of the "Chicago School" of the Divinity School of the University of Chicago.

Rogers demonstrates that Kaplan and Meland are naturalists, both in their reliance on modern science and in their appreciation of the natural base for human culture. Their differences offer poles in the spectrum of empirical theology: in theories of meaning Kaplan is a functionalist empiricist and Meland a metaphoric, aesthetic, even mystical empiricist; Kaplan struggles for a kind of scientific clarity, and Meland finds greater value in what is least clear; Kaplan is preoccupied with social change and Meland with private insight. Rogers is conscious of the different Jewish and Christian styles of the two thinkers and structures her entire book on the premise that Kaplan is more attentive to the formation of identity through group affiliation and Meland is more attentive to the formation of identity through the quest of the individual. Accordingly, Kaplan's God represents the source of corporate creativity, and Meland's God represents the source of personal sensitivity and insight. Kaplan is struck by the image of Israel and by the influence of John Dewey's social activism, while Meland is struck by the image of the solitary Galilean and by Alfred North Whitehead's dominant model of the occasion of experience. Despite the fact that neither Kaplan nor Meland has rethought his approach in recent decades, the worldviews and epistemologies they originally developed remain current with most recent science and theology.

Despite its raw scent of a revised dissertation (completed at Northwestern University), Rogers's book cuts new ground for a variety of readers. For those who prize urbane diplomacy between the worlds of science and religion, Rogers offers a fine schooling in what may be the best negotiation North America has to offer. She also has written a book valuable to specialists in empirical theology. Except for exaggerating the personal dimensions of Meland's final concept of God, Rogers provides an insightful and comprehensive introduction to his theology. She also makes a strong case that Kaplan is not only an indispensable but a leading American empirical theologian. This comes on the heels of Lori Krafte-Jacobs's special issue of the *American Journal of Theology and Philosophy* on "Mordecai M. Kaplan and American Naturalism" (January 1990) and Emanuel S. Goldsmith's ongoing efforts to relate Kaplan to empirical theology, most recently in *The American Judaism of Mordecai M. Kaplan,* edited by Goldsmith, Mel Scult, and Robert M. Seltzer (New York: New York University Press, 1990).

I quibble only with Rogers's consistency with one principle, stated so well in her own conclusion: "The program for Empirical Theology, if it is to remain a vital movement, is to submerge itself ever more deeply in the empirical data; to be open to new theories in physics, natural science, biology and the human sciences, without ignoring the imaginative, emotive, poetic, and individual aspects of our existence" (224). I refer to the fact that, for all the interest Kaplan and Meland took in the humble

particular (Kaplan in groups, Meland in the culturally embedded individual), they still hope to anchor their particular claims in general truths—which are not only universal, eternal, given, fundamental, but known with an assertive empirical realism. Both claims were under attack by "new theories" during Kaplan's and Meland's productive years, and both are certainly subject to rigorous challenge in our own postmodern decades. Admittedly, both Kaplan and Meland offered in midcentury forthright rejections of any religion's claims to exclusive superiority, Kaplan using Émile Durkheim to relativize ancient Hebrew notions of Israel's election and Meland using physics and anthropology to relativize Christian claims to Christ's election. (These are powerful reminders to today's multiculturalists that American theologians preceded them literally by decades.) Nevertheless, both Kaplan and Meland finally insist that their worldviews are universally correct, even if their religions are not. Their pluralism, relativity, and remarkable humility were halted at the Rubicon of absolutistic metaphysics. Ironically, while this absolutism dates them, they are not dated in the sense that their absolutism has been superseded by a sustainable new relativism. Today's postmodernists, both within and beyond science, differ from Kaplan and Meland only in appearance: They hide the magnitude (even ostentation) of their worldview claims, adopting the pluralistic and relativistic mantle without changing the absolute body of their hidden worldviews. That said, the problem remains in these two empirical theologies. And in 1990 Rogers joins Kaplan and Meland in ignoring this sort of question, even though it permeates the culture of new theories in which she has written.

This unexploded bomb lies also in the basement of all current discussions of the relations between science and religion. That is, who in current discussions of the relations between science and religion can tell us how to reconcile Bohrian relativism, uncertainty, and constructivism (best expressed today by John Wheeler) with the fact that even in describing the limits of knowledge, they pretend to be utterly comprehensive?

Whatever the answer here, Delores Rogers's book is important not only because it faithfully and clearly describes an approach that is historic and once again growing, but because it makes possible the exploration of just such pressing questions.

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Environmental Ethics: Duties to and Values in the Natural World. By HOLMES ROLSTON, III. Philadelphia: Temple University Press, 1988. 391 pages. $16.95 (paper).

Holmes Rolston, III, professor of philosophy at Colorado State University, has been for the last twenty-five years a pioneer and leader in the fields of

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philosophy of nature and environmental ethics. An original contributor to and current associate editor of the leading journal in the field, *Environmental Ethics,* Rolston is also known for his highly acclaimed *Science and Religion: A Critical Survey* (New York: Random House, 1987) and his stimulating anthology entitled *Philosophy Gone Wild: Essays in Environmental Ethics* (Buffalo: Prometheus Books, 1986). So it is no surprise to those who have read Rolston's previous work that *Environmental Ethics: Duties to and Values in the Natural World* is a splendid and provocative contribution to a field of study that has been gaining increasing scholarly attention in recent years.

Environmental Ethics is, in short, nothing less than the single best available work in its field: comprehensive, clear, learned, insightful, wise. Ian Barbour's *Technology, Environment, and Human Values* (New York: Praeger, 1980) is still a valuable work, especially at the introductory level; Roderick Nash's *The Rights of Nature: A History of Environmental Ethics* (Madison: Univ. of Wisconsin Press, 1989) is a much-needed and well-executed historical survey; and J. Baird Callicott and Eugene Hargrove have recently provided stimulating contributions of their own (*In Defense of the Land Ethic: Essays in Environmental Philosophy*, Albany: State Univ. of New York, 1989; and *Foundations of Environmental Ethics,* Englewood Cliffs, N.J.: Prentice-Hall, 1989 respectively). But Rolston's work is in a class by itself as both a basic introduction to the important issues and a carefully constructed argument for a particular position.

In language accessible to the nonspecialist and with an astonishing command of the sciences that yields a multitude of relevant examples, Rolston methodically builds his case for a value-centered ecological ethic. In the preface, Rolston observes that "we do not yet have an adequate ethics for this Earth and its communities of life" and further states that the ethics he seeks is "a naturalized ethic" (xi). In other words, Rolston strives to develop an environmental ethic that "follows nature" and is "derived from nature" (xi-xii) by intentionally mixing prescriptions of right and wrong in human conduct with descriptions of states of affairs as provided by the sciences. In short, Rolston joins an increasing number of thinkers in ethics who by deriving an *ought* from an *is* repudiate the so-called naturalistic fallacy.

In the first chapter, entitled "Humans Valuing the Natural Environment," Rolston makes a number of important distinctions. For example, he distinguishes between primary and secondary environmental ethics—the former moving beyond mere prudential use of nature to include respect for and duty to nature. He employs the familiar distinction between intrinsic and instrumental value to argue that nature has intrinsic value. He distinguishes three senses of what it means "to follow nature" (32) and identifies fourteen values "carried by nature" (2)—e.g., life-support value, economic value, aesthetic value, religious value. And he argues that animals, plants, and ecosystems may be moral beneficiaries even if they are not moral agents. Perhaps most important, Rolston sets forth his basic ethical principle: "Value generates duty" (41). Ethical obligations "result from responding to values in sentient animals, organisms, species, and ecosystems" (39). Rolston's ethic is, then, a teleology in which *right* is defined in terms of *good.*

This introductory chapter sets the stage for chapters 2-5, where Rolston examines the duties humans have toward sentient animals, organisms, species, and ecosystems. In chapter 2, "Higher Animals: Duties to Sentient

Life," Rolston argues that the concept of rights must be discarded in favor of the concepts of goods and values and further maintains that, while the principle of universal benevolence is too strong, humans do have certain positive and negative duties with respect to animals. The key question for Rolston, differing from Jeremy Bentham and many animal rights advocates, is not, Can animals suffer? or, Have they rights? but rather, Has the animal a satisfactory place in its ecosystem? (58). Throughout, Rolston stresses that a fully adequate ecological ethic must treat the species and ecosystem as the ultimate contexts for ethical decision making.

Rolston finds value in the animal world, and since value generates duty, he concludes that humans have certain duties to sentient animals. But while there is value beyond the human realm, there are differences in value richness that are ethically relevant. Rolston argues that humans are superior to animals because we have a gestalt of features that gives us unique metaphysical, and hence ethical, status. He claims that since the ecosystem "does not center indiscriminately on life, with one life being equal to another," and since also "the system does not center functionally on humans," neither "biocentric" nor "anthropocentric" is the right word to capture accurately the proper ethical stance (73). What we need is rather a "bio-systemic and anthropo-apical" ethic which recognizes that while "all value does not 'center' on humans . . . humans are of the utmost value in the sense that they are the ecosystem's most sophisticated product" (73). In sum, while Rolston argues for the moral considerability of nonhuman beings, he also argues that taking more than humans into account morally speaking does not necessarily imply nondiscriminating or equal treatment. Rolston fleshes out his position by addressing the specific cases of domestic food animals, wildlife management, and hunting.

I have dealt in some detail with these first chapters in order to give some indication of the nature of Rolston's project and the character of his own perspective. Chapter 3 ("Organisms: Duties to Organic Life"), chapter 4 ("Life in Jeopardy: Duties to Endangered Species"), and chapter 5 ("Life in Community: Duties to Ecosystems") in widening ethical scope continue Rolston's explorations into and development of a "naturalized ethics." In each chapter Rolston's basic concern is to extend the bounds of moral considerability—of what counts morally—by arguing that since the level of existence in question—life, species, land—has intrinsic value, we as humans have certain requisite duties.

In chapter 6, entitled "A Concept of Natural Value: A Theory for Environmental Ethics," Rolston more explicitly outlines the philosophical underpinnings of his ecological ethic. Rolston here defends his claim that nature is valuable in itself over and above its instrumental value as a resource for humans. He also argues for a theory of value consistent with evolutionary natural history and presents an interesting model of intrinsic, instrumental, and systemic value. Like Aldo Leopold, Rolston argues for "a land ethic" in which the discovery of certain values objectively present in ecosystems (e.g., integrity, community) imposes certain obligations on humans (228). Rolston also includes a discussion of the aesthetic value of nature.

In chapters 7 and 8, entitled respectively "Environmental Policy: An Ethic of the Commons" and "Environmental Business: An Ethic for Commerce," Rolston sets forth various specific proposals. For example, he

outlines a "taxonomy of value levels" (254) and "an axiological model for environmental policy" (259) which together supply seventeen "middle-level rules" (262) for policy decisions; e.g., maximize noncompeting value types, avoid irreversible change, optimize natural diversity. And with regard to commerce, Rolston proposes eight maxims derivative of a human-centered ethic; e.g., do not assume that what is good for the company is good for the country (296); and eight maxims that find their basis in a naturalistic ethic; e.g., the rarer, more beautiful, or more fragile an environment, the more lightly it ought to be treated (304–6). Both of these chapters provide much-needed assistance in specifying practical principles and concrete strategies to incarnate Rolston's more general ethical duties and obligations.

In the final chapter, "Down to Earth: Persons in Natural History," Rolston addresses the cluster of issues surrounding the relation of culture and nature, persons and the earth, social ethics and ecological ethics. Over and against those who claim that interhuman ethics is mandatory while environmental ethics is optional, Rolston argues: "Duty demands both. All ethical agents who seek mature character are required to develop an environmental ethic as well as a cultural ethic" (333–34). And in contrast to those who view humans as having no special nature or role, Rolston claims that humans are "moral overseers on earth" uniquely fitted for the care of and responsibility for the entire earth (335).

As perhaps could be expected, there is much in this book with which readers will not agree. Animal rights advocates will object to Rolston's ecosystemic and anti-individualist prespective, while the anti-animal rights folks will say he has already given too much away. Those whose ethics are basically anthropocentric will claim that with his use of the term "biosystemic" Rolston is too biocentric, while deeply committed ecologists and others who espouse a strongly biocentric perspective will argue that with his talk of "anthropo-apical" ethics Rolston is still under the unfortunate influence of nonecological ways of thinking. All those who maintain that a rights-based position is a necessary condition for any adequate ethic will object to Rolston's approach centered on value and good. And many people will object to Rolston's attempt to expand the circle of moral considerability to include animals, plants, species, and ecosystems. Whatever the response to Rolston's case, let us hope that it will lead to fruitful reflection on and dialogue about this most complex and timely of issues. Rolston's work and the issues addressed therein deserve nothing less.

Readers of this journal will find Rolston's work lucid and stimulating, even if they disagree with many of his proposals. In keeping with one of the aims of *Zygon,* Rolston attempts to reformulate insights from traditional moral philosophy about what is of essential value and ultimate meaning for humans living in our modern age. Indeed, one could argue that there is no more important task than the one Rolston sets for himself—to develop and articulate with persuasion and passion a clear, comprehensive, and ecologically informed environmental ethic that will guide us as we struggle with what it means to be human at the end of the twentieth century. Required reading. Buy it and read it.

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A Purpose for Everything: Religion in a Postmodern Worldview. By L. CHARLES BIRCH. Mystic, Conn.: Twenty-Third Publications, 1990. 195 pages. $14.95 (paper).

Readers of previous works by L. Charles Birch will recognize some familiar themes. His *Nature and God* (London: SCM Press, 1965) maintained that both chance and purpose are exemplified in the evolutionary process and that all real entities that compose the world have both a physical and a psychic dimension. In *The Liberation of Life,* coauthored with John B. Cobb, Jr. (Cambridge: Cambridge University Press, 1981), similar claims were made. In the current volume, as in the previous ones, Birch holds that the process philosophy of Alfred North Whitehead and Charles Hartshorne provides a compelling alternative to the mechanism, materialism, and determinism that have informed much of the cosmological thinking of the last few centuries, supposedly firmly undergirded by the authority of modern science. Whitehead is mentioned on thirty-six pages, Hartshorne on twenty-one, and Cobb on nineteen. Anyone familiar with the thought of this trio will find few surprises in the book at hand.

Reduced to its barest essentials, the standpoint assumed is that the real ingredients of the world are occasions of experience (actual entities) organized into an immense number and variety of complex combinations to constitute the plethora of ordinary things and events that make up the world of time and space. At every level, from subatomic occasions to human beings, an element of self-determination and goal-directedness is present, along with the efficient causality that gives the world its lawful character. Not everything, as such, is purely and simply a free, purposive organism, however. Rocks, typewriters, and tables are the nonexperiencing objects common sense takes them to be, but they are composed of subjects that do feel, choose, and aim at value.

The world, according to this version of the process-relational model, is guided by a Divine Eros (Whitehead's primordial nature of God) whose envisionment of relevant ideal possibilities from moment to moment provides the framework within which finite subjects choose the goals that will shape them. The Divine Passion (Whitehead's consequent nature of God) fully experiences the becoming of the world, feels it in its entirety and in all its parts, and preserves all achieved values in everlasting memory. Hence, God is bipolar like all other entities, having both mental and physical poles. God's power is persuasive and thus limited, leaving it to the choice of finite creatures to determine the actual course of nature and history within the limits of the possibilities God makes available. The aim of Divine Creativity is to lead the world forward into those complex and intense harmonies that yield the maximum in satisfying enjoyment.

With this outlook in mind, Birch develops the thesis that purpose is to be found everywhere and in everything—in human life, in nature, and in the whole universe. We can fully appreciate modern science in its great achievements without challenging any of its specific findings on its own grounds. The object of his criticism is a faulty understanding of science—an understanding that becomes the basis for the mechanistic outlook that he

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opposes. He follows Whitehead in arguing that science, by observing events from the outside, misses half the evidence provided by human experience. This approach may seduce one into taking the objects of scientific inquiry to be nothing but objects. Unless the abstractions of this approach are incorporated into a more comprehensive outlook that gives credence to the other half of the evidence derived from the awareness of ourselves as feeling subjects with purposes, we will be misled regarding the true nature of the world. Mentality, then, is not an emergent appearing relatively recently on the scene, but a feature of every entity/event, large and small, as far down and as far back as we can go into biological and cosmic evolution. The organism as a self-determining, purposive subject is the clue to the world, not the machine as an unfeeling object functioning solely as law and chance determine its destiny.

Birch is himself an accomplished biologist specializing in genetics. He is also a Christian and a joint winner in 1990 of the Templeton Prize for Progress in Religion. Process philosophy enables him to incorporate his science into a larger religious perspective that roots our yearning for meaning and purpose in the very heart of the cosmos itself in a Creative-Responsive Love. With Cobb he calls his outlook an ecological worldview, stressing the interconnection and dynamic relatedness of all things, including the world and God. With David Griffin he designates it a postmodern approach relevant to the new realities that define our own time. Birch lists five axioms of postmodernism: (1) it interprets nature as organic and ecological and is thus postmechanist; (2) it interprets lower forms of organization in terms of the higher ones and is thus postreductionist; (3) it interprets the world in terms of monism and is thus postdualist; (4) its ethic is biocentric and it is thus postanthropocentric; (5) it sees that knowledge cannot be divided into disciplines without loss and is thus postdisciplinary.

References abound throughout the book to a multitude of contemporary scientists and to numerous theologians and philosophers past and present. The thesis, then, is worked out in constant conversation with thinkers he approves and those he quotes to refute. Touched upon also are a wide variety of current topics including "the limits to growth" and the ecological crisis, sexual ethics, the life of contemporary churches, liberation theology, the conversation with other world religions, and so on.

For *Zygon* readers, this book should prove well worth the time spent with it. Not all will agree that Whitehead leads the way to postmodern adequacy of thought. Methodologically, I am more of a pluralist, relativist, skeptic, and pragmatist than is Birch. I suspect that other worldviews may be equally compatible with the specific and detailed findings of the empirical sciences or at least plausible to proficient thinkers. I am even less confident than I once was that disputes about the grand generalizations of Whiteheadian metaphysics (or any other kind) can be rationally adjudicated or even fruitfully debated for long, since equally competent thinkers will indefinitely defend contrary conclusions. Does God have a primordial nature? How could we possibly know with certainty? As a philosophical myth useful for organizing the whole range of human experience in ways relevant to the task of living a meaningful, purposeful life, the Whiteheadian cosmic vision, in my opinion, is awesome. But I can never know whether it describes the world or God correctly. Nevertheless, regardless of worldview,

the well-informed, insightful writer of this book makes a splendid conversation partner about matters central to this journal.

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