Reviews

The Experiment of Life: Science and Religion. Edited by F. KENNETH HARE. Toronto: University of Toronto Press, 1983. 185 pages. $25.00, $7.95 (paper).

Although not without admirers, the work of William Temple can hardly be said to be well known in American colleges and universities. This collection of essays—originally presented in 1981 as lectures at a conference at Trinity College of the University of Toronto to honor the centennial of the birth of this English philosopher-theologian who rose to become Archbishop of Canterbury during the worst of World War II—may serve as a remedy to this "unknowing." At once both a contemporary (born in the same year) and a precursor of Pierre Teilhard de Chardin, Temple and the more widely read Jesuit have much in common in their writings. As a practicing ecclesiastic—at one level a fully "establishment man"—Temple was constantly on public view, however, whereas Teilhard, largely published posthumously, is shrouded by a virtuous mystery. Teilhard was not being examined on a day-to-day basis to see how he lived out his convictions; indeed, his convictions largely remained within a small circle during his lifetime.

Temple's untimely death in 1944 not only denied him the presidency of a Lambeth Conference—the agenda-setting showplace of the Anglican world—but also at once unrelated to the war and yet caught up by so much destruction, did not permit the intellecutal postmortem that calmer days might have allowed. For one thing, Temple wrote entirely to a pre-atomic-bomb era. Although F. Kenneth Hare notes that the debate of the Trinity conference, "when it became critical, was directed towards the failings of the churches, not the weaknesses of the universities" (p. viii), he also observes that the audience at the conference was composed more of ecclesiastics than academics: "There were many more parsons than professors on the floor of the house" (p. vii). Temple scholarship has largely remained within the fold of Anglican devotion, to which the Canadian locus of the conference is itself perhaps testimony.

The conference's theme, "The Experiment of Life," drawn from Temple's Gifford lectures of the early 1930s (*Nature, Man and God* [London: Macmillan, 1934]), was not, however, in the nature of either testimonial or textual analysis. Rather, the intent was to take "a hard look at the relationship between science and religion in the modern world" (p. vii)—to look at the present global situation as Temple might. The central themes of a lively social ethics, clear thinking, empirical honesty without reductionism or idolatry, and above all meaningful life in a "sacramental universe" are each taken up and often interwoven in the essays. In spite of peculiarities, the book meets its objective. It is stimulating reading and a good value in the paperback edition.

The essays, unfortunately, do not "hang together" particularly well, except by their orientation to a common theme. Over a third of the body of the text is given to A. R. Peacocke's essay, "The New Biology and *Nature, Man and God*." Although a strong presentation characteristic of the excellence we have come to associate with this author, the piece should have been abbreviated here and then turned into a short monograph on its own elsewhere. Six other authors

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split the remaining two-thirds fairly equally: John Macquarrie provides an intellectual biography, D. R. G. Owen discusses the "spirit-matter" problem, Kenneth Boulding writes on "Science and the Christian Phylum in Evolutionary Tension," P. W. Kent talks about scientific creativity, Alan Suggate speaks to Christian social ethics, while Robert Kates addresses environmental issues. Curiously, other papers were presented at the conference which are not included in this volume, although they are discussed in the introduction, and at times one senses these as undercurrents in the published papers as well.

At this point I felt a little left out, especially as there are no citations to suggest that these pieces can be found in some other place. Indeed, documentation as a whole is unsatisfactory. Each author was apparently left on his own in this regard. What I considered one of the best, even moving, essays for what it *said* (Boulding's), for example, had no references at all. There is an index, which is a real plus for a collection, but I would have liked a bibliography of Temple's works as well as of significant secondary sources. Even though the book was not intended as a belated intellectual encomium, a compendium of this sort could not have been out of place. Since Temple's work is on the one hand relatively unknown, but on the other inspired the conference, should not one ask: If a Temple-viewpoint is helpful to living through the present, would it not be right to lead others along the way?

Individually the essays read well and strike a good balance between the technical and the popular. They can be appealing to the generalist without appearing vulgar to the specialist. Here, perhaps above all, they mirror Temple: a patrician scholar who eschewed the potentially arid confines that his generation associated with his academic discipline, establishment church, and social class position to immerse himself with dynamic intellect and practical activism into the matter of the universe as the theater of the spirit. Echoing Max Weber and presaging the new sociology of religion, he sought, as Robert Kates recalls in concluding his essay and the book, to bring the "life of the spirit" into the world of physics, chemistry, biology, and human interaction, because without it "the material world, with all man's economic activity, becomes a happy hunting ground for uncurbed acquisitiveness, and religion becomes a refined occupation for the leisure of the mystical" (p. 176).

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The First Urban Christians: The Social World of the Apostle Paul. By WAYNE A. MEEKS. New Haven, Conn.: Yale University, 1983. 299 pages. $25.00, $8.95 (paper).

Wayne Meeks succeeds both in evaluating recent advances in the study of the social world of the earliest Christians and in making original contributions. Since his purpose is "not sociological but historical" (p. 74), he wants the use of sociological theory to be "suggestive rather than generative" (p. 5). "I take my theory piecemeal, as needed, where it fits," he says, quoting Clifford Geertz and Victor Turner (p. 6). He utilizes both the symbolic and the functionalist

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models which means that the book stresses "the general climate of stability and security which the early principate created for urban people in provinces" (pp. 6-7, 12).

Chapter 1 concerns the urban environment of Pauline Christianity; the Pauline mission was to city dwellers who were both physically and socially mobile. An observation central for the book is: "In every society the status of a person, family, or other group is determined by the composite of many different clues, status indicators. For example, Tony Beekmans has extracted from Juvenal's satires seven social categories, in each of which there is a traditional hierarchy of ranks: language and place of origin, formal *ordo*, personal liberty or servitude, wealth, occupation, age and sex.... Sociologists call it status inconsistency or status dissonance" (p. 22).

Chapter 2 notes that sixty-five individuals are named by Paul, and Meeks studies the thirty about whose status there are clues, concluding that "a Pauline congregation generally reflected a fair cross-section of urban society" (p. 73). Further, "the most active and prominent members of Paul's circle (including Paul himself) are people of high status inconsistency (low status crystallization)" (p. 73).

The aim of chapters 3 and 4 is to describe the social structure of Pauline groups. Chapter 3 consists of comparing the Pauline *ekklesiai* with households, voluntary associations, synagogues, and philosophic or rhetorical schools. Each is discovered to have similarities, but also important differences, from the Pauline groups. There are a number of beliefs that reinforce group solidarity, beliefs matched by language which distinguishes them from those who do not belong. But there are gates in the boundaries: the group "is contaminated only from within, not by contact with outsiders" (p. 105), an important difference from other Jewish groups like the Pharisees or Essenes. Finally, the Christians had a double identity, not only with the local cell, but also with the worldwide people of God. Chapter 4 deals with the organizational dimension of the groups' solidarity.

Chapter 5 on ritual is complete, balanced, and sensitive. Relying on Emile Durkheim and Mary Douglas, Meeks assumes that rituals create as well as reflect social reality and asks what rituals *do* or transform.

The final chapter looks for correlations between aspects of the Pauline churches' stated belief (understood as symbols) and their social form. Monotheism correlates with a single assembly of God in the whole world. God is personal and active, which correlates with the intimacy of the local household assembly. Apocalyptic language corresponds with the change of worlds experienced by the converted individual. Pauline Christology, which emphasizes the crucifixion and resurrection of Christ, is correlated with two social realities: first, with the experience of indifference or hostility from neighbors contrasted with the exhilaration and power experienced in their meetings, and, second, with the status inconsistency or social mobility of many in the Pauline groups, especially women with moderate wealth, and Jews with wealth in a pagan society.

I suggest two cautions about this innovative, summarizing book. Meeks assumes Geertz's classic description of society as a "process, in which personal identity and social forms are mutually and continuously created by interactions that occur by means of symbols" (p. 6). Certain symbols formed the identity of urban Jews in Greco-Roman cities: the Sabbath, *kashrut*, circumcision, and avoidance of "idolatry" (pp. 36, 92, 97). But then Meeks also observes that the Pauline groups abandoned these key Jewish symbols (pp. 92, 97) with some

significant ambivalence in the case of "meat offered to idols" (pp. 97-100). However, the sociological category of status inconsistency cannot adequately explain the situation of the Jewish Christians involved. The category of status inconsistency works better for gentile Christians than for Jewish ones. For Jews, the relevant category is not one of status inconsistency within the one common Greco-Roman urban culture or of revitalization within a society, but one of acculturation/assimilation, that is, of two different cultures in conflict. (See R. Redfield et al., "A Memorandum for the Study of Acculturation," *American Anthropology* 38 [1936]:149-52; also B. J. Siegel et al., "Acculturation: An Exploratory Formulation," *American Anthropology* 56 [1954]:973-1002.)

Meeks's moderate functionalism works in some cities and explains some ethnic situations, but not others. When discussing cultural interaction between very different cultures, Peter Worsley observes that functionalist theory proved inadequate to explain "culture contact" (*The Trumpet Shall Sound: A Study of "Cargo Cults" in Melanesia*. London: MacGibbon & Kee, 1957, p. 262); Malinowski's functionalism was criticized when he attempted to analyze the rapidly changing society of southern Africa. Similar criticisms can be made of Meeks's book written by "an ethnographer, a describer of culture" (p. 6; see p. 130). The study is synchronic, not diachronic; Meeks chooses not to describe Paul's upbringing and pre-Christian affiliations (pp. 33-34). So a book with an historical purpose runs the risk of being ahistorical. E. E. Evans-Pritchard rejects the study of institutions at a certain point in time without knowing how they have come to be what they are or what they were later to become ("Social Anthropology: Past and Present," the Marett Lecture, 1950, *Man* 50:198, p. 123; now in his *Essays in Social Anthropology*. New York: Free Press of Glencoe, 1962, p. 21).

Millenarian, nativistic, revivalistic, cargo, vitalistic, and Messianic movements are classed by Anthony F. D. Wallace as "Revitalization Movements" (*American Anthropology* 58 [1956]:264-81, at p. 267). Wallace outlines a theory suggesting that these movements go through five stages, and the "situation is often, but not necessarily one of acculturation." Meeks persuasively argues that Pauline churches exhibit some of the structure of a millenarian movement, but since the pre- and post-Pauline situation is not discussed, the radical changes and cultural conflict which involve acculturation, perhaps assimilation, are not clarified.

This may be seen in relation to one of the key Jewish symbols named above, *kashrut*. The acculturation which Galatians 2:12, 1 Corinthians 10:27, and Romans 14:3, 14 (contrast Acts 21:21) represent over against 2 Maccabees 6:7-7:42 and 3 Maccabees 3:4; 7:10-16 is astounding. The earliest martyrologies in Judaism concern *kashrut*, whether one eats pork or not. The martyr stories are developed in 4 Maccabees, a book from the period 20-44 C.E., probably in Caligula's reign (37-41 C.E.), probably in Syrian Antioch (M. Hadas, *The Third and Fourth Books of the Maccabees*. New York: Harper & Brothers, 1953, pp. 109-13). If one may trust the chronicle of Malalas, also about the year 40 there was a pogrom in Antioch in which the pagans attacked the Jews, killed many, and burned their synagogues (see Glanville Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest*. Princeton, N.J.: Princeton University Press, 1961, pp. 192-93). A pogrom, as well as stories of martyrs and assassins, provides the cultural/social context for the internal Christian debates sketched by Paul in Galatians 2:11-21, which also occurred in Antioch in the 40s. The category of status inconsistency in a stable functionalist world does not communicate this. Aspects of the thesis could even be a modern projection; in an

otherwise illuminating summary article, Meeks gives illustrations of status inconsistency, one of which is that "a university professor may find that his occupation lends him prestige that he cannot afford to live up to" ("The Social Context of Pauline Theology," *Interpretation* 36 [1982]:266-77, at p. 268).

Paul's conversion was related to this cultural conflict. He was a Pharisee (Philippians 3:5; Acts 23:6). Jacob Neusner draws the following conclusion about pre-70 C.E. Pharisees: "Of the 340 individual Houses' legal pericopae, no fewer than 229, approximately 67 per cent of the whole, directly or indirectly concern table fellowship" (*From Politics to Piety: The Emergence of Pharisaic Judaism*. Englewood Cliffs, N.J.: Prentice-Hall, 1973, p. 63). The change in Paul was dramatic. As a Pharisee he once focused on what he ate and with whom. After his conversion to a crucified Christ, he advised Christians not to ask what food was set in front of them (1 Corinthians 10:27), and he insisted that Jewish Christians eat with (Levitically unclean) Gentiles (Galatians 2:12). Paul's Christology, his emphasis on the cross, is correlated with a third social experience: the pain of acculturation, the loss he experienced when giving up a total way of life as a Jewish Pharisee for "knowing Christ Jesus," which included eating with Gentiles (Philippians 3:7-10; Romans 9:2-3). Paul shifted the emphasis from Torah stipulations (*halakhah*) to Torah story of myth (*haggadah*) (see James A. Sanders, "Torah and Paul," in *God's Christ and His People*. Studies in Honour of Nils Alstrup Dahl, ed. J. Jervell and W. A. Meeks. Oslo: Universitetsforlaget, 1977, pp. 132-40).

To the criticism outlined above, namely that the neglect of the pre-Pauline (and even contemporary) situation in Judaism underplays some significant social conflicts, I add a second. Meeks's choice not to treat the post-Pauline church neglects other powerful social forces and changes. Some persons with inconsistent status who converted to Pauline churches were wealthy women (pp. 23-25, 59-62, 70-71, 81, 133, 191), and this gave them power. But his observation is not developed in chapter 4 on governance. Elisabeth Schüssler Fiorenza does develop this, arguing that women belonged to the leadership of house churches in Asia Minor (*In Memory of Her: A Feminist Theological Reconstruction of Christian Origins*. New York: Crossroad, 1983, pp. 245-50). Attention to the post-Pauline church displays dramatic social developments. The post-Pauline communities adopt Greco-Roman politics in the form of the Aristotelian household code. When this domestic code is further developed in the Pastoral epistles into a congregational code, there are important social changes and consequences! As the church adopted the organizational model of the Greco-Roman household, the leadership roles of wealthy women were excluded in favor of the elder, male, monarchical bishops. In order to get the sharp contrast between pre- and post-Pauline churches, Schüssler Fiorenza (pp. 179, 183, 287) insists that the early house churches were structured like religious associations, not like patriarchal families, but Meeks (pp. 77-80) is more careful in noting the similarities *and differences* between Pauline groups and such voluntary associations. Still, after the Pauline churches abandoned key Jewish symbols, the post-Pauline churches acculturated by emphasizing Greek (Aristotelian) domestic and political ethics.

In summary, the point of both the above criticisms is that attention to historical development and change clarifies and exposes social choices and forces present in the "microscopic" group itself (Meeks, p. 7, quoting Geertz). Discontinuity is at least as important as continuity in understanding historical movements.

The First Urban Christians is a reassuring book. I had wondered whether one could be written interpreting some aspect of early Christian history utilizing the categories of social anthropology without displaying ignorance of one discipline or the other. Wayne Meeks, my former professor at Yale, has added significant nuances to our knowledge of the relationship between Pauline Christianity and society by employing both disciplines.

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Nature and Religious Imagination: From Edwards to Bushnell. By CONRAD CHERRY. Philadelphia: Fortress Press, 1980. 242 pages. $12.95.

Conrad Cherry's *Nature and Religious Imagination: From Edwards to Bushnell* is a competent and careful historical study of the ways in which physical nature was appropriated by religious imagination in the New England tradition of American theology.

Part One ("Nature's Images: Jonathan Edwards") is devoted to Edwards, who is located in a stream of spare yet inventive typological Puritan interpreters of Scripture and nature. In the course of his own life, particularly his conversion, Edwards's experience of God was mediated by a new sense of nature such that even thunder communicated divine beauty and power. At another level, Edwards's highly aesthetic (and moral) theology of continuous creation, which manifested and played back the glory of God, served as the actual ground for Edwards's view of light as an image of God. This image, however, required the work of the Spirit, and a new sense of the heart, to illumine the mind. Furthermore, Edwards appreciated human participation in the ultimate persuasions of God, not only in his "sensational shadowings" of divine things in nature, but also in the spare craft of his sermons. Cherry shows that Edwards's preaching was affectively designed to communicate the saving and judging presence of a Sovereign in natural light, seas, and fire. In short, in his personal notebooks and narratives, formal treatises and sermons, Edwards developed a view of the imagination open to the communications of God in nature as well as history.

However, as Cherry tells the story, Edwards's lively religious imagination of God "symboled" in nature was nagged by a didactic moralizing tendency. Unfortunately, from Edwards's successors, such as Samuel Hopkins, to the New Haven theologians of the early nineteenth century a moralistic and legalistic turn to and view of nature dominated American theology. Part Two ("Nature's Moral Teachings") traces several lines of this decline. Hopkins appears not only as a dull systematizer; he "moralizes Edwards's symbolic universe" (p. 78). Nature is reduced to God's precepts. Faith becomes obedience. Although this bears social fruit for Hopkins (unlike Edwards) in his tracts against slavery, the loss of a universe—and religious sense—with depth and mystery is paramount. Subsequent American reliance upon Joseph Butler's analogy of religion to matters of fact, William Paley's apology of theistic evi-

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dences, and Scottish commonsense philosophy's stress on natural law further undercuts theological imagination. Cherry also argues that the New Haven theology of Timothy Dwight and Nathaniel Taylor shared with William Ellery Channing's Unitarianism a displacement of God's glory in favor of human well-being as the end of creation. Benevolence becomes a means to an end. Moral government now serves as the organizing principle of evangelical theology. Lyman Beecher pushes this for the nation in his postestablishment preaching. Channing sought to discover tokens of human virtue in nature. Cherry is astute in showing slippage in the ways that nature loses its awe to domesticity in both the evangelical sermons of Beecher and Channing's genteel preaching.

The third and culminating part ("Nature's Symbols: Horace Bushnell") features Bushnell in a virtually heroic role. Bushnell "recovered a symbolic view of religious truth very much like that of Jonathan Edwards" (p. 159). Correlative to his stress on "symbolic imagination" Bushnell developed an organic view of nature including supernature. Cherry opens his argument for Bushnell's restoration by showing his convictions—gained from Samuel T. Coleridge—that language is the key to thought, that symbol is the key to language, and that Christian doctrines are symbolic expressions of the imagination. Moreover, for Bushnell the imagination was both spiritually receptive and active. Accordingly, theology is more akin to poetry than science; it "promotes or expands the metaphorical meaning of religious language" (p. 176). Thus, Bushnell could offer a fresh alternative to the literalism of both orthodoxy and Unitarianism. Working in and with the medium of language, Bushnell was especially effective in developing its religious and metaphoric capacities against the propositional theology of his time.

Correlative to symbolic imagination, Bushnell views God as "communicative" and nature as an organic process. Indeed, Bushnell's God undergirds the cosmos with His infinite creative imagination. God's holiness (like His glory for Edwards) is the proper end of creation. Concretely, Cherry shows how particulars (insects) as well as processes of nature reflect God's power and human freedom.

Unfortunately, notes Cherry, Bushnell's "breakthrough was not complete" (p. 201). At times his view of nature was so mechanical that he believed the "feebler races" of blacks were limited to eventual extinction. They belonged to the fixities of nature, not to the powers of supernature. Cherry goes on to note Bushnell's relatively advanced understanding of a balance between nature wild and cultivated, but also his failure to see that women, like men, possess natural will.

For this reviewer these weaknesses raise further questions about how thoroughly Bushnell's view of the fixities of cause and effect in nature were resolved by his view of supernature. Here Cherry notes, but perhaps does not give enough weight to, Bushnell's rejection of Charles Darwin. That is, Bushnell's organic view of nature as a whole, which Cherry advances, seems not to have been worked out for science as well as society.

Apart from this weakness—and a tendency to overdraw similarities between Bushnell and Edwards—Cherry has made a solid contribution to our understanding of both figures. His book also fills a gap in American studies. It shows that the symbolic imagination was not limited to eighteenth- and nineteenth-century literature. Perhaps most of all Cherry shows that the symbolic imagination in American theology was as important in public and sermonic efforts as it was in more personal and theoretical writings.

Estimating more than the historical value of this study is difficult, unless one is persuaded to make Bushnell one's future intellectual companion. Relevant here is that Cherry tells us that he did not choose to close his study with Ralph Waldo Emerson, whose peculiar mystical thought on nature and imagination has long been well known. Yet delineation of the issues between Emerson and Bushnell would have improved this work for contemporary theology. Nevertheless, the enduring tension between religious and moral interests in nature in the language of American theology is made unforgettable in this book.

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The Sciences and Theology in the Twentieth Century. Edited by A. R. PEACOCKE. Notre Dame, Ind.: University of Notre Dame Press, 1981. 309 pages. $25.00.

Coming out of the 1979 Oxford International Symposium, this volume furthers the dialogue between science, theology, philosophy, and sociology with contributions from fourteen international scholars. Following an introduction by Arthur Peacocke, the anthology is divided into four parts and concludes with a retrospect and replies.

In the introduction Peacocke suggests that the "uneasy truce" between science and faith is being challenged by the ecological and human problems resulting from modern technology, by developments in epistemology which affect the meaning of scientific theory, and by new emphasis on the theological significance of the biological processes of nature. An important common tie between scientists and Christians is a realist attitude about models and hypotheses as expressions of the search for intelligibility, centered on prediction in science and on meaning in theology. "Whether or not, and to what extent, this common intention . . . gives rise to any mutual modifications of the one enterprise by the other is the question that underlies this volume" (p. xii).

Peacocke outlines an eight-fold typology for the kinds of relationships between science and theology: they pertain to separable or identical realities, they interact deeply or minimally, they are distinguished by language, attitudes, or objects, or they involve a common metaphysical basis. In addition the sociology of knowledge provides an important critique of the epistemologies of science and religion.

In the lead article in Part 1 ("Theology and the Sciences Today"), Wolfhart Pannenberg raises five "Theological Questions to Scientists" which involve causality, contingency, irreversibility, the origins of life, and the spatio-temporal structure and future of the physical universe, as they relate to divine creation, preservation, historical time, resurrection, and eschatology. In his view traditional theology will require major reformulation if there is to be substantive exchange with natural science. Though boldly provocative this essay deploys themes so intrinsically complex that, limited by the article's length, their development is severely constrained. Moreover, Pannenberg

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draws on a limited scope of scientific opinion taken from extremely controversial fields without proper attention to the positions others would defend; similarly his own theological presuppositions are not made explicit here.

"How Should Cosmology Relate to Theology?" Ernan McMullin unpacks this complex question by exploring the opinions of Augustine and Galileo on the authority of Scripture versus human reason over issues of cosmology. He discusses current debates over "internal" versus "external" history of science, the role of nonrational factors in scientific epistemology, and the theological significance of the beginning of the universe. Here in a delightful section he compares the enthusiastic opinion of Pope Pius XII with the critical reactions of George Gamow, Georges Lemaitre, and especially Fred Hoyle who stands for "our most colourful example of the potential relevance of *anti*-religious views in the choice of cosmological models" (p. 34). The question is complicated by the fact that even with a finite age, the universe could be regarded as infinitely old, while for theology the central concern is for continuing dependence on God rather than a literal initial singularity. McMullin concludes that "if the universe began in time through the act of a Creator, from our vantage point it would look something like the Big Bang"—although we cannot look for anymore than this kind of "coherence" (p. 39). After an incisive discussion of the "anthropic principle" McMullin closes with a warning against viewing Christian faith as "specific enough in its affirmations in these areas to lead to a critique of the scientific theories involved" (p. 51), a move which he suggests Pannenberg might be attempting. Still, we could choose to view theology "not as an autonomous source of logical implication capable of affecting scientific theory-appraisal, but as one element in the constructing of a broader world view" in which science and theology interact coherently and in consonance (p. 51).

In my opinion McMullin's article is extremely valuable in uncovering the legitimate and promising relations between science and theology. His detailed historical analysis is very helpful in evaluating the contemporary discussion of cosmology and theology, while his command of scientific, philosophical, and theological material is impressive. McMullin's probing discussion of the age of the universe and the anthropic principle is a brilliant piece of analysis. His closing suggestion for *consonance* between religion and science is crucial, and one only hopes he will elaborate it further.

Philip Hefner moves toward a constructive interdisciplinary relationship in his chapter, "Is/Ought: A Risky Relationship between Theology and Science." How might we relate description and prescription such that the "naturalistic fallacy" of David Hume and G. E. Moore can be circumvented without reducing religion to science? Starting with the "basic human tendency" to merge fact and value, Hefner progressively explores science (particularly sociobiology), philosophy (particularly British and American schools), and theology to support this claim. He draws on the moral philosophy of R. M. Hare and William Frankena; J. R. Searle's concept of "institutionalized facts"; Arthur Dyck's structural model of a "gap-induced requiredness"; and others to insist that the traditional fact/value split is untrue to actual, holistic human experience. Turning to religion, Hefner suggests that by their very nature, the symbols of Judaism and Christianity combine meaning with fact and act into a "unity of is and ought" (p. 66), epitomized through the covenant of God. But it is with sociobiology, the "paradigmatic science," that we now have the possibility of "empirically verifiable accounts of the data of experience which philosophers

have ruled necessary for knowledge of our basic values" (p. 67). By claiming to relate genetic evolution with the emergence of human values, sociobiology "provides exactly what philosophers have called for"—"the scientific study of altruism." Thus "science may become perhaps the most persuasive means for understanding values available to us" (p. 73). Hefner calls for "coexistence" in which theology adds new meaning to the scientific understanding of survival by relating "all of earthly existence to God and his will" (p. 76).

I appreciate the bold intent of Hefner to develop a substantive relationship between science and theology. His analysis of the is/ought problem raises important insights into the biological basis of values while avoiding a reductionistic or deterministic materialism such as E. O. Wilson advocates. Yet the philosophy of science which Hefner depends on, suggested by such terms as "verification" and "data of experience," seems somewhat dated; how would his arguments fare if they reflected post-Kuhnian philosophy? Finally, though it is intriguing to allude to "coexistence" between religion and science, what Hefner actually means by this phrase needs further clarification.

Part 2 ("Nature, Man and God") begins with T. F. Torrance's article, "Divine and Contingent Order." He first develops the concept of the "contingent order" of the universe; in the closing sections he draws upon Albert Einstein for scientific and metaphysical insights. According to Torrance the scientific presupposition that the universe is contingent and ordered has a theological basis in the doctrine of God's free creation of the universe, since neither the existence nor the specific characteristics of the universe are then necessary. In Einstein's cosmology the universe, being finite and unbounded, is "open from below upward . . . to what is beyond . . . [and] relativized by what transcends it" (p. 93). For Torrance the term *open* refers to mathematical structures (disclosing the latent order of the universe), spontaneous empirical contingencies (which resist "logicist and mechanist patterns of thought"), and pliable natural laws (which are open to revision). Hence the Einsteinian world view does more than merely contradict the closed mechanistic and determinist Newtonian world view; the universe is now understood "in terms of reasons rather than causes" which "requires relation to an order of rationality transcending it" (p. 95).

Torrance's "constructive dialogue" is, as he remarks, aimed at assuaging the fears of a "defensive" Christian theology. Though this project is admirable and his essay valuable, there are areas in his essay which I would want to question further. For example, I am intrigued by Torrance's reading of Einstein's cosmology as open and contingent, since, if these terms are meant to suggest chance or arbitrariness in nature, one could argue that neither of them is suggested by Einstein's inherently deterministic cosmology. Indeed, Einstein's well-known resistance to indeterminacy, evidenced by his rejection of Niels Bohr's interpretation of quantum mechanics, reflects his preference for a classical philosophy of nature. Similarly, even granting that processes *within* the universe may be probabilistic, the anthropic principle can be read as suggesting that the universe as a *whole* must of necessity be the way it is, since certain well-tuned global features seem to be prerequisites for the evolution of life. As for the term *open*, this is normally a technical term having nothing to do with either contingency, indeterminacy, or the tentative character of physical laws. Instead it simply means that a given mathematical model has negative curvature and infinite volume. Indeed in Einstein's theory, both open (infinite) and closed (finite) models of the universe are allowed by the field equations. Perhaps the kind of *inherently* "open and contingent" universe which Torrance

finds attractive would emerge more naturally in the still nascent area of quantum gravity.

I am attracted by Torrance's exploration of the problem of God and nature in light of modern science as developed in his several books. Yet in this article he claims that Einstein's system represents a move from cause to reason, and hence that it suggests a "transcendent order of rationality." I would argue that Einstein moved from (Newtonian) force to (geometrodynamic) field; what implications this move has for an increased rationality in the cosmological picture remain to be seen. Again, viewing the universe as a four-dimensional "surface" embedded in a higher dimensional manifold may be suggestive, as Torrance implies, of a "transcendent order of rationality," but one must remember that such a model is usually done in physics purely for the convenience of visualization, with little ontological meaning.

In a careful essay on teleology and teleonomy entitled "Did God Create This Universe?" John Bowker dissects recent arguments concerning copresence, temporal order and design raised by such authors as Richard Swinburne, Ernst Mayr, Michael Polanyi, Jacques Monod, Calow, Ilya Prigogine, Manfred Eigen, and John Wheeler. Bowker interprets the regularity of the evolutionary process as a mark of divine personal agency, even when found within the fundamental indeterminacy of the universe. He concludes with the suggestion that "among the constraints which control energy transacted through the human system into its outcomes are those which are derived informationally from a resource external to the human subject . . . God" (p. 122). This is an intriguing essay, drawing widely on other researchers in the field, and suggesting a number of directions for continued work.

In "Profane and Sacramental Views of Nature" Sigurd Daecke suggests that, although natural theology is no longer possible, the sacramental view of nature is "a good model for this tight relation between God and nature" (p. 139). He develops this model with respect to Christology, soteriology, and pneumatology, using an evolutionary view of nature and drawing on Pannenberg, Pierre Teilhard de Chardin, Paulos Gregorios, Peacocke, Hefner, and others. Daecke contrasts his sacramental model with the secularized approach characteristic of kerygmatic, existential, and political theology. Although the World Council of Churches has realized the problem of "a doctrine of creation which forgets nature," it has not resolved it—a critique I would certainly endorse.

For Richard Schlegel, the central theological significance of modern physics for philosophy and theology is "The Return of Man in Quantum Physics," and the corresponding shift from an immutable and separate God to a God who is "in his nature involved in the natural world of change" (p. 152). Schlegel's case rests on the subjectivism of quantum physics in which "natural properties are defined only in the act of observation" (p. 148), so that nature's form is partially created by the interactions which observation entails. Still, does measurement necessarily entail consciousness or is it simply an interaction between microprocesses and macroscopic objects? Though this question is "surprisingly difficult to answer," Schlegel chooses a "traditional physical realism." Drawing on William James, Alfred NorthWhitehead, and Martin Buber, Schlegel suggests a view of God as "in the material world, interwoven with other of its parts . . . and quite as existent and irremovable as they" (p. 153). Theology can guide science then by making "conjectures" that go beyond the domain of science in response to experiences outside of the current domain of science.

I applaud Schlegel's stress on the importance of dialogue between scientists and theologians, especially coming like this from a professional scientist. I

agree that the role of consciousness in physical processes is a critical issue in that dialogue. However, the epistemological and ontological problems posed by quantum theory make this issue very complex, and in this essay Schlegel's case seems vague and unconvincing. His passing references to Whitehead and others do little to clarify his theological proposals, while the complexity of the relationship between God, humanity, and the world he hints at is left tantalizingly understated. I would recommend the more careful treatment found in his recent book, *Superposition and Interaction* (Chicago: University of Chicago Press, 1980).

Part 3 is concerned with epistemological issues. In his article, "What Does It Mean to Say the Truth?," Rubem A. Alves argues that science and action are different language games with different rules for determining the meaning of truth. Scientific truth, determined by a "contemplative posture," cannot properly judge "expressive discourses" such as religion, ideology, poetry, dreams, and utopia which "emerge out of the context of action" (p. 164), any more than a chemical analysis of an artist's materials can provide an ideal of art or a criterion of judgment. Religious discourse cannot be understood if interpreted by the rules which test the truth of scientific knowledge. Religion, rather, "is man's bet, his act of faith as to the possibilities which can be actualized through action, out of the mass of raw materials at hand ... expressive of love and desire." God is the "horizon of the quest for the 'summum bonum'" (pp. 179-80). I found much of Alves's essay was persuasive, but I remain skeptical about his rather sharp epistemological distinction between scientific truth and religious discourse.

Richard Swinburne finds "The Evidential Value of Religious Experience" to lead inductively to "a strong case for the existence of God" (p. 182). For Swinburne, religious experience is "epistemic" (its intention is realistic) rather than "comparative" (its intention is pragmatic), suggesting as a "principle of rationality" that "if it seems (epistemically) to a subject that an object x is present, then probably x is present" (p. 186). After meeting various objections and special considerations which qualify perceptual claims, he concludes that "the onus of proof is on the atheist," so that "unless there is a demonstration that very probably God does not exist, those who have religious experiences purportedly of God ought to believe them genuine" (p. 194). Swinburne's case is attractive and cogently expressed, but I would want to press him further in his inductivist approach and his "onus of proof."

In "The Varieties of Scientific Experience," J. R. Ravetz criticizes the image of science as rigorous, objective, and testable. Instead, ideological premises influence our interpretation of the history of science. For example, the rise of modern physics was more "a campaign for a reform of ideas about science ... [and] the 'scientific revolution' was primarily and essentially about metaphysics" (pp. 200-1). For Ravetz the "great historical myth" is that all modern scientific progress has resulted from those who held the new reductionist philosophy; yet great discoveries were made by scientists (William Gilbert, Johannes Kepler, and William Harvey) who did not share its assumptions. What sources of knowledge or scientific experience ought to be acceptable then? Ravetz includes tradition (e.g., Thomas Kuhn), tacit knowledge (e.g., Polanyi), wisdom, and illumination, but takes intuition as central to all forms of knowing. Hence, the boundaries between science and religion "are conditioned by the cultural environment," and the "sharp divisions proclaimed by ... positivistic philosophers and historians are lost in a tangle of beliefs and commitments" (p. 206). I found Ravetz's essay particularly helpful in opening

up the question of experience and knowing in sharp and incisive ways, and for his challenge to scientific reductionism.

Part 4 ("Sociological Critique") begins with Nicholas Lash's essay, "Theory, Theology and Ideology." Lash discusses problems of ideology in theological knowledge and religious practice to which theologians must attend. He analyzes Karl Marx's concept of ideology, the identification of science with "real knowledge," and Marx's critique of religion. Though critical theory is an aspect of social praxis, the objective limits on critical theory qualify its "truthfulness," while the narrative, self-involving, and autobiographical modes of religious discourse yield necessary conditions on the truth of theology. The critique of ideology incumbent upon the theologian raises the possibility of a "scientific" theology.

In "Comparing Different Maps of the Same Ground," David Martin moves away from determinism and relativity as the "primary foci of concern" between sociology and theology. He chooses three "ordinary working religious sentences" drawn from the epistles, gospels, and psalms, for sociological reaction and critique. Martin's method produces a "piece of plausible social logic"; he argues that "a 'fit' observed at the empirical level cannot be translated into what is theologically fitting" (p. 235). Hence theological and sociological statements are once again "unbridgeable . . . nothing a sociologist might tell us about the social reality [of religious language] . . . could conceivably bear on the realities to which signs claim to refer" (p. 240).

Martin Rudwick's article, "Senses of the Natural World and Senses of God: Another Look at the Historical Relation of Science and Religion," raises a strong critique of "scientific triumphalism" based on "an increasing coherent 'strong programme' in the sociology of natural-scientific knowledge" (p. 241). The critique challenges the traditional historical analysis of "religion and science" and invites deeper focus on individual versus collective interests and greater parity between religious and scientific "knowledge."

In "Science as Theology—The Theological Functioning of Western Science," Eileen Barker proposes six categories which characterize the positions of scientists vis-a-vis Christian religious dogma: fundamentalism (Creationists), orthodoxy (Evangelicals), liberalism, modernism, agnosticism, and atheism. For each category she delineates beliefs about the Bible, attitudes toward evolution, relevance of science to religious knowledge, courses of true knowledge, work to be done, key orientations, and organizational examples in the United Kingdom. Though sociology "neither can nor should dictate to theology," theologians might be clearly aware of the social context, along with the historical heritage, of their work. (Her analysis is presented in a convenient table format, pp. 278-79.)

In her "Retrospect," Mary Hesse gives four impressions of the Symposium. First, since theology and science are both partially concerned about the world, no extreme dualism is acceptable. Second, the implications of science about the world are themselves subject to debate vis-a-vis the philosophy and sociology of science. Third, theological hermeneutics was relatively absent from the Symposium. Fourth, theology and science may meet "on the ground of different but comparable *social symbolisms* rather than of common subject matter or of method" (p. 282).

In conclusion, *The Sciences and Theology in the Twentieth Century* is impressive for the remarkable breadth of both subjects and authors, for the complexity of the issues explored, and for the expertise displayed. I have found this book very helpful in courses for doctoral and seminary students. Though the quality

of the articles is not uniformly high, I strongly recommend the book both to the specialist as a valuable compendium and resource, and to the general reader interested in a deepened awareness of the current and historical interplay in this multidisciplinary area.

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Intimations of Reality: Critical Realism in Science and Religion. By ARTHUR PEACOCKE. Notre Dame, Ind.: University of Notre Dame Press, 1984. 96 pages. $10.95, 4.95 (paper).

This accessible little book provides a fine introduction to Arthur Peacocke's thought. The theme of chapter 1, "Ways to the Real World," is that both theology and science provide partial and tentative knowledge of the real world. In his discussion of science, Peacocke adverts to the "realist-instrumentalist" controversy regarding the status of theoretical terms: Do they refer to real entities, or are they merely useful fictions for summarizing and predicting data? However, Peacocke claims that recent changes in our understanding of scientific knowledge have shifted the terms of this debate. The realism of the earlier school is now called "naive," and the alternative to a realist school is now provided by sociologists of knowledge whose view is that scientific assertions are cultural products and not directly given by the physical world.

Peacocke concludes that the fact that science undergoes revolutions is the best reason for denying realistic status to theories; but, following Ernan McMullin, Ian Barbour, and others, he claims that a "skeptical and qualified" realism is still tenable, allowing high-level theories to be true or false in the usual correspondence sense. The changes in scientific theory are not a problem for this view, Peacocke claims, because there is continuity of *reference* despite changes in meanings of the terms. Taking electrons as an example he says: "Scientists are committed . . . to 'believing in' electrons. . . . *What* they believe about electrons may well, and has in fact, undergone many changes, but it is electrons to which they still refer, by long links that go back to the first occasions on which they were 'discovered' and the referring term 'electron' was introduced" (p. 27).

My concern, though, is that in assuming constancy of reference he begs the realism question. The use of an intended referring-description does not guarantee its success—for example, consider the introduction and long history of "reference" to ether and phlogiston.

Having concluded that science indeed describes the real world, Peacocke discusses briefly the picture he draws from contemporary science—one in which the world is viewed as a hierarchy of levels of complexity. This represents a welcome change from the reductionism and determinism of the positivist generation. Theology (I assume Peacocke intends to speak here of theology of all kinds) is related to science because it studies the highest of these levels, the relation God-humanity-world. Based on the history of experiences of relationship with God, theology is partly autonomous, using concepts that cannot be reduced to those of the sciences. Yet it is necessarily related to the sciences that

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provide knowledge about two of the terms of this relation: human beings and the rest of the world. Relying on the original work of Ian Barbour (*Myths, Models and Paradigms*, New York: Harper & Row, 1974), Peacocke points out that models are an important bridge between experience and theory in both science and theology. In short, theology and science are interacting and mutually illuminating approaches to reality.

Chapter 2, "God's Action in the Real World," is largely based on Peacocke's earlier book, *Creation and the World of Science* (Oxford: Clarendon Press, 1979). The purpose of this chapter is to illustrate the interaction between science and (Christian) theology by suggesting theological conclusions that may be drawn from recent work in science. Beginning with physics and cosmology he concludes, first, that the new knowledge we have of the vastness of the cosmos should reduce our anthropocentrism and increase our sense of the transcendence of God; second, that the recognition of the integral relationship of space and time requires us to see that God's otherness includes transcendence of time itself; third, that the evolution of the cosmos supports the traditional doctrine of *creatio continua*; and, fourth, that the openness of the universe prohibits any concept of God as a deterministic law-giver.

From a consideration of biological sciences Peacocke concludes, first, that a panentheist conception of God's relation to the world is most appropriate, that is, God's creative power is immanent in the process, yet God transcends the process; second, that God's creative activity is an open-ended exploration of possibilities; third, that if God is immanent in the evolutionary process then God must suffer with it; and, fourth, that creation progresses through the interplay of chance and necessity.

The final section of the book uses human action as an analogy for understanding God's action in the world. Just as certain bodily movements are the means by which people expresss their intentions and make things happen, so we may understand God's intentions from (some of) the events in the world.

I believe the issue of critical realism is the point at which this book requires the most careful scrutiny. Considered simply as a denial of the errors of naive realism on the one hand and of instrumentalism or causal theories of scientific thought on the other, the thesis of critical realism can hardly be faulted. Notice, though, that one of the problems with all of the alternatives listed here is that they are attempts to offer a single account of the status of all theoretical language. This makes them all vulnerable to counter examples and associated counter arguments since the variety of ways in which language is "tied to" the world is not taken into account. Peacocke himself offers an instructive list of theoretical terms that we take to have varying degress of ontological status: "the circulation of the blood, anthrax bacteria, proteins as chains of amino acids, water as H_2O, molecules, atoms, atomic nuclei, quasars, mass, baryons, energy, dilation of space and time, entropy, black holes, electron holes, antimatter, gravitational waves, spin, 'charm,' virtual particles . . ." (p. 15). Hence he should not be surprised if objections can be raised against critical realism when it is offered as a positive position on the status of theoretical terms in general. For example, Peacocke points out that the need for complementary models argues against naive realism, but does it not argue against critical realism as well? Can we say that there exists an entity that is something like a wave and something like a particle without weakening the sense of "something like" to the point of extreme vagueness or vacuity? Further discussion of the role of models in science as well as attention to work on the function of language in general that

has been pursued by philosophers such as Ludwig Wittgenstein and W. V. O. Quine may be helpful.

I offer this criticism as a suggestion for further thought, but certainly not as a deterrent to reading the book, which in general is clear and concise, and an excellent introduction to Peacocke's work. Although *Intimations* breaks no new ground I expect that it will become standard fare for those interested in science and religion due to the importance of the issues raised and the elegance with which it is written.

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Notice

The Bertrand Russell Society announces a call for papers to be presented at its meeting with the Eastern Division of the American Philosophical Association in December 1986. Papers may be on any aspect of Russell's philosophy. They should have a reading time of about one-half hour and should be submitted in triplicate, typed, and double-spaced with an abstract of not more than 150 words. The name and address of the author and the title of the paper should be submitted on a separate page. The submission deadline is 15 May 1986, and the papers should be sent to David E. Johnson, Chairman, Philosopher's Committee, The Bertrand Russell Society, Sampson Hall, U.S. Naval Academy, Annapolis, MD 21402. Those desiring the return of their papers should enclose a stamped, self-addressed envelope.