

## Reviews

*The New Universalism: Foundations for a Global Theology.* By DAVID J. KRIEGER. Maryknoll, N.Y.: Orbis Books, 1991. ix + 219 pages. \$16.95

Is it possible today to speak of a “global” theology, or any kind of global discourse, for that matter? Can any set of religious claims be argued to be universal? The challenge of secularism, the unmistakable presence of a plurality of religious traditions, the legacy of colonialism, and a new global awareness all seem to militate against the possibility of a global theology. Nonetheless, these are questions a growing number of Christian theologians have tried to address. Of these recent attempts, David Krieger’s book has to be counted among the most closely argued and carefully constructed.

Krieger sets the scene in chapter 1 by noting that the traditional Christian claims of possessing the universal truth have been attacked on two fronts. Within Western culture, a growing secularization since the beginning of the Enlightenment has challenged those claims; and now, the opening up of a global horizon has put the West’s claims to cultural supremacy into serious question. Christianity can no longer establish its universalist claims apologetically, that is, by purporting to show its manifest superiority to other claims. Paul Tillich’s proposal to develop theology through a method of correlating the world and revealed revelation cannot be sustained in this new environment.

The environment now is one of radical pluralism, where no horizon can claim universal validity. Unity, continuity, and totality have been displaced by finitude, historicity, fallibility, and relativity. What becomes of truth in such a setting? Truth no longer can be something that is possessed and then communicated to others. Truth in a radically pluralistic setting emerges in communicative action where a model of universal communication (everyone involved in the communication) is in place. Krieger develops this argument within the framework of Paul Tillich’s life work. Tillich had already intuited this problem in the 1920s, but he set it aside in most of his mature work on correlation. He only returned to it at the end of his life in his encounter with the religions of Asia.

Chapter 2 takes up how this new universal form of communication (the “new universalism” of the book’s title) might be developed. Krieger finds his model in the work of Raimun Panikkar. He reconstructs into a systematic hermeneutic comments and suggestions from throughout Panikkar’s extensive works and proposes a three-level discourse for this universal communication. At the first level of discourse (“argument”), communication within a given horizon, culture, or religion attempts to create by argument inner coherence and agreement about facts. Its understanding of other such horizons will be through historical, phenomenological, and comparative methods. The second level (“proclamation”) tries to set forth the coherence of a tradition through time by retrieval of its origins and showing its

[*Zygon*, vol. 29, no. 2 (June 1994).]

© 1994 by the Joint Publication Board of *Zygon*. ISSN 0591-2385

continuity through history. The intention is to validate the horizon. Development of dogmatics is an example of this. Its approach to other horizons is reductive, as it strives either to include or exclude other horizons while establishing its own priority. The third level of discourse (“disclosure”) takes place in the space between horizons. It requires intimate knowledge of the other and a “methodological conversion” to the potential truth of the other—a conversion that leads to a new dialogue within one’s home horizon about its own truth. Both sides must be involved in this, and together, in what Panikkar would call a “diatopical” discourse, come to establish truth together. Krieger distills from this a seven-step method to arrive at this new universalism.

Chapter 3 seeks out the philosophical foundations of this method, foundations that will lead this new universalism beyond objectivism and relativism. He finds them in Wittgenstein’s later understanding of meaning as a rule-governed activity in language games. Specifically, he looks at how Wittgenstein dealt with the adjudication of meaning between language games, namely how we come to believe that other worlds of meaning—other language games—are possible. This ability to conceive of the rationality of the other, which Krieger calls other-rationality, constitutes the conditions of possibility of every language game. Since meaning is governed by a pragmatic semantics in Wittgenstein’s later thought, Krieger seeks out the form of life that makes achieving (or doing) this meaning (other-rationality) possible, decides that this is the truly global form of life, and sets out in the final chapter to find the kind of discourse that supports this form of life.

He rejects two universalizing forms of discourse as unable to support this form of life: Apel’s ethics of discourse and Habermas’s theory of communicative action on the one hand and Gadamer’s philosophical hermeneutics on the other. The former suppress the radicality of the other and see it only as an alienated form of the self. Thus, the other runs the risk of being somehow reduced to the self, repeating older imperialist universalisms. The latter, with its emphasis on unity and continuity in tradition, fails to deal with the violence that is present in the conflict between horizons. What is needed, Krieger suggests, is a pragmatics of nonviolence that goes beyond the realm of communication to the conditions of violence that disrupt that communication. This corresponds with the “discourse of disclosure” in the methodological consideration stated above. It is exemplified in the non-violent praxis of Gandhi and is grounded in an ethic of “cosmotheandric” (Krieger uses Panikkar’s term here) solidarity.

It is hard to do justice to this closely argued book in a brief compass. It is exemplary of its own aim in bringing thinkers as diverse as Tillich, Panikkar, Wittgenstein, Winch, Apel, Habermas, and Gadamer into conversation. It is a major contribution to intercultural understanding, deserving careful study, and stands head and shoulders above other recent attempts to find new grounding for dialogue between cultures and traditions. In the text itself Krieger argues with major contemporary proposals of Rorty, Apel, Habermas, and Gadamer. He does not engage directly more traditional transcendental modes of argumentation, thinking perhaps that these are unavoidably apologetic as universalisms. His approach differs from these in its consistent pursuit of the dialogical, its nonreductive valuation of the other, and its ability to incorporate a response to the violence created both by repressive forms of unity and continuity and by outright

conflict between lifeworlds. A more thoroughgoing confrontation with them would be a good next step, since it will take more than a dismissal to lay them to rest. Another area that could use further elaboration is just the grounds for understanding and counteracting violence in universal discourse. There have been discussions of how violence distorts discourse, but much less on how to understand its own rationality (or, *pace* Wittgenstein, language game). This query is not intended as a complaint against Krieger; rather, it is indicative of how far he has already advanced the discussion on intercultural understanding.

ROBERT J. SCHREITER  
 Professor of Theology  
 Catholic Theological Union  
 5401 S. Cornell Ave.  
 Chicago IL 60615

*Religious and Ethical Factors in Psychiatric Practice*. Edited by DON S. BROWNING, THOMAS JOBE, and IAN S. EVISON. Chicago: Nelson Hall, 1990. 313 pages. \$15.95 (paper).

Throughout their modern histories, religion, ethics, and psychiatry have resorted to several different forms of communication in their sometimes intimate, sometimes distant relationships. One option, not often employed, has been to draw in an "outside" party through whom the three disciplines may converse. When face-to-face interaction becomes difficult, the neutral language of a mediator, such as philosophy, facilitates a freer-flowing exchange.

A proposal to renew this sort of communication has been proffered with the volume edited by practical theologians Don Browning, Ian Evison, and psychiatrist Thomas Jobe. The outcome is the call for a public philosophy of psychiatry that would focus discussions about the nature of psychiatric practice, its moral underpinnings, and its relations to other professional practices in society.

Browning and his coeditors have coalesced an impressive interdisciplinary collaboration. Contributors from academic and professional divisions of psychiatry, religion, and ethics have authored essays that emerged from over three years of monthly collegial discussions about religious and ethical factors in psychiatric practice. The project is yet another high-quality product of research under the aegis of the Park Ridge Center for the Study of Health, Faith, and Ethics.

To review this book for *Zygon* readership is to acknowledge and encourage a widened scientific focus of the journal. Browning's work takes the "yoking" of science and religion beyond scientific discussions concerning people in pain to an expanded realm: What are the practical consequences of talking about people in pain? Scholars and professionals from the practices of psychiatry and pastoral psychotherapy are now invited into these discussions.

The three sections of the book correlate the strands of individual essays into the subject areas of "Historical Interactions," "Ethical Issues and

Psychiatry,” and “Religion and Psychiatric Practice.” In addition to this scheme, the book’s introduction suggests a concomitant reading of the material. Here Browning and Evison illumine deeper assumptive themes of convergence among the collection of essays that cut across the three topical divisions. These themes suggest a critical reading of the book through a lens of issues central to a public philosophy of psychiatry.

The first section provides a thorough recounting of the modern relations between religion and psychiatry. The response of major faith traditions, namely mainline Protestantism, Roman Catholicism, and Judaism, are documented by Browning, pastoral theologian Marie McCarthy, and theologian Steven Kepnes, respectively. It is apparent from their research that the two professional practices have been inextricably intertwined since the inception of psychiatry. Religion has had—and will continue to have—something substantial to say to psychiatry because the two cohabit the region between psyche and soul.

Though an overlap in function is inevitable, the working relationship between religious and psychiatric practice has not always been amicable. Jobe and church historian James Wind round out the first section with detailed accounts of various explanatory models—competitive and complementary—that each discipline has offered in efforts to understand and treat mental illness. The result has been a history of vicissitudes. Overall neither conflict nor cooperation has won out. Instead, there has been an increasing separation between the two with lessened interaction, prompting the need for something like a public philosophy to renew serious discourse.

The second section finds psychiatry confronting key ethical issues. Central to where psychiatry lands on any particular issue has been the moral stance of the psychiatric profession along a continuum with two ethical extremes. At one end, psychiatry has made explicit its value commitments. Here psychiatric practice has aimed at changing a sick society that creates sick individuals. At the opposite end, psychiatry has maintained value neutrality because labels of sickness are value judgments about a person based on social norms, not empirical data. In everyday reality the extremes are juxtaposed in tension.

The tension is played out in the dual role of psychiatric practice. Evison, psychiatrist Daniel Anzia, and neurosurgeon Douglas Anderson each subscribe to a version of psychiatry’s responsibilities to both individual patients and society. To fulfill the claims of this dual role two tasks prove necessary. First, a philosophical anthropology needs to be developed that would set a minimum standard for the “good person” at whom psychiatry’s interventions are aimed. Second, a public forum should be encouraged to evaluate the standard and its wider implications.

The territory marked by the third section deals with religion in the practice of psychiatry. Fundamental to psychiatry’s approach to religion is the question of whether a philosophical anthropology can openly embrace religious experience. For too long psychiatry has branded religion as primarily pathology. While it is true that not all religion is healthy, the time has come to assess how religion may function adaptively, not just regressively, for the psychiatric patient.

The elements of a philosophical anthropology in these final essays come together to form a model of interconnectedness. The intimate ties among aspects of spirituality, religious faith, and the other qualities that make up

the person are revealed. Psychiatrists Philip Woollcott, Prakash Desai, and pastoral theologian James Ashbrook speak of a biological conditionedness linked to psychological and spiritual self-transcendence. Psychiatrist Donald Jacobson and pastoral theologian Herbert Anderson point to the individual's basic social relatedness. Whether these authors are talking about body and soul or the individual and community, the assumption is that one area in a person's life is just as capable of influencing or being influenced by any other. With such a model, religious experiences carry the potential to interpenetrate all levels of human functioning.

However, psychiatry's ability to appreciate the depth and breadth of religion's influence is probably compromised by its recent history of reductionism with regard to these experiences. Consequently, a resounding theme not only in this last section but throughout the book is an appeal to a phenomenological approach to religious experience. Rather than react to the epistemological question of causation or the metaphysical question of reality with its own empirical explanations, psychiatry can examine the phenomena of religious experience and cognition in all their robust living detail through a descriptive method with minimal presuppositions.

The argument for a public philosophy of psychiatry as it is advanced in the book appears to direct us to an image of "already-and-not-yet." Several comments can be made about the groundwork that has been laid by these essays as well as the construction that one hopes is to come.

First, it is important to remember that a full three years of interdisciplinary discussions engendered the essays. The point is that a public philosophy of psychiatry is more process than product. It happens when representatives of the disciplines involved come together to name the context of their own perspectives and to find a common language with which they may converse. At the same time, we must anticipate that it becomes a truly public endeavor as the voices of psychiatry, ethics, and religion make room at the table for those of other related fields of inquiry also to be heard.

Second, for a public philosophy of psychiatry to prove effective in the future, the sources of resistance to one in the past must be taken seriously. Browning in particular has touched on a primary strain of opposition with his concern that any public philosophy not become a new positivism. Whenever this objection has been raised, it has been championed for the most part by religion. The concern is that those aspects of experience best addressed by a religious perspective may be devalued or discarded. The challenge is to respect the richness of experience and meaning that defies simple translation into a coherent philosophical system or method.

Third, a phenomenological approach to religious experience in psychiatric practice may do more than bracket the epistemological and metaphysical questions inherent to religion. The method itself also calls our attention to the ways psychiatry has attempted to address the same kinds of questions. A major contribution to the viscissitudes of its relationship to religion has been psychiatry's own *weltanschauung*, as it is revealed in its theoretical models. Perhaps the use of a phenomenological method will prompt psychiatry to come to terms with its own religious dimensions.

This volume's collective call for a public philosophy of psychiatry offers an articulate hope to a pluralistic culture in which the solo voices of psychiatry, ethics, and religion speak meaningfully to individuals, but as voices in concert there is more dissonance than harmony. Browning and his

coeditors prove to us that a contentious or indifferent past may be overcome in order to build a more cooperative future.

If one were to criticize this almost unassailable book, one would point out that ultimately neither refined mental health theory nor targeted social theory will resolve the ethical quandary. In our day psychology, psychiatry, even neurology and neurosurgery, function on the basis of unexplained and highly suspect theological premises. What is the nature and destiny of the human person? What is the nature of saving wholeness (health)? What is the cosmic intra- and interpsychic structure and energy of good and evil? Psychiatry must answer these matters theologically; theology must answer them psychiatrically. The two disciplines must answer them in risky yet illuminating coadventures. In the words of English dramatist Christopher Fry, "Affairs are now soul size." (*A Sleep of Prisoners*, 1951). Like two pillars, the twin sciences of the soul must re-erect the collapsed rubble of Samson's temple.

KENNETH VAUX

Professor of Theological Ethics  
Garrett/Northwestern  
2121 Sheridan Road  
Evanston, IL 60201

GLENN BRICHACEK

Ph.D. Candidate  
Garrett/Northwestern  
2121 Sheridan Road  
Evanston, IL 60201

*The Diversity of Life*. By EDWARD O. WILSON. Cambridge: Harvard Univ. Press, 1992. 424 pages. \$29.95

E.O. Wilson, more than anyone else I can think of, has a knack for elevating mere topics to the status of subdisciplines. He did so in his monumental *Sociobiology*, and he appears to have done it again in *The Diversity of Life*. Less than a decade ago the term *biodiversity* was scarcely heard of, but today a good share of the biological community is convinced that this set of issues defines one of the most urgent research domains in all of science. Wilson is certainly among them ("I cannot imagine a scientific problem of greater immediate importance for humanity"), and it is his purpose in this book to promote the cause of biodiversity studies.

In service to the cause, *The Diversity of Life* attempts to provide a general readership with answers to all of the relevant questions about biodiversity: What is a species? What are the dynamics of species diversification? How are diverse forms of life classified in science? How much species diversity is there in the various categories? What is the total amount of biological diversity? How do we know this? How much *don't* we know? What conditions account for accelerations in diversity? What dynamics reduce it? How fragile is life? How resilient? What is the relation between diversity of life forms and the complexity of life forms? What is the latest thinking on the causes and patterns of extinctions? And much, much more—including, of course, the toughest question of all: Can we human beings manage to arrest the avalanche of extinctions set in motion by our own demographic success?

One would like to believe that Wilson's book could make the difference. So compelling and so sensitive is his treatment of the material that one imagines it would take a captious clod to resist his fundamental appeal: "Every scrap of biological diversity is priceless, to be learned and cherished, and never to be surrendered without a struggle." To learn the scraps is the special province of biodiversity studies, a new discipline. And to cherish them is the general calling of all humanity to a new ethic.

Wilson's hope for a new environmental ethic is grounded in his conviction that, deep down, human beings are biophilic—that we long for solidarity with diverse forms of life. He suggests that biophilia is an innate capacity of the human spirit, put there by two million years worth of cultural selection and only recently inhibited by the insidious delusion that humans are uniquely exempt from nature. We must now disabuse ourselves of the "philosophy of exemptionalism" and restore our capacity for expanding our interests and affections to include the entire living world, of which we are a part. To save the living world we must come to love all of the scraps.

That we *must* is clear, how we *might* is not. One might agree with Wilson that the emergence of biophilia is our only hope, but getting it to emerge is no simple matter. Consider the artifice it takes to expand our sphere of care to non-kin members of our own species. So much the more will it take to excite biophilia. Advancing the cause of biodiversity studies, as Wilson has done so remarkably well, will help immeasurably. But to know the scraps is not yet to love them. Loving the scraps may call us to expand our science in the direction of a new aesthetic and a new Earth-bound religious perspective.

LOYAL D. RUE  
Professor of Religion and Philosophy  
Luther College  
Decorah, IA 52101

*Religion and Social Theory*. By BRYAN S. TURNER. 2d ed. London: Sage, 1991. 264 pages. \$19.95 (paper).

This is at times a brilliant book, a very useful book, but often a frustrating book. Its chief merit is its perceptive introduction of new and significant themes to the sociological study of religion. Its chief defect is the author's seeming indecision about the kind of text he was crafting: Is it a scholarly and unified alternative reading of the nature and functions of religion, a collection of loosely related articles addressing many of the classic and not-so-classic concerns of the sociology of religion, or a textbook in the sociology of religion? By mixing the genres, at different points it reads like all three. There are unifying themes to the discussion which are important and quite original, yet the text as a whole is disjointed and uneven, a postmodern pastiche (by design?).

By its title Turner's book might be taken for yet another textbook in the sociology of religion, and true to expectation the relative contribution of religion to social cohesion, conflict, and control are duly discussed, along with such conventional concerns as the church/sect/mysticism typology, the theodic functions of religion, civil religion, secularization, and so on. From

the beginning, however, there is a difference. The field as a whole is introduced, for instance, by way of Edward Said's analysis of "Orientalism," while Durkheim's theory of religion is set against the backdrop of the Nietzschean "death of God" and the crisis of religion in the nineteenth century. In both cases, though the analysis is limited, the text of this textbook is certainly enriched and rendered more provocative, but the real provocation comes from the running thematization of the text as a mode of "materialist" analysis of religion. Integrating elements of Marx, Weber, and Foucault, Turner advances an argument for seeing religion as being about the control of property through the family and the organization of bodies in social space. With this theme, the textbook, in a straightforward sense, is left behind.

Turner argues, in essence, for a primary understanding of religion as political ideology in the service of class interests. Following the lead of Weber, he stresses the "this-worldly" orientation of the majority of humanity in its dealings with religion. More than salvation per se, the predominant concerns of religious life, publicly and privately, are health, longevity, and prosperity. Consequently, the predominant orientation of theorizing in the sociology of religion to questions of "meaning" and to cognitive theories of religion (such as Peter Berger's *The Sacred Canopy*) is off the mark. Most specifically, blending Marx and Engels with Foucault, Turner proposes that in the heyday of Christendom, religion was instrumental to the social and sexual control of the bodies, and hence the activities, of women and young men in order to protect the precarious system of primogeniture and feudal tenure (that is, the property of the ruling class). Contrary to "the dominant ideology thesis," and following the lead of Louis Althusser and Nicos Poulantzas, Turner asserts that in medieval Europe the Christian religion may have been "dominant," but for the vast majority (namely, the lower classes) it was not "determinant." In most important senses, the peasantry remained beyond the pale of Christian ideology until the Protestant Reformations and Counter-Reformation. The institutionally significant function of Christianity was as a mechanism of the social control of the ruling class, by the ruling class. In fact, the eventual incorporation of the other classes within the Christian fold marks a significant change in the nature and function of Christianity as a dominant ideology.

With Protestantism, à la Weber, came capitalism and the crucial separation of the family and the economy (that is, property). For Turner, this in turn set in motion the progressive secularization of society in the form of the privatization of religion. As primogeniture faded from importance in the face of corporate capitalism, public morality, religiously encoded, grew more lax, and slowly the ascetic discipline of individual bodies was replaced by the bureaucratic regulation and commercial manipulation of personal encounters in terms of secular "disciplinary practices" (for example, penology, medicine, sexual representation). A curious inversion of place and orientation has stricken religion in the modern world. Religion as public discourse concerned with sexual control has been transmuted into private preferences with little significance for actual sexual behavior (that is, relative to the more public, secular discourses of hedonism). In the interim, of course, once again echoing Weber, Protestant Christian asceticism provided the motivational framework for the industriousness of



the bourgeoisie and, through Methodism and other more pietistic forms of Christianity, it also disciplined the labor of important segments of the working class. The need for such religious legitimation of economic activity was soon displaced by the rise of pervasive, subtle, and more thoroughly coercive forms of secular ideational control.

Parallel to this and many other less persistent themes, Turner also directs his attention to the ethnocentrism of most sociology of religion. Correctly criticizing his predecessors and colleagues for dwelling on the history and sociology of Christianity, following Weber (with due qualification), he advocates the development of a truly comparative sociology of religion. In partial fulfillment of this ideal, Turner inserts comparative excursions on Islam and Judaism. At one point he explores the alternative implications of the influence of the dominant carrier class of each religion and the formative conditions of each religion for their relative understanding of the relationship between politics and religion. In the main, however, Turner's text remains a study of "Christianity and Social Theory."

Along the way Turner offers some stimulating assessments of a diverse array of issues in the sociology of religion. For example, he analyzes the role of religion in the movement for Scottish nationalism to illustrate situations in which conditions of internal colonialism link religion with nationalism. At another point he draws an intriguing, though insufficiently exploited, distinction between the phenomena of individualism, individuality, and individuation to suggest how the subjects of affluent Western democracies may be less independent than the subjects of premodern religious states.

The problem is, the book raises more issues than it can satisfactorily treat. As indicated, the analyses offered are stimulating and worthwhile, but they are most often incomplete and restricted to an assessment of relevant secondary literature. The text is eloquent in parts, but it is less lucid as a whole. In the emphasis given to a "materialist" account of religion, moreover, the continuing need for some measure of a social psychology of religious experience, belief, and practice is characteristically ignored. From this vantage point, Turner's central thesis raises a simple but important question for which no "materialist" answer is provided: Why was there a Protestant Reformation? A materialist response may be imagined, yet implicit to Turner's own analysis is the more "idealist" response of Weber's evolutionary theory of religion and rationalization. Similarly, the dominant ideology perspective is criticized appropriately for failing to specify the actual institutional means by which an ideology is transmitted, especially to the masses. Yet in like manner Turner gives little or no attention to the analysis of the mechanisms of religion: ritual, myth, sacrifice, prayer, and so on. On the whole, though, I must recommend *Religion and Social Theory* for what it distinctively does, relative to other surveys of the field: It relates classical and contemporary theory, it reorients the sociology of religion to a more cross-cultural perspective, and it gives new relevance and importance to our understanding of the ideological functioning of religious systems.

LORNE L. DAWSON  
Assistant Professor of Sociology  
University of Waterloo  
Waterloo, Ontario  
Canada N2L 3G1

*Origins: The Lives and Worlds of Modern Cosmologists.* By ALAN LIGHTMAN and ROBERTA BRAWER. Cambridge: Harvard Univ. Press, 1990. 561 pages. \$32.50; \$16.95 (paper).

*Origins* explores the ways in which personal, social, and philosophical components enter into the scientific study of the space-time universe as a whole, namely, the science of cosmology. Cosmology is uniquely suitable for such a study as it is the most all-encompassing and speculative of the sciences, being on the boundary between what is considered science and what is not. Furthermore, in the last fifteen years, cosmology has undergone revolutionary change—due in part to the application of elementary particle physics (the physics of the very small) to theories of the beginning of the universe (the physics of the universe, particularly its large-scale structure) and due partially as well to new observations of the locations and motions of galaxies. Cosmologists thus have had to rethink basic aspects and pre-suppositions of their discipline and to ask many new questions. For this reason, the authors chose to interview twenty-seven leading cosmologists by means of an audiotaped questionnaire. These questions were intended (a) to clarify the personal experiences and work of each individual scientist, (b) to indicate their personal reactions to recent cosmological developments, and (c) to ask them to put aside their natural scientific caution and consider the philosophical (and sometimes religious) implications of their work. The authors make use of their training as physicists to dialogue with the cosmologists in terms of the content of their scientific contributions. Non-scientific aspects of the scientific process are thus probed in their natural context.

For this study, practical considerations did not allow the interviewing of all cosmologists doing significant work. But those who were chosen represent many of the scientists who have contributed to major new observations and theories. The taped interviews were approximately ninety minutes in length. They were transcribed, lightly edited, reduced by about a third, and then submitted to the scientists for modifications and/or additions. These interviews constitute the main portion of the book; the authors did not include an analysis of the interviews so that the book would document in an unbiased manner the great diversity and unity present in these reflections by very creative scientists on their own work and its implications for today's culture.

The book's format includes (a) a helpful preface succinctly summarizing the methodology, objectives, and significance of the book; (b) a comprehensive introductory chapter providing a masterful overview of modern cosmology; (c) twenty-seven individual chapters consisting of actual interviews; and (d) miscellaneous end sections, including a comprehensive list of general readings in cosmology and an excellent glossary of key cosmological terms.

The core of the book consists of the interview chapters with the cosmologists. They are listed here indicating their primary involvement, observation (O) or theory (T): Fred Hoyle (T), Allan Sandage (O), Gérard De Vancouleurs (O), Maarten Schmidt (O), Wallace Sargent (O), Dennis Sciama (T), Martin Rees (T), Robert Wagoner (T), Joseph Silk (T), Robert Dicke (O & T), James Peebles (T), Charles Misner (T), James Gunn (O & T), Jeremiah Ostriker (T), Vera Rubin (O), Edwin Turner

(O), Sandra Faber (O), Marc Davis (O & T), Margaret Geller (O), John Huchra (O), Stephen Hawking (T), Don Page (T), Roger Penrose (T), David Schramm (T), Steven Weinberg (T), Alan Guth (T), and Andrei Linde (T).

The introductory chapter on modern cosmology should be invaluable to *Zygon* readers who require a concise, complete, and clear overview of modern scientific cosmology and the larger philosophical, even religious, implications of that science. The comprehensiveness of this overview is indicated by the chapter's subheadings: "The Birth of Modern Cosmology," "Discovery of the Expansion of the Universe," "The Big Bang Model," "Other Early Cosmological Models" (including the steady-state model, in which the universe always was and always will be as it appears now), "Difficulties with the Big Bang Model," "Large-scale Structure and Dark Matter" (recent observational results indicate that clumping and voids exist in the large-scale distribution of galaxies and galaxy motions indicate the existence of matter that has not yet been detected), "Instruments and Technology," "Initial Conditions and Quantum Cosmology," "Particle Physics and the New Cosmology," "The Inflationary Universe Model" (this model resolves two major difficulties of the standard Big Bang model: the so-called horizon and flatness problems. The horizon problem asks why the universe is homogeneous over a much larger region than expected and whether it started that way. The flatness problem asks why the universe began with its gravitational and kinetic energy almost balancing one another). Finally, "The Anthropic Principle" examines the explicit assertion that key initial conditions and physical parameters are beautifully "fine-tuned" to facilitate the existence of carbon-based intelligent life.

I suspect that most *Zygon* readers will be particularly interested in the interview questions and responses related to philosophical and possible religious implications of modern cosmology's findings. Most respondents indicated that metaphysical questions and presuppositions (often quite different from one another) played a regulatory influence in motivating and guiding their scientific investigations. The regulating influence of metaphysical values are manifest both in the types of problems selected by the interviewed scientists and in the kinds of answers proposed and tested. The rich variety of philosophical frameworks providing regulatory motivation and guidance of cosmological research cannot be classified in a short review. *Zygon* readers will find much of interest in these philosophical reflections.

Of possibly greater interest to *Zygon* readers are the religious implications suggested by several responses to the final two interview questions, which explicitly attempt to explore philosophical and religious concerns. They are, "If you could design the universe any way that you wanted, how would you do it?" and, "Do you agree with Steven Weinberg's assertion that the more the universe seems comprehensible the more it also seems pointless?" Most responses to these and other relevant aspects of the interview indicate a reluctance of cosmologists to acknowledge explicit religious reflection as playing significant motivating and/or guiding roles with respect to their scientific creativity. Indeed, a few scientists were openly opposed to religious affirmations playing any significant role in scientific reflection while, on the other hand, some responses indicated a positive interest in the possible interaction of religious commitment and cosmological developments. These cosmologists suggested that both religion and science can benefit

from the cross-fertilization resulting from constructive dialogue between the disciplines.

What is the character of such interdisciplinary communication (taking place in the minds of the interviewees who have both scientific and religious interests)? I would suggest that such interaction is possible because the interviewees tacitly recognize that true dialogue preserves the distinctive character of each discipline while at the same time acknowledging that relational continuity exists between both disciplines, binding them together to form a more comprehensive understanding of the universe and humankind's place in it. This uniting relationality consists of a mutual reciprocity of interrelationality between the two disciplines, made possible by open and honest dialogue between the religious and scientific communities. Such mutually reciprocal relationality is asymmetric in character, for religion motivates and gives wholeness, purpose, and meaning to scientific cosmology, which in turn sharpens and clarifies religion. Interpreting the interviews through "the glasses" of Thomas F. Torrance's integration of natural science and Christian theology, I as a reviewer would further affirm that at least two of the interviewees, Charles Misner and Don Page, tacitly recognize that constructive religion-science dialogue is properly grounded in the recognition that both disciplines are concerned with the discovery of a *shared intelligibility*. Such intelligibility results from, on the one hand, the divine order primarily revealed in God's redemptive-historical interaction with humankind, and, on the other hand, with the contingent order revealed through humankind's exploration of the time-embedded (historical) expanding universe. This recognition that religion and science represent distinct shared intelligibilities interpenetrating each other in significant ways is, in general, a consequence of both religionists and scientists being integral components of the space-time universe that cosmologists investigate. More specially, Christian theology emphasizes that this mutual interpenetration of both disciplines is a natural consequence of the Christian affirmation that the creative-redeeming God became incarnate in his own creation, that is, the physical universe.

Readers interested in both positive and negative correlations of scientific cosmology and religion actually held by the scientific community will be greatly rewarded by a careful reading of the entire book. *Origins* constitutes a unique resource of contemporary scientific understanding of our physical universe and possible connections with and implications for philosophical and religious interpretation. Note that such reflections occur in the minds of scientists actively engaged in creative cosmological research.

I conclude with two significant extended quotes taken from the interviews which I interpret as affirming that modern cosmology has favorable religious implications. I affirm from my own scientific experience the conclusion drawn from all of the book's interviews: that a positive understanding of science/religion correlation is a minority opinion that nevertheless represents a significant opportunity for religion/science dialogue.

The first set of quotes is taken from the interview with Roger Penrose, a distinguished mathematician whose interests include algebraic geometry, differential topology, plane tilings and quasi crystals, the theory of twistors, classical general relativity and singularity theorems in general relativity. (The Big Bang expanding universe and black holes represent possible singularities.)

*Question:* If you could design the universe any way that you wanted to, how would you do it?

*Response:* Oh, I'd take the one we've got (laughs). I can't deny that. There are so many things that make it incredible. I couldn't design a universe that could compete with the one we see. Let's put it like this: The sort of things I hope would underlie the actual universe, as I have said before, would be complex numbers. Complex numbers constitute just one aspect of this unity with mathematics. I believe in a deep unity between mathematics and physics. Whether they are, in a sense, the same thing is an intriguing question.

*Question:* There is a place in Steve Weinberg's book, *The First Three Minutes*, where he says, "The more the universe seems comprehensible, the more it seems pointless." Have you ever thought about that issue?

*Response:* I don't agree with that sentiment at all. Is that his viewpoint? I remember the statement. Of course, he may be sowing seeds. I don't know whether he believes that.

*Question:* What is your feeling about that?

*Response:* I suppose my reaction is the opposite of the sentiment that seems to be expressed there, namely, that our comprehension does give the universe a point. It's part of how I look at mathematics. The understanding of something in terms of mathematics doesn't eliminate a problem, it gives it a deeper character. Suppose you have something in nature that you are trying to understand, and finally you can understand its mathematical implications and appreciate it. Yet there is always some deeper significance there. I don't know how to explain it. I don't think our understanding removes the point. In a sense, understanding nature is making it more mathematical. That's what we are doing all the time. Mathematics is logical structure, a disembodied logical structure, and you might think that when you put your physical problem into that disembodied mathematical structure, you have removed its point. Maybe that is the sort of thing Weinberg was saying. Many people might think that. But my view is, once you have put more and more of your physical world into a mathematical structure, you realize how profound and mysterious this mathematical structure is. How you can get all these things out of it is very mysterious and, in a sense, gives the universe more of a point.

*Question:* For you, the question of a point is intertwined with this mystery, somehow?

*Response:* I think that's true. I suppose the point has to do with one's own existence. When it comes down to it, the question has to do with conscious perception of one's own existence in the world. A world that has no people in it is pointless. A universe that is just chugging away by itself with nobody in it is, in a sense, pointless. (pp. 432-34)

The second quote is taken from the interview with Charles Misner, a distinguished physicist whose research contributions are in theoretical studies of general relativity, quantization of general relativity, cosmology, and science education.

*Question:* If you were allowed to conceive of a theory (of the universe) yourself, what would you do?

*Response:* The universe I see is always more beautiful and preferable to any I could have previously imagined—the more details I see of it. So that in a sense I like the present universe. If I wanted to put that into a phrase, I would say “a universe which is inexhaustibly intelligible, where you could keep understanding things and the game never gets boring.

*Questioning assertion:* There is a place in Steven Weinberg’s book, *The First Three Minutes*, where he says that the more the universe seems comprehensible, the more it also seems pointless.

*Response:* Yes, I come down on just the opposite side of that. I’m impressed with the beauty and intelligibility of the universe. We would have to get into a whole other thing about the meaning of truth, which I have written a little bit about. I don’t see the universe as pointless. You might call Newtonian theory a myth in that we know what it’s good for and we know its limitations. It’s not so much of a myth now as it was in Newton’s time, when people were unaware of the limitations. In that same sense I think myths—myths in the sense that we will not want to change them when we understand things more deeply, but we *will* understand things more deeply. For example, Newton’s theory was once understood and believed totally, and now it’s understood and used and provides us with a grasp of nature, but we have some feeling that there are other things beyond it. My feeling is that in religion there are very serious things, like the existence of God and the brotherhood of man, that are serious truths that we will one day learn to appreciate in perhaps a different language on a different scale. We will probably always continue to teach them in the traditional ways—and think of them like Newtonian mechanics: you don’t want to play baseball with quantum mechanics. So I think there are real truths there, and in that sense the majesty of the universe is meaningful, and we do owe honor and awe to its Creator. With this Dyson future, I don’t see anything wrong with imagining that civilization will succeed and evolve so that intelligent beings discuss physics or what comes after, long after the temperature has gone down and the heartbeat is once per 10 billion years. The activity will continue apace and be more glorious, and we’re part of it, helping to produce it. I think there is a lot of meaning in the whole operation. (pp. 248–49)

Anyone with interests in cosmology, history of science, philosophy, and religion should find this book both understandable and helpful. The writing style of the text and the editing of the interviews are models of clarity. The uniqueness of the book is its contemporary relevance. While previous studies have been either retrospective or historical, *Origins* provides direct interviews with today’s scientists.

W. JIM NEIDHARDT  
Associate Professor of Physics  
New Jersey Institute of Technology  
Newark, NJ 07102

(Deceased, July 1993)