Reviews

Consilience: The Unity of Knowledge. By Edward O. Wilson. New York: Knopf, 1998. 332 pages. $26.00.

In his latest controversial book, Harvard entomologist and Pulitzer prize-winning author Edward O. Wilson brings together several themes of earlier works to call for a unification of knowledge. Taking his cue from the nineteenth-century natural philosopher William Whewell, Wilson defines his vision as "consilience . . . a 'jumping together' of knowledge by the linking of facts and fact-based theory across disciplines to create a common groundwork of explanation" (p. 8). This synthesis would, in turn, be based on the method and the "metaphysical excitement" of the natural sciences (p. 55). As a multidisciplinary "empirical quest," consilience promises "a foundation of verifiable knowledge of human nature sufficient to produce cause-and-effect predictions and sound judgments based on them" (pp. 97, 255). Trumpeting an Enlightenment ideal of progress, Wilson here proposes a kind of scientific humanism that holds a special place for the scientist in society and proclaims "that rationally acquired knowledge is the best hope for humanity" (p. 62). His plan, offered with passion and a modest sense of the limits of empiricism, both intrigues and provokes while leaving a series of unanswered questions.

The book combines a discourse on method, an outline of a cross-disciplinary research program, and suggestions for educational reform, all of which have consequences for social policy. In the first place, consilience demands that the social sciences and humanities adopt more fully the explanatory method of the natural sciences. That method involves a twofold process of analysis and synthesis, of reductionism and holism (p. 83). The scientist, Wilson explains, breaks down complex systems (like the "superorganisms" of ant colonies and religions) into their component parts (pp. 70, 109, 256). An understanding of those fundamental elements supports a reverse, synthetic thought process in which the scientist seeks to predict the character of specific phenomena from knowledge of the most general elements. In Wilson's account this twofold method of explanation acts like a reliable road map. It leads across many "levels of organization," linking knowledge of atoms, molecules, and genes with that of organisms, minds, and cultures. It promises to tie together "the great branches of learning," unifying physics, chemistry, and biology with psychology, art, and religion. The goal is an interlocking "webwork of causal explanation" (p. 125) that transforms the mysteries of existence into explainable problems. In a tradition of scholarship for the public good that includes Francis Bacon's *Great Instauration* and Auguste Comte's *Religion of Humanity*, Wilson's *Consilience* foresees the ever-expanding knowledge of human nature leading to mastery of life and control of the future (p. 66).

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Wilson writes convincingly, partly because he is willing to say he could be wrong, and he does so in a way that does not seem disingenuous. At the same time, he ranges across a wide array of disciplines, describing existing and conceivable links between the natural and social sciences and the humanities. Conversant with many fields, he describes relevant research in molecular biology, neuroscience, zoology, paleontology, anthropology, and psychology, among others. He points to emergent "bridging disciplines" or prototype fields of consilient research such as behavioral genetics, evolutionary psychology, cognitive neuroscience, sociobiology, and bioaesthetics. He also describes a few "foundational inquiries," highlighting the search for the objective, material basis of moral reasoning (p. 255). This display of erudition is impressive, worthy of a self-conscious successor to the Renaissance and Enlightenment.

Like humanist movements of the past, the focal point of Wilson's integrative enterprise is an understanding of human nature. From his materialist-reductionist standpoint, this understanding involves an effort to specify the "epigenetic rules" of human behavior. These rules, or "algorithms" of biological and cultural coevolution, express the fundamental reciprocity between heredity and environment in human development. They are defined as "the hereditary regularities of mental development that bias cultural evolution." Amid the wide variety of "cultural elaborations," epigenetic rules indicate the universals of human behavior (p. 117). Wilson says that some of these rules, including "primary" ones such as incest avoidance and secondary traits such as smiling, have been identified. And, although he acknowledges the great difficulties in specifying the convoluted pathways from genes to the traits they prescribe, he is confident that, given enough time and money and political will, current "successes" will be extended. In any case, the cross-disciplinary search for the genes-to-culture relation, he says, would allow a better adaptation of inherited moral instincts to modern conditions.

Wilson's proposal is sure to offend. Among those already provoked are advocates of multiculturalism and feminists who suspect all arguments from nature. In the book, Wilson is especially critical of philosophers and social scientists. He depicts the former as woefully unaware of evolutionary and brain science and the latter as disastrously divided into two camps—with one faction unnecessarily defending outmoded intellectual boundaries (pp. 254, 188). He criticizes specific disciplines, such as political science and ethics, for lacking anything like "authentic theory" as found in the natural sciences (p. 255). Indeed, Wilson's criticism at times borders on the polemical. He lambastes social theorists for practicing a kind of "folk psychology" and for being ignorant of any true science of human nature (p. 183), and he defends the pursuit of objective truth against various postmodern critics. He reserves special reproach for deconstructionists, whose "love of chaos" amounts to a kind of blasphemy in Wilson's scientific humanism (p. 214). Finally, Wilson declares "Enough!" when it comes to the "culture wars." He says that the time has come to call a "truce" and to "reassess the boundary" between the sciences and humanities (pp. 125, 188).

Wilson's argument ends with a treatment of ethics and religion. Here, the work of integration appears to end in an unbridgeable rift involving ultimate explanation. On one hand, he acknowledges the value of traditional religions as evolved explanatory systems creating order out of the chaos of existence. From his materialist standpoint, he sees religious doctrines, rituals, and ethical codes, along with

the arts, as expressive of a fundamental human drive for order and meaning. They also nourish a natural craving for the mystical (p. 232). On the other hand, Wilson suggests that the study of history reveals how religions have readily been allied with the "tribalisms" of humanity, leading to disastrous results. At this point, he makes clear that the scientific quest can and must take the place of the religious way to order and meaning. Earlier, he forthrightly admitted how his passion for consilience through science emerged as a substitute for a failed fundamentalist faith. Throughout the book, he suggests parallels between scientific and religious answers to basic questions. (In one instance, he suggests an evolutionary biologist's version of original sin as the "fundamental misalignment" in evolution that produced a human brain with the capacity to understand in far greater depth than is needed for survival [p. 61]. Not coincidentally, he defines the "proper task" of the scientist as to "diagnose and correct" this imbalance.) In the end, his consistent effort to resolve dichotomies, such as those between fact and value and between nurturists and hereditarians, reveals an irreducible either/or position. In a real sense, he insists, we all face the choice he has had to make. In his terms, it is a choice between "transcendentalist" and "empiricist" explanations of the human condition and our knowledge of good and evil. He concludes that an empiricist victory here, in this "struggle for men's souls," would ultimately mean an understanding of the material origins of moral behavior. Such wisdom would gain a "wiser and more enduring ethical consensus" (p. 240) across cultures.

In the wake of such a tour de force, one is left with a series of questions. I wonder, first, how Wilson would deal with charges of scientism—of confusing the limited activity of science with a full-blown secular ideology. He seems prepared to confuse the two, defining science as both a method and the best hope. More specifically, I wonder how he would answer charges of "promissory science"—a speculative discourse identified by Karl Popper and further analyzed by Mary Midgley in which the cause of science is advanced by conflating science and prophecy. Though temperate, Wilson promises much in this book; and the promissoriness of the work is signaled by oft-repeated phrases such as "we think we know the approximate form the answer will take" (p. 126). I suppose his answer to Popper and Midgley would echo the position of Bacon and Comte; namely, it is time to place our hopes in the scientists. But then, I wonder in what sense we human beings hope or "choose" between alternatives such as transcendentalism and empiricism. While the act of choice seems real enough for Wilson, he defines free will as a fortuitous illusion (pp. 119–20). Conundrums like these then lead to another fundamental question: How can Wilson escape the criticism of self-referential incoherence that is often leveled at materialist-reductive explanations? How can his defense of objective truth, in particular, be upheld when his claims themselves are the product of chance and necessity favoring survival? From this standpoint, what particular value is the layperson to place on the empiricist's view of the truth? Moreover, why does the emergence of a sense of transcendence in the evolutionary process preclude the existence of a transcendent reality? In other words, it does not seem that a Teilhardian vision of consilience is ruled out by Wilson's account. Implicit in all of these questions is that of scientific authority. How can Wilson sustain his vision of consilience, with its "honest broker" role for the scientist, in light of his own analysis of "a greater divergence of roles within societies due to the interaction of genes and culture" (p. 140)? Finally, from a historian's point of view,

I can imagine a fruitful discussion of Wilson's particularity. I wonder what difference it makes to his vision that it emerged in a particular time and place: in post–World War II America, when advocates of liberal arts education called for an integration of knowledge and scientific humanism provided one response.

No doubt, Wilson will continue to speculate and provoke. He has few rivals in persuasively communicating the materialist-reductionist view of life and science. His authoritative call for consilience stands as a challenge to the divisions of intellectual culture and to those who look for an integration of science and religion.

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Science and Religion: An Introduction. By Alister E. McGrath. Malden, Mass.: Blackwell, 1999. xii + 250 pages. $29.95.

With the flourishing of college courses in science and religion, there appears to be a need (although this will depend on pedagogical style) for solid textbooks in this area. The most widely used book for these courses is Ian Barbour's *Religion and Science: Historical and Contemporary Issues* (retitled with the second edition in 1997). But this is not really a textbook; it is closer to an encyclopedic survey of the major work in the area,z threaded through with Barbour's own position.

Alister McGrath, principal of Wycliff Hall, research lecturer in theology at Oxford University, and a prolific author of theology monographs and textbooks, makes a spirited stab at filling this need. McGrath states that his purpose is to offer a book that presumes a minimal knowledge of both science and theology.

The book begins with an exploration of three historical landmarks on the interaction of science and religion: the Copernican revolution, the rise of the Newtonian worldview, and the Darwinian revolution. As a backdrop to all three of these historical episodes, McGrath offers a very useful survey of biblical hermeneutics from the Fathers of the church to the sixteenth century. He concludes that within the Christian tradition up to the sixteenth century there were three broad approaches to biblical interpretation: the literal, the allegorical, and the "idea of accommodation" (p. 9). The latter idea is that revelation takes place in culturally and anthropologically conditioned settings and thus that the meaning of scripture always requires interpretation. Although McGrath's treatment here is brief, it is important in that so much of the controversy surrounding the three landmarks centers on the conflict of the Jewish and Christian scriptures with scientific theory. Even Barbour's monumental synthesis of the science-religion engagement barely touches on biblical hermeneutics.

The classificatory scheme that McGrath uses for the ways of relating science and religion is a slimmed-down version of Barbour's four models: conflict, independence, dialogue, and integration. McGrath makes a basic cut between confrontational and nonconfrontational and then subdivides nonconfrontational into convergent (Barbour's dialogue and integration) and distinct (Barbour's independence).

McGrath offers two broadly epistemological chapters (3 and 7). Chapter 3 offers a survey of some of the highlights of twentieth-century philosophy of science—the Duhem-Quine thesis, logical positivism, Karl Popper and falsification, Thomas Kuhn's theory of scientific change, and Michael Polanyi's thesis that all knowledge involves commitment. The surveys are solid, but what I found lacking was McGrath's treatment of the significance of these theories for the relationship between science and theology. McGrath draws only the briefest connections at the end of each section of the chapter. How useful is this material for students? I think it is of marginal value in constructing an epistemology adequate to both science and theology.

The other epistemological chapter (7) is stronger. McGrath offers a solid albeit rather standard treatment of models and analogies in science and religion. Models and analogies are means of understanding phenomena that are not directly accessible and that are complex. They are also a means of extending our knowledge; they provide pointers to new hypotheses or data, and the danger of models and analogies in both science and religion is that they tend to be pushed too far. Here McGrath, following his mentor Ian Barbour, adopts critical realism—models and analogies do refer to real things and processes, but there is always a gap between our representations and reality. The chapter also contains an extended treatment of complementarity in science and theology. Again it is quite standard—he compares the wave-particle duality of light to the divine-human nature of Christ—but appropriate for the initiate. I have only one quibble with this chapter. McGrath offers a very quirky suggestion for distinguishing between analogies and metaphors. "Analogies seem to be appropriate, whereas metaphors involve a sense of surprise or initial incredulity" (pp. 154–55). A traditional way of distinguishing between them, saying that analogies are extended metaphors, seems to work much better.

Chapter 4 is partly on natural theology, traditional arguments for God, and models of the God-world relationship. There does not seem to be much point in running through Anselm's ontological argument and Thomas Aquinas's five arguments for exploring issues relating science and theology. McGrath does a better job in relating the cosmological, kalam, and teleological arguments. The best part of the chapter is the last half, in which he explores three models for the God-world relationship: Deism, primary and secondary causes, and process theology. The discussion of process theology is especially useful, culminating in a wonderful chart comparing classical (Thomistic) and process views of the God-world relationship.

Chapter 5 is on creation. After a survey of three early Christian models of creation—emanation, construction, and artistic expression—McGrath turns to contemporary science. He does not attach much significance to the connection between the Big-Bang theory and the doctrine of Creation. What most interests him is the emphasis in modern science on the order and regularity of nature. Following Paul Davies, he proposes that laws of science have features—universality, absoluteness, eternity, and omnipotence—which reflect the nature of divinity. This appears to be the notion of creation that McGrath embraces.

McGrath spends a chapter (6) addressing the very idea of natural theology. He contrasts Thomas Torrance's support for natural theology (albeit tightly integrated with revealed theology) with Alvin Plantinga's rejection of natural theology. Then he surveys, very briefly, three approaches to natural theology: the appeal to reason,

the appeal to the order of the world, and the appeal to beauty. He closes with a nice treatment of the two-book metaphor and the suggestion that it is very much alive today in the writings of John Polkinghorne—a good insight into Polkinghorne's work.

Chapter 8 looks at three scientific disciplines and their religious significance: physics and cosmology, biology, and psychology. All of this is rather standard stuff—the Big Bang and the anthropic principle, chance and design in the evolutionary process, and attempts to reduce religion to psychological categories (Ludwig Feuerbach and Sigmund Freud). McGrath's treatment of these issues is brief but solid, and he introduces two minor theologians, Henry Ward Beecher and Benjamin Warfield.

The last chapter, "Case Studies in Science and Religion," is peculiar. It is "a brief survey of seven twentieth-century writers of importance to our theme" of the dialogue between science and religion (p. 207). And it is just that. McGrath offers a brief biographical sketch and a very brief outline of the ideas—about two pages for each person—of Barbour, Charles Coulson, Arthur Peacocke, Polkinghorne, Pierre Teilhard de Chardin, Wolfhart Pannenberg, and Torrance. These pieces are much less than what one would find in a good specialized encyclopedia article and a bit more than one would find in a biographical dictionary. The pieces are broad but accurate. But whom are they for? They may have some value to students as a miniencyclopedia, but I suspect that there is too little here for students to get a handle on each of the authors' ideas. They certainly have little value for those already familiar with the authors.

The book's flow is choppy. It contains all the important topics, but they are strung together rather haphazardly and sometimes hardly at all. And the text lacks what Barbour does so successfully—threading through the survey his own position. With much guidance and selectivity in what one assigns to students, this may be a useful textbook. A really solid textbook in the area of science and religion, something more accessible to the average student than Barbour's book, remains to be written.

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Being Human: The Case of Religion. Psychological Studies on Spiritual and Religious Development, vol. 2. Edited by K. Helmut Reich, Fritz K. Oser, and W. George Scarlett. Lengerich, Germany: Pabst Scientific Publishers, 1999. 183 pages. $15.00. (Order from pabst.publishers@t-online.de.)

The connection between spirituality and psychology is an important issue for the dialogue between religion and science. *Being Human* examines the ties between the psychology of cognitive, emotional, and social development and the development of spirituality more generally and of religious life more specifically. It is likely to be of interest both for the psychology of religion, in the tradition of James

Fowler's *Stages of Faith*, and for more religious psychologies. The researchers exhibit familiarity with a wide range of psychological literature but take their own spiritual and religious commitments seriously. This is both a strength and a weakness of this collection, producing sensitivity to the phenomena but limiting applicability and interest and even obviating comparisons between religious and nonreligious forms of spiritual development. Nevertheless, even though the subjects of some of the studies are limited to religious believers, there is much to be learned about the broad reaches of character, the spiritual aspects of children's psychological lives, the role of emotion as well as cognition in religious development, the application of narrative and dialogic strategies to religious discourse, and the broader literature on wisdom. Serious empirical work need not require leaving one's point of view at the door; studying spiritual development, as well as the psychology of subjectivity and consciousness more broadly, may even require it.

It is a courageous task. To steal Helmut Reich's metaphor, it involves steering between the Scylla of scientific norms and the Charybdis of personal experience. We could, with Aeneas, simply avoid the passage entirely. Unfortunately, a real dialogue between religion and science requires going this way. With the help of Athena, Ulysses successfully navigates the passage, but it is a frightful ordeal, and some of his crew are drowned. The work here relies heavily on the thinking of Fritz Oser, chair of the School of Education at the University of Fribourg (Switzerland), coauthor of several chapters, and three of the studies use Oser, Paul Gmunder, and Reich's theory of religious judgment. This psychologically oriented stage theory, drawing on Jean Piaget and Lawrence Kohlberg, is about changes in conceptions of one's relationship with an Ultimate Being from a more passive *Deus ex machina* understanding to a rather sophisticated integration of transcendence and immanence. While this model might be extended to broader religious views, including nontheistic ones, it has not been extended here. Otherwise interesting results are limited in their generalizability, and some differences in worldviews may be as much a product of particular religious conceptions as of a necessary tension between scientist and believer. Ultimately, the collection is successful in navigating its difficult passage, and we do glimpse a more open sea.

The pithy editorial introduction provides some valuable clarifications of the differences between theological and psychological accounts of spiritual development, between notions of transcendence in religious and natural spirituality, and between the different concepts and dimensions involved. It is true that development away from egocentricity is psychologically important. Nevertheless, the problem is in presuming ethnocentric, even theocentric views of transcendence as a goal, given the dualist ontology that is common in conventional Christian views. After a survey of the psychological issues and dimensions involved and a nice discussion about the common triggers and supports for psychological and spiritual development and about the dynamics of internalized relationship patterns, one has difficulty following the conclusion—that this leads to a focus on an *entity* considered *sacred* or transcendent. One can understand the common appeal to ultimate concerns, even ultimate Being, but the focus on *an* Ultimate Being does seem to restrict the theological applicability.

The spiritual development of Abraham Lincoln provides a rich and well-articulated case study. George Scarlett argues that current theories ignore history and culture as well as theology and character. He describes spiritual development in

terms of Lincoln's particular faith but also in terms of his high ideals and his specific efforts to improve his character. Scarlett provides real perspective here, encouraging direct attention to the source of real virtues, including responses to complex moral challenges. This chapter is a pleasure to read and provides valuable insight into spiritual development of "the better angels of our nature" and the role of particular theological norms in meeting historical and cultural challenges.

Pawel Socha provides a model of spirituality as a way of coping with our existential situation, especially with respect to shocking or distressing events that alert us to our finitude and imperfection, and he provides some philosophical grounding for this collection. His model involves explanatory appraisals via cultural worldviews (which are, of course, often religious) and a transformation involving the elaboration of a sacred object (religious or otherwise). Spirit emerges entirely from psyche, as a natural psychic attribute, in a phenomenologically spontaneous response to existential awareness. Socha is on the right track toward an expanded view of spiritual development that can include the religious. My own experience is that it is students who have faced the sort of existential moment to which Socha refers, who actually have internalized their parents' religion or elaborated some other "sacred object." This is ripe for empirical testing.

While Scarlett and Socha provide needed historical and philosophical background, Rebecca Nye's sensitive empirical work with young, largely unchurched English children probes deeper into the development of a broader spirituality. Nye documents her open-ended methods well and uses an explicitly inclusive notion of spirituality, but whether she is uncovering or constructing their spirituality is not always clear. Even the children indicate that these experiences rarely get this kind of attention, that they are not discussed with peers and might even be ridiculed by adults. Still, she quite usefully targets a wide range of common experiences that deeply matter to these children. Nye links spirituality to the children's attention to unseen factors and ties it to their ability to see the workings of other minds. I would agree that this is a good model of how we understand higher meanings. She also identifies a methodologically unexpected core category of *relational consciousness*, including a comparatively unusual level of consciousness or perception. Finally, Nye draws out some valuable convergences with mainstream psychology, in terms of "other minds," attention to nonimmediacy, of relating *me* and *now* to *you* and *sometime*, of self-awareness, and of the need to address personal significance.

The next four chapters have less value for a broad theory of spiritual development. Restriction to religious material and Christian believers limits their generalizability. Wendy Smoliak's study, for example, done at a nondenominational Christian school in rural Georgia, is on children's responses to questions about a single biblical story. She does find some developmental patterns, children not understanding the concept of faith before about age 8 and not elaborating nonliteral messages until about age 12. Her data provide clear support for social influences on religious development, but the absence of even stage 3 deistic religious judgments from her adolescents (Oser and Gmunder found 50 percent arguing at stage 3) suggests that this religious environment may slow the evolution toward stage 3.

The chapter by Ingrid Josephs and Jaan Valsiner on mother's dialogic strategies in dealing with miracles is conceptually more interesting, but it also draws on limited material. They address "circumvention strategies" for negotiating between fixed rules and personal need. In the case of "miracles," such circumvention allows

separate but incompatible domains of belief, such as how a religious belief system classifies events that are unverifiable but that contradict scientific understanding, and they summarize evidence for a range of such strategies. I have no doubt that, empirically speaking, this is a common belief-protection strategy, and a microgenetic analysis is valuable in unpacking it. But does even Christian theology require a belief in supernatural, miraculous events that are inconsistent with science? A foolish consistency may indeed be the "hobgoblin of little minds." Unfortunately, unless one holds a view of science and religion as necessarily in conflict, "circumvention strategies" may produce fragmentation and incoherence as well as individual dysfunction.

The next two studies, though also limited to believers, are more empirically useful. Hartmunt Beile's study of religious emotion and religious development unpacks the religious emotions within Oser and Gmunder's stages of religious judgment. Most of Beile's subjects score around Oser and Gmunder's transitional stage 3, the deism stage. Early-stage subjects express more fear, pride, and gratitude. Stage 3 subjects begin to show separateness and doubt and to reject protection, fear, pride, and longing. Subjects at higher stages begin to show joy/awe and longing. Beile suggests a model in which earlier stages are driven more by cognitions about religious inconsistencies, intermediate stages involve longing and perceived lack of support, and later stages show a shift to interindividual and transindividual understandings of self and emotions related to humility, serenity, and "letting go." This heuristically useful, dynamic model might be a bridge to spiritual experiences present even in the nonreligious.

Brigitta Rollent and Anita Kager present a pilot study that counters claims about the emotional limitations of traditional religious involvement. Using a battery of tests that examine religious judgment, emotional schemata, personality characteristics, and responses to a community dilemma, the authors find that a set of religiously oriented subjects (members of Catholic orders and lay organizations) not only have high levels of religious judgment and operate by fairly sophisticated emotional schemes but have above-average social orientation and life satisfaction. Even if traditional religious forms can meet the needs of a rather special subset of practitioners, however, they need not do so for most. Moreover, Rollent and Kager provide no comparison with committed members of alternative religious traditions or even liberal/humanist organizations. Still, their "existence proof" is commendable in its armamentarium of methodologies attending both to religious development and to mainstream psychology of personality, social orientation, and life satisfaction, and it may provide a useful tool.

The final chapter addresses an action-oriented approach to wisdom, which does not show any marked differences across religious development. Oser, Dominick Schenker, and Maria Spychiger differentiate between understandings of wisdom that depend on persons, situations, or actions and warn against a "King Solomon Effect," a tendency to misattribute wise actions to wise persons. Clinical interviews result in a set of criteria for a form of unexpected, extraordinary action. Factor analysis results in the inclusion of their seven criteria: counterfactuality, moral integrity, selflessness, overcoming of internal and external dictates, change in the power relation, absolute risk, and nonacceptance of pain and suffering. Mainstream models of wisdom are shown to bear more on attitudes, intelligence, or expertise than on the action-oriented wisdom addressed here. It does seem that spiritual

development should make wise acts more likely. The theory proposed here also fits Scarlett's argument that spiritual development may depend as much on circumstance and contingency (grace?) as on more enduring characteristics of individuals.

For *Zygon* readers with an interest in psychological and spiritual development, this small but far-ranging research collection is likely to be interesting and provocative. Despite its tendency to focus on the religious, it does help clarify the relationship between religious, spiritual, and psychological development. It also connects a research paradigm well rooted in developmental psychology, thoughtfully extended into the world of believers, to a wider set of views about spirituality. Given the courageous voyage represented by this volume, as well as its rich theory and data, it is unfortunate that its publisher has no North American representative, particularly given the value of this work to the American scene. Fortunately, this slim volume can be ordered from Germany, and the modest cost includes shipping.

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The Triune Creator: A Historical and Systematic Study. By Colin E. Gunton. Grand Rapids, Mich.: Wm. B. Eerdmans, 1998. x + 246 pages. $25.00 (paper).

Colin Gunton, professor of Christian Doctrine at King's College, London, has already written widely on aspects of this topic—*The Promise of Trinitarian Theology* (T. & T. Clark, 1991); *The One, the Three and the Many: God, Creation and the Culture of Modernity* (CUP, 1993); and three essays in *The Doctrine of Creation* (T. & T. Clark, 1997), which he edited. In *The Triune Creator* things are brought together on a larger scale, but in a way that will be no surprise to those who know his earlier work. The book aims, as its subtitle declares, to be both historical and dogmatic. (Indeed, in the Preface the author says that ideally it would have been a two-volume work.) In extent the historical predominates; there are chapters on the Bible, the Greeks, and the question of ontology; on "Towards a Theology of Mediation"—the second and third centuries; on "Creation out of Nothing"—Athanasius to Augustine; on "A New Theology of Nature"—from Scotus to Kant; and on "Returning to the Trinity"—from Luther to Barth. There are three final chapters that are more directly dogmatic in orientation: "Creation and Providence," "Creation and New Creation," and "Eschatology and Ethics." But, as the chapter titles and chronological overlaps suggest, the presentation of the historical material is governed by a strong doctrinal thesis that it is the aim of the book to promote.

The thesis may be spelled out roughly as follows: A truly biblical and Christian doctrine of Creation has a number of features that distinguish it sharply from Hellenistic cosmologies. It must eschew any trace of emanationism, of Platonic forms in the mind of God, and of ontological distinctions of a hierarchical kind within the created order (such as the superiority of mind over matter); rather it must be unqualifiedly trinitarian and christological in character. This proper view

of the doctrine finds paradigmatic early expression in Irenaeus's understanding of creation as mediated by the Son and the Spirit, the two hands of God, also themselves God. Only a doctrine of this kind can ensure the goodness of the material world, as a reality that has its own proper *Selbständlichkeit* while at the same time being a purposive project in which God is at work. Despite the early emergence of this vision in the work of Irenaeus, the true character of the doctrine has been obscured and distorted throughout most of the history of the Western church. Although formally affirming creation out of nothing by the Triune God, Augustine and Thomas Aquinas (unlike the leading thinkers of the Eastern church) allowed themselves to be misled by Platonic and Aristotelian ideas into presenting an overly monistic view of God's willing and acting that gave rise to an unmediated and therefore oppressive conception of the world's dependence on God. Only since the Reformation has there been a gradual and far-from-complete liberation from this "Babylonian captivity of the doctrine of creation."

Many questions have been raised about the validity of this historical thesis in response to Gunton's earlier writings, but a review in this journal is not the place to pursue those historical questions. I propose to concentrate on how his argument impinges on matters concerning the relation between theology and science—an approach that will give rise to some fundamental questions about Gunton's theological method.

Gunton explicitly states that he is not setting out to write about the relation of theology to science but that some of the things he has to say are relevant to the topic (p. 97). There are two main points of contact. Historically he sees Christian theology as providing a framework of thought that contributed to the development of early modern science, but in no straightforward or triumphalist manner (p. 104). Although even in its Babylonian captivity the doctrine of Creation was helpful, it was not as helpful as it might have been, as some of the conceptual shortcomings of Newtonianism bear witness—though Newton himself receives more sympathetic treatment than in some otherwise broadly similar theological critiques (p. 129).

But in Gunton's view it is in relation to the doctrine of Providence rather than that of creation out of nothing that the most significant contacts between theology and science are to be found today (p. 178). His emphasis on the role of the Spirit in the continuing work of creation makes it important for him to give substance to the idea of present divine action in the world. Although elsewhere he issues a general warning against putting one's trust in the latest scientific theory (p. 190), he does at this point "make some supporting use" of the anthropic principle, of some versions of chaos theory, and of the apparent implications of quantum theory (p. 178). But for him all this is secondary, rather than essential, support. Theology's real foundation is in revelation, and it "should stick to its dogmatic last" (pp. 190-91). Even the doctrine of creation out of nothing needs to be grounded in God's free involvement in the world in Jesus Christ (p. 95). Theology, it would seem, can pursue its own course with its own resources, confident that its insights will cohere with those of science in the long run, even though scientific theories of the moment may seem to be in conflict with them. Nothing is said about the possibility that theology might need to amend its views in the light of advances in scientific understanding.

What, then, constitutes this secure dogmatic method grounded in revelation? Past errors have arisen not only from the distorting influence of Hellenistic ideas (which is a prominent theme in Gunton's historical account) but also from "an unnecessarily rigid view of biblical inspiration" (p. 115). How, then, is the crucial revelation given? The Bible remains essential, but so too is "a properly theological approach to scripture as a whole" (p. 63). This theological (or canonical) reading of the Bible is a highly contentious business, however. It does not automatically lead to the particular theological vision that Gunton derives from it. Such reading can be done (insofar as it can be done at all) only by bringing to bear on the diverse material of scripture criteria of judgment that are conditioned by the culture, including the scientific culture, of the day. Theology has its proper methods, but they do not stand in such isolation from the methods of philosophy or of science as Gunton's argument suggests.

It is not only providence but also the goodness of the created order that is highlighted by Gunton's radically trinitarian doctrine of Creation. This, as he acknowledges (p. 39), makes the fact of evil a major difficulty for his approach, yet it does not seem to receive the attention it deserves. Gunton is content "to derive [it] from something external to the creation, almost certainly personal wills or a personal will" (p. 171), and to say "the created order suffered a primal catastrophe of cosmic proportions, and that human sin . . . is in some way constitutive of it" (p. 172). It is not hard to see how such ideas may be derived from his canonical reading of scripture (as are his unexplained references to "fallen time" and "fallen flesh" [pp. 221, 223]). It is not so clear whether they are consistent with the central tenet of his doctrine of creation, let alone how we are to make credible sense of them.

This is a learned and well-written book, and worth disagreeing with. But I see it as evidence that theology needs to allow a more constructive (though not unchallenged) role to the culture—including the scientific culture—of its day than the author thinks proper.

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Phantoms in the Brain: Probing the Mysteries of the Human Mind. By V. S. Ramachandran and Sandra Blakeslee. New York: William Morrow, 1998. 343 pages. $27.00.

At the 1997 Conference of the Society for Neuroscience in New Orleans, V. S. Ramachandran, director of the Center for Brain and Cognition at the University of California, San Diego, coauthored a scientific poster entitled *The Neural Basis of Religious Experience*. It was one of three posters at the meeting that carried his name, but it was unique because on it alone was Ramachandran listed as presenting author. In the months following the conference, the discovery of the brain's "God module" was reported by major news outlets in the United States and Europe and discussed in forums of conversation on religion and science. Ramachan-

dran himself gave a talk at the Symposium on Neuroscience and Theology (sponsored by the Center for Theology and the Natural Sciences and the Templeton Foundation) at UCSD that following January. His presentation positioned his research on religious experience and the brain in light of his work on phantom limbs and other illusory experiences that often constitute an individual's reality.

Phantoms in the Brain, written with science reporter Sandra Blakeslee, is a continuation of this discussion, and it is Ramachandran's distinctive voice and perspective that makes the book entertaining and informative. His aim is nothing less than a comprehensive survey of the bizarre in the realm of brain and behavior. Although Ramachandran realizes that his methods are unconventional, to say the least, he justifies his approach by identifying himself (modestly) with Michael Faraday. Faraday was prominent in beginning the scientific study of electricity and magnetism, and Ramachandran sees his own work as being of the same import as Faraday's experiments that showed the existence of magnetic fields. He is certain that "neuroscience today is in the Faraday stage" (p. 5) and holds little hope for today's scientists who try to theorize formally (that is, mathematically) about the brain and to conduct experiments accordingly. His statements at times are made intentionally "to annoy [his] colleagues" (p. 202) or "just to annoy philosophers" (p. 151). Doubtless he will accomplish this, but the clear, jargon-free writing, the sheer strangeness of the phenomena, and the bold claims make Ramachandran and Blakeslee's work anything but annoying to the general reader.

Readers will meet a woman whose left hand is intent on strangling her in "The Phantom Within"; a man who can relieve itching in his phantom hand by scratching his face in "Knowing Where to Scratch"; the amputation of a phantom limb in "Chasing the Phantom"; a zombie who plays dominoes in "The Zombie in the Brain"; a man who hallucinates a monkey on Ramachandran's lap in "The Secret Life of James Thurber"; people who think that mirrors are windows in "Through the Looking Glass"; the effect of ice water on memory in "The Sound of One Hand Clapping"; a man who thinks his family has been replaced with impostors in "The Unbearable Likeness of Being"; a woman who has all the signs of pregnancy except the baby in "You Forgot to Deliver the Twin"; a woman who dies laughing in "The Woman Who Died Laughing"; and psychic neurons in "Do Martians See Red?" Interspersed among these interesting stories, of course, are Ramachandran's interpretations of the underlying neural correlates.

Readers of *Zygon* may be most interested in chapter 9, "God and the Limbic System." Ramachandran relates the case of Michael Persinger, a Canadian psychologist who "experienced God for the first time in his life" (p. 175) when he stimulated the temporal lobe areas of his brain with a localized magnetic field. He wonders aloud whether this would make Francis Crick a theist. He reviews the studies showing that patients with temporal lobe epilepsy (TLE) occasionally report intense religious experiences and occasionally adopt behavior associated with very religious people. Ramachandran then posits four possible explanations for these phenomena.

First, it could be that "God really does visit these people. If that is true, so be it. Who are we to question God's infinite wisdom?" (p. 182). Ramachandran appears to recognize the limits of empiricism, as his "goal as a scientist . . . is to discover how and why religious sentiments originate in the brain, but this has no bearing one way or the other on whether God really exists or not" (p. 185).

Second, these patients could simply be on emotional overload, needing "ablution in the calm waters of religious tranquility" (p. 182). Ramachandran thinks this unlikely because other affective brain disorders do not give rise to religious experience to the degree that TLE does.

Third, there is a possibility that episodes of TLE have caused the brain to "rewire" in a way that makes most visual or auditory stimuli highly emotionally significant. But results from Ramachandran's own work (including the work presented at the 1997 conference) show a selective response to distinctly *religious* stimuli.

Finally, Ramachandran asks whether the brain could "have actually evolved specialized neural circuitry for the sole purpose of mediating religious experience" (p. 183). He follows this question with an unhelpful foray into evolutionary psychology—unhelpful because he does not refer to any anthropological or psychological evidence and because he rejects group selection as a legitimate evolutionary mechanism. The latter is quite problematic, for it shows that he is at least ten years behind work in evolutionary biology that shows clear evidence for group selection. This fact casts doubt on all of Ramachandran's evolutionary speculations in *Phantoms in the Brain*.

Ramachandran's main argument in this chapter, however, is for a defined brain region (or circuit) involving the temporal lobes that serves as the neural correlate for religious experience. In supporting this hypothesis, he must argue against the idea that religion is simply a cultural phenomenon arising out of human beings who have evolved high general intelligence. He does this by pointing to autistic savants. These individuals have incredible abilities in very narrow areas while lacking a developed general ability to form relationships and perform everyday functions. The stories that Ramachandran and Blakeslee tell are fascinating, yet they do little to further the question of whether there is a dedicated religious experience circuit in the brain.

Indeed, what is somewhat troubling about this chapter is that no mention is made of the control experiment that Ramachandran and colleagues presented in their 1997 poster. This experiment was identical to that involving TLE patients—electrodes were attached to the skin and galvanic skin responses measured to a variety of visual stimuli presented on a computer screen. TLE patients who had religious preoccupations showed dramatic galvanic skin responses to religious but not to other kinds of stimuli. This is the basis for Ramachandran's involving the temporal lobe in religious experience.

However, normal persons who considered themselves "very religious" showed generally weak galvanic skin responses to the same religious stimuli. These same "normals" showed strong responses to stimuli known to generally evoke strong responses, so there was nothing wrong with their "circuitry." Thus, Ramachandran's hypothesis about the temporal lobe as part of a "God module" leaves unexplained why healthy temporal lobes in very religious people do not evoke strong responses to religious stimuli. If anything, the response from normal, very religious people should be stronger, inasmuch as their temporal lobes are undamaged.

This criticism is minor, however, when compared to the amount of thought-provoking information and speculation that Ramachandran and Blakeslee provide in *Phantoms in the Brain*. Philosophers of mind will find additional, perhaps more significant, problems with Ramachandran's treatment of qualia in "Do Martians See Red?" Apparently Ramachandran does not understand the basis of what David

Chalmers has called the "hard problem" of consciousness. But these same philosophers will also discover less-traveled roads of the mind/body problem and a capable, entertaining guide in V. S. Ramachandran.

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Feuerbach and the Interpretation of Religions. By Van A. Harvey. Cambridge: Cambridge Univ. Press, 1995. 322 pages. $59.95 ($18.95 paper).

Few if any figures from the past can offer a personal name that described the nature of their impact on their contemporaries as did Ludwig Feuerbach. He was a "Feuerbach," an intellectual "stream of fire," for many people in 1840s central Europe. The book that was the incendiary explosion was *The Essence of Christianity*, and its pages still seethe with heat even in its 1854 translation.

Nevertheless, Feuerbach's fate has been largely one of confinement to the role of a bridge between Georg W. F. Hegel and Karl Marx, and his wider thought has generally been ignored or allowed to remain in the shadows in the English-speaking world. About thirty years ago, however, this began to change with the advent of a number of translations of other important books by Feuerbach and then the appearance, beginning in 1969, of books in English devoted to his thought. These valuable works discuss Feuerbach's general philosophy or focus on his work prior to *The Essence of Christianity*. Van A. Harvey's book is the initial one that focuses on the topic that was central for Feuerbach, the interpretation of religion and Christian theology, by tracing Feuerbach's views from *The Essence of Christianity* through *The Essence of Faith according to Luther*, *The Essence of Religion*, and the *Lectures on the Essence of Religion*.

Harvey's book provides, for the first time in English, a full study of Feuerbach's central work on religion by a scholar who is equipped by education and background in Christian theology and the philosophy of religion, who possesses a long familiarity with nineteenth-century thought and also is well acquainted with social-scientific and anthropological studies of religion. Harvey, Burnell Professor of Religious Studies at Stanford University, thus brings a great breadth in intellectual resources to his study, and the result is an outstanding contribution on his part that takes the reader into a most penetrating analysis of Feuerbach's thought. I say this notwithstanding my own disagreement with a major thesis of this book, which I note below.

Harvey begins by locating Feuerbach in the arena of the "hermeneutics of suspicion," a phrase used by Paul Ricoeur for the masters of the genre—Marx, Friedrich Nietzsche, and Sigmund Freud. Harvey thinks Feuerbach has been unjustly ignored here because Feuerbach was the first one to systematically elaborate a thorough critique of religion on the basis of a theory of projection, some versions of which are used by the three masters mentioned and usually by many of their intellectual heirs. Ricoeur's comment that the three masters did not want only to destroy religion I find difficult to justify. The statement does fit well with Feuerbach,

however, for Harvey brings out well how Feuerbach's dialectical stance toward religion aligns him with the three famous names: in the negative respect of the falseness involved in religious projection of God and in that Feuerbach also thought that religion positively enshrined "the deepest and most profound insights" into human nature. In Christianity, for instance, the attributes of love and justice are truly to be worshiped, even though they are to be freed from their erroneous association with a being separate from the human. Feuerbach saw himself as a prophet or reformer crusading for the aspect of truth in religion. He once referred to himself as a "second Luther."

Harvey characterizes his project in the book as a rational reconstruction of Feuerbach, this phrase being used as a contrast to a strictly historical reconstruction that is meant to be a rethinking of the subject in the subject's own time. Rational reconstruction has another aim. It is intended to conduct a dialogue with the past in such a way that current issues and questions are addressed but on the basis of the historical person's sources. The thinker had ideas that need restating and improving over their original form but can significantly address present issues. Conversely, more recent material may provide the means for refuting views present in the historical subject. It is this kind of project that Harvey undertakes in this book. Consequently, after his thorough analysis of Feuerbach, he turns in the last eighty pages to presenting Feuerbach's ideas reconstructed into confrontation with those of recent social scientists and anthropologists. There are many sharp-minded and valuable observations here in the interactions between Harvey's rendition of Feuerbach and the works of twentieth-century writers on the nature and function of religion.

Nevertheless, in order to accomplish his rational reconstruction, Harvey needs to ground his position in the historical reconstruction of Feuerbach, and this constitutes the major part of the book. Harvey has a thesis: The very brilliance of *The Essence of Christianity* has obscured Feuerbach's subsequent work. Beginning with the book on Luther, Feuerbach revises his interpretation of religion and in so doing frees it from its enmeshment in Hegelian categories. The result is a new interpretation of religion, one that Harvey finds more interesting and valuable than that for which Feuerbach is famous. Harvey thinks that this view of religion has great contemporary relevance. He names his approach the *naturalistic-existentialist* model.

The position for which Feuerbach became famous, found in *The Essence of Christianity*, portrays religion as arising out of the structure of self-consciousness. Human beings have an internal relation to themselves and can therefore become objective to themselves. Self-consciousness can make itself its own object. The object in this relatedness, however, is not one's self as an individual, a view prominent in twentieth-century existentialist thought; rather, the *I* is internally related to the species of the human. Still, more is involved in this self-differentiation of consciousness, for the relatedness to the generic human is mediated by the concretely embodied *thou* of another person. Religion is the imaginative objectification of the consciousness of the human species and the individual *thou* so that God is felt and thought of as a spiritual, individual person.

Feuerbach advances a number of reasons for this projection at different places in his book, which rather typically he does not attempt to integrate. Much more prominent is that such projection of the species or essence of humanity as God

causes the divesting of human value from human being and the locating of it on the imagined divine object. Feuerbach sees Christianity as playing a distinctive historic role, because in its doctrine of Incarnation it makes manifest in penultimate form that the divine and the human really are identical. That which is lost and alienated in the projected divestment is reappropriated circuitously in the grace of reconciliation.

Harvey's analysis of these matters continues for more than a hundred pages, and for the reviewer this analysis is the highlight of the book. The distinctions Harvey explores in Feuerbach's procedure are most illuminating, and the quality of his reflection is a great contribution to the study of Feuerbach. Harvey shows that Feuerbach is not a wooden follower of Hegel but makes use of his own views, which are not derived from Hegel. However, Harvey has little sympathy for the influence of Hegel that remains. He thinks that the appreciation of Feuerbach by later times is blunted by the entanglement of his views with Hegelianism. A continual refrain throughout Harvey's book is that these matters in *The Essence of Christianity* are outmoded, arcane, incredibly speculative, abstruse, and—his favorite—"outdated nonsense."

Harvey's objections center on Feuerbach's use of the idea of the human species but also includes the Hegelian objectification-alienation-reappropriation schema. Harvey shows that in his use of the species idea Feuerbach perceives some strange implications, such as the virtues of the members of the human race as complementing one another and thereby adding up to perfection. Surely Harvey is right that such a view held today is nonsense, but I think it probably was in 1841 also. For instance, Schleiermacher refers to the "consciousness of kind" that is in human self-consciousness without delving into such outlandish applications. When Feuerbach introduces the species idea in *The Essence of Christianity*, it is clearly used synonymously with "human essence." Although I myself do not accept Feuerbach's atheistic use of the species or essence idea, or some of his outlandish applications, I do not consider the idea itself nonsense.

Given Harvey's rejection of the viability of these Hegelian ideas, his rational reconstructive dialogue with Feuerbach leads him to extract aspects of the discussion in *The Essence of Christianity* that he sees as subordinate themes there that become dominant in Feuerbach's thought later, especially in the *Lectures on the Essence of Religion.* These themes become the naturalistic-existentialist model mentioned above. In *The Nature of Religion* in 1846, Feuerbach advances that religion, not specifically Christian religion, arises from a dependence on nature. Nature is an all-encompassing reality that impinges on the human self from beyond it, in one respect, and through dealing with particular concrete beings, in another respect. Harvey sees this as a significant shift in Feuerbach's entire approach, because there is no need to see religious themes as generated out of a complicated structure of self-consciousness. Instead, in a new bipolar model religion comes about from the drive for happiness and satisfaction of human tendencies and desires over against the dependence on nature. The individual's "rage to live" in the face of suffering and death spawns religion, rather than the dynamics of the structure of self-consciousness. Imagination still plays the key role in creating a divine world without reality so that religion is seen more as "an erroneous interpretation of the encompassing mysterious powers impinging upon the self and upon which it is dependent" (p. 191). Harvey prefers not to call this naturalistic-existentialist model a

projection theory of religion. That is too prejudicial. It is a model that religious faith interprets in one manner, while Feuerbach interprets it in another. For the latter, religion would be a wrong interpretation of nature. Harvey's view is that this model of Feuerbach's later view actually replaces the position of his previous work, even though there are still remnants of the earlier.

Harvey is aware that Feuerbach did not see his work and the relation of *The Essence of Christianity* to the *Lectures* in this manner. Feuerbach says that one of the works deals with the religion of nature and the other with personal or spiritual religion. But the "suspicious" Harvey shunts Feuerbach's statements aside and rejects the views of commentators like F. C. Copleston who take Feuerbach's self-interpretation at face value. Harvey says that there are "one or two passages in the *Lectures* that may seem to support this view," but he moves easily past this interpretation.

I have to say that I think Harvey is in error on this matter. There are more than one or two passages. The programmatic third lecture in the *Lectures* lays out Feuerbach's rationale for the book and its focus on nature. In six other lectures he brings up the projection of the human genus or essence as God. In the nineteenth lecture he says that he concludes his remarks on nature as the first half of his task and "I now proceed to the second and last part, which is to prove that the God differentiated from nature is nothing other than man's own essence, just as in the first part I set out to demonstrate that the God differentiated from man was nothing other than nature, or the essence of nature" (*Lectures*, pp. 174–75).

Of course, Harvey knows these texts, but I hold that much more is called for in overcoming them than Harvey presents. If in his rational reconstruction Harvey wants to "project" Feuerbach's view on religion and nature as the viable aspect of his arguments, naturally he is free to do so, but Harvey presents the matter as if Feuerbach has really given up the argument from self-consciousness. The fact that Feuerbach's multiplicity of arguments do not fit easily together is not only obvious when comparing *The Essence of Christianity* and the *Lectures*; it is also a characteristic of Feuerbach's writings internally, in either book by itself. Once one accepts the idea that some religions are oriented to the natural world and others to the personal, spiritual, historical character of humanity, one must differentiate the accounts that "explain" them. Feuerbach did not relinquish that idea, so his integration of the fabric of his arguments may have been lacking, but that should not be used to eliminate one side of Feuerbach's interpretation of religion.

Harvey's book thrusts the interpreter deeply into the issues raised concerning religion. His own thesis on the models of interpretation has the merit both of calling attention to Feuerbach's work on nature and religion, which in English has usually been ignored, and also of proposing a way to understand the nature and function of religion in human life in contemporary discussion. I have learned from Harvey's sparkling book, and I am confident that other readers will also.

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