Reviews

The New Genesis: Theology and the Genetic Revolution. By RONALD COLE-TURNER. Louisville, Ky.: Westminster/John Knox Press, 1993. 127 pages. $12.99 (paper).

Books about genetic engineering from a theological perspective tend to fall into two categories. The first category comprises works which take a generally hostile stance to contemporary applications of genetic techniques in which scientists are viewed with suspicion as those "playing God." The second category of books welcomes the new technology of genetic engineering as one of God's many good gifts which can be used positively for the extension of his kingdom. This particular book falls into this second category and is a serious attempt by a theologian to wrestle with the theological issues raised by the new powers given to humankind which derive from recombinant DNA technology. *The New Genesis* is well written, accessible to the nonspecialist, and reasonably well-referenced, and it has a recommended-reading list.

The book begins with a chapter briefly outlining the basic techniques used in genetic engineering together with some examples of their practical applications. The scientific material here, as elsewhere in the book, is accurate on the whole, although there are some notable lapses. For example, it is claimed (p. 87) "that we all inherit genetic defects that affect our physical and personal qualities." This apparently innocuous statement is deeply flawed. With respect to physical qualities, there is certainly much evidence that all healthy individuals are heterozygous for a whole range of deleterious genes which, if both copies of the gene were defective (the homozygous condition), could lead to a life-threatening disease. But heterozygosity for defective genes is associated only rarely with disease, and the author's claim is therefore incorrect. Neither is there a scrap of evidence for the genetic inheritance of "personal qualities." Indeed, there is some very uncritical discussion in this book about the claims made for the inheritance of human behavioral patterns and even belief systems, claims based on studies of twins (for example, pp. 24–25). The interpretation of such data is far more complex and controversial than the author appears to realize. This is an important point because the idea that human behavioral patterns are encoded by genes is assumed at several other places in the book, generating the assumption that genetic engineering techniques could, in principle, change such patterns. For example, the author claims that "As we unravel the relationship between genes and behaviour, we will also learn that we have each inherited a unique genetic behavioural makeup" (p. 88). The implication here is that each individual has different genetically encoded behavioral patterns which will inevitably unfold as they grow older. Again, there is no evidence suggesting that this is the case. Indeed, it is far more likely that in the event that *any* human behavior is eventually shown

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to be inherited it will turn out to be something with a strong selective advantage and distinctly non-unique (such as suckling in the newborn). The tendency in the book to assign percentage contributions to either genes or the environment for complex human behavioral patterns is likewise fraught with difficulties. So tight and rapid is the information flow between individuals and their environment that the assigning of percentage contributions for their beliefs or behavior to either their genotype or to their environment has every appearance of a wild goose-chase. Even studies on the behavior and beliefs of identical twins reared apart, which are superficially convincing, have proven far more difficult to interpret than expected (for a vigorous critique, see *Not in Our Genes* by S. Rose, L.J. Kamin and R. Lewontin [New York: Penguin Books, 1984]). Therefore, the idea that genetic engineering could one day be used to manipulate specific human behavioral patterns must for the present remain highly speculative.

Having outlined the scope of genetic engineering, Cole-Turner then attempts to build his first bridge between religion and technology (chapter 2, "What Are We Doing"). Unfortunately, this attempt is made by reference to the claimed early relationships between religion and agriculture, a relationship characterized more by imaginative speculation than by firm data, as the author appears to accept (p. 31). The previous four hundred years of the history of science would surely have provided a wealth of material to call attention to the fascinating interactions between religion and technology (see, for example, *Science and Religion—Some Historical Perspectives* by John Hedley Brooke [Cambridge: Cambridge Univ. Press, 1991]). Why build on the speculative bridges of prehistory when firm bridges are already available as a result of contemporary historical research? Despite this caveat and the rather disjointed nature of chapter 2, some useful points emerge, not least that the processes of genetic engineering are nothing new, the reagents and techniques being used depending on the existence of restriction enzymes, ligases, plasmids, and viruses, all of which have been in existence for millions of years. Starting from this observation, Cole-Turner carries out a thorough critique of the idea that the genetic machinery per se is sacrosanct.

Chapters 3, 5, and 6 take us to the central theological arguments of *The New Genesis,* while chapter 4 consists of a rather unsatisfactory potpourri of the views of various theologians and church councils on the issues raised which do not add greatly to the author's own comments in the other chapters. Chapter 3 asks the highly relevant question: What is the purpose of genetic engineering? The difficulties of extracting a meaningful answer to this question out of the process of evolution itself are well expounded. Criteria of "biological progress" in evolution are ambiguous. The ability to process information requires a large brain, but the resulting increase in head size is a reproductive hazard, thereby reducing reproductive rates. Which of these changes constitutes "progress" from an evolutionary point of view? Cole-Turner concludes "that evolution itself has failed. It has produced us but cannot direct us. Nature will not guide us in the right way to act on nature; evolution will not direct our redirection of evolution" (p. 60).

Given that the study of natural processes per se generates no coherent ethic that is of any use when deciding how to utilize our increasing knowledge of

those processes, it is apparent that ethical decisions concerning the applications of genetic engineering will have to find their basis elsewhere. The answer to the first question of the *Westminster Shorter Catechism*, "What is the chief end of Man?," has the succinct answer, "Man's chief end is to glorify God, and to enjoy him forever" (p. 61), and Cole-Turner takes this statement, surely correctly, as the starting point for the application of Christian theology to the varied potential uses of genetic engineering. To work for the glory of God "is to seek to participate in the redemptive and creative work of God" (p. 62). The remainder of the book is spent in working out what it means to so participate.

It is a curious fact that scientists who write about theology tend to assume that the scientific terms they use will be generally understood, whereas theological terms are carefully defined and hedged around with qualifications. With theologians the process is reversed, so that in this book terms like *gene* and *genetic engineering* are carefully defined (pp. 15–16), whereas the words *redemption* and *creative work* are introduced into the discussion without definition. This is a pity, because even by the end of the book the usage of the word *redemption* in the context of the created order still remains somewhat ambiguous. The characteristic New Testament word for "redemption" is *apolytrosis*, which is used ten times and which has there the clear meaning of "deliverance on payment of a price," the price being the atoning death of Christ on the cross (for example, see Rom. 3:22–26 for a definition). The familiarity of the first-century Palestinian culture with slavery made this the obvious analogy to use when explaining the meaning of the cross. Just as prisoners of war might be released on payment of a price called a "ransom" (Greek: *lytron*), so Christ's death was pictured as a "ransom for many" (Mark 10:45) which released people from the slavery of sin. *Redemption* was the theological term used to describe this process. Can this same term be applied to the created order? Certainly the effects of Christ's death are seen by the New Testament writers as extending across the whole created order and Cole-Turner reminds us of Col. 1:15–17 (p. 83) where the comprehensive implications of the cross are made explicit. Yet, in a notable omission, Cole-Turner does not refer to another famous Pauline passage, Rom. 8:18–25, in which the creation is seen as waiting for its liberation from "its bondage to decay." The context of the passage makes clear that this liberation is directly linked to the emergence of God's new family, who are already beginning to experience "the glorious freedom of the children of God" (v. 21). This vision of a liberated creation is not a psychological pill to make Christians feel complacent in the face of environmental devastation but a mandate for action for those who have already experienced "the first fruits of the Spirit" (v. 23). It is the redeemed community who are the key to the redemption of Creation—why else would Paul picture the Creation as waiting "in eager expectation for the sons of God to be revealed"? (v. 19). In such vivid metaphors does the New Testament make clear the intimate relationship between personal and global redemption: the *lytron* is the same in both cases—the cross of Christ—but just as the cross has past, present, and future implications for the individual Christian, so the implications of the cross for the created order are worked out from the same three perspectives. The redemption of Creation is therefore not merely a future pious hope, but a present reality as the redeemed community uses wisely and encourages others to use

wisely, the immense technological powers for good and evil that are now in their hands.

To be fair to Cole-Turner some aspects of these themes are mentioned. On page 83 the work of Christ coming "to reclaim his own creation from the effects of creaturely sin and rebellion" is contrasted with Plato's demiurge "coaxing matter to submit to form." And in a very brief aside (p. 90) a link is made between the redemption of the individual and the redemption of the natural world. Considering how often the term is used in this book, it is a pity that the theological concept of "Redemption" is not explained more fully in order to elucidate its personal and global aspects within the context of the applications of new technologies.

Behind the ambiguity of the concept of redemption in *The New Genesis* appears to lie a further ambiguity, that of the "disorder" of nature, another term in frequent use without clear definition. Cole-Turner suggests that even prior to the entry of human sin "creation is good yet disordered" and that "the disorder of nature permeates human nature, disordering the human person from the beginning" (p. 86). It is not at all clear, however, as to the standard of "order" against which this postulated state of "disorder" is supposed to be measured. The concept of a historical Fall is rejected, although it appears to be John Wesley's interpretation of the Fall in particular that is discarded (pp. 84–85). Even so, there is no need to throw the baby out with the bath water. It is perfectly possible, as many do, to maintain a position halfway between that of John Wesley and Cole-Turner in which the Fall of humankind in disobedience to God has no direct effects upon the natural order but indirectly has devastating effects as a result of the consequent alienation of humankind from their creator. For example, good stewards of the environment become bad stewards. It is this view that makes an immediate and obvious link between the redemption of people and the redemption of the natural order, as outlined above in the context of Rom. 8:18–25. But Cole-Turner appears to discard this schema and instead suggests "that genetic inclinations for good and evil are acquired through the same process of genetic inheritance. Aggression and altruism evolve together" (p. 88). Nevertheless, if this is the case, how are we to label "genetic inclinations" as being "good" or "evil"? The argument is open to the author's own critique against the attempt to derive ethics from the process of evolution per se. Furthermore, "evil" is not the same as biological aggression any more than "good" is contiguous with biological altruism. Conflation of terms carrying technical biological meanings with words from the discourse of ethics always leads to confusion. In the final analysis, the rejection of a historical Fall in *The New Genesis* creates more problems than it is intended to solve, and "disorder" turns out to be a rather shaky substitute on which to base a mandate for the genetic manipulation of the created order.

The author is surely on much safer ground in his proposal that the healing miracles of Jesus provide a basis for our interventions in human disease (pp. 80–83). Clearly, "if the world were exactly as God intends, it would be beyond moral improvement, and we would not be permitted to alter it, even if we wanted to" (p. 93). But Jesus did in fact set out to heal as a "manifestation of God's power and will" (p. 81) and his "actions are . . . expressions in narrative form of what God intends for the creation, particularly in respect to the health of human beings" (p. 82). Therefore,

irrespective of the root causes of human disease, it is clearly something counter to God's ultimate intentions for humanity and this insight provides a firm basis for the use of genetic technology to intervene in the natural order on behalf of human health and welfare. The last two sections of chapter 5 develop this theme strongly and positively using "re-making a garden out of a wilderness" as a picture of such "redemptive technology" (p. 95).

In the final chapter ("Participating in the Creation"), the author considers the extent to which genetic engineering can be perceived as "a creative exploration of the new" (p. 98). The use of the term "cocreation" by a number of writers to express our cooperation with God in his creation is critically analyzed and eventually found wanting. In its place, Cole-Turner prefers to focus attention on God who is the "worker" and on human technology as finding its ultimate meaning and inspiration in what God is doing as the "gardener," "potter," "builder," and all of the other rich metaphors that expound the immanence of God in Creation. In this sense, we are less like cocreators and more like those who, as they plant and build, see their activity taking on a new meaning and realize that they are participating in an activity of God. Precisely the same point emerges in the context of genetic engineering, which "uses the natural processes of genetic recombination that have existed in nature for several billion years. Without these natural processes of genetic recombination across lines of descent, evolution would be such a slow process that we (along with most other organisms) could not yet have evolved." So, "With this new understanding, we can affirm something more about the Creator. Saying metaphorically that God engages in genetic engineering is simply another way to picture God's patient involvement in the fine detail of the evolution of life" (p. 108). This last chapter is a mine of useful insights and helpful analogies and is, despite its brevity, probably the strongest chapter in this book. Yet it is a curious omission that the concept of stewardship, which has played such a central role in Christian thinking about our responsibilities toward the created order, receives no mention in this chapter or elsewhere.

In the final analysis, *The New Genesis* is a rather frustrating book to read because it contains many helpful ideas and arguments, but these are presented against a backdrop of theological ambiguity in which many concepts lack clarity and in which the twin themes of Redemption and Creation are presented within a framework that, in the opinion of this reviewer, lacks coherence. Furthermore, there is a worrying naïveté about the concept that specific human behavioral patterns are inherited. It is clear that the definitive work on "theology and the genetic revolution" has yet to be written but, with careful selection, the writer of that volume will find many ideas in *The New Genesis* which are ripe for further development.

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COLE-TURNER RESPONSE TO ALEXANDER

I want to thank Denis R. Alexander for his perceptive critique of *The New Genesis*, and the editors of *Zygon* for permitting me to respond to some of the important questions that Alexander raises.

His criticisms center on two points. First, he believes I have seriously misconstrued the relationship between genes and behavior, as understood by recent genetics research. Second, he argues that my doctrine of the Fall and the related theme of the Redemption of nature are "shaky." Although Alexander does not connect these two criticisms, they are indeed deeply connected. So I will try to show, not only why I disagree with Alexander, but the connection between our disagreements.

Alexander claims that there is not "a scrap of evidence for the genetic inheritance of 'personal qualities,' " such as behavioral traits. I could, at this point, cite study after study, any one of which would constitute more than a "scrap of evidence." I will limit my references to two, in order to indicate the kind of work on which I am basing my understanding of the relationship between genes and behavior. A study of a large kindred in the Netherlands in which several males exhibited abnormally impulsive aggression, accompanied by borderline retardation, found they shared a point mutation in a gene, located on the X chromosome, which codes for monoamine oxidase A, an important neurotransmitter. (Brunner et al. 1993, 578–80). Another study of volunteer, self-identifying male homosexuals found, not a gene, but five markers in a region of the X chromosome, Xq28, with a strong correlation with homosexuality, "indicating a statistical confidence level of more than 99 percent that at least one subtype of male sexual orientation is genetically influenced" (Hamer et al. 1993, 321).

These reports are recent and controversial. The findings must be replicated and interpreted within a broader theoretical framework that includes neuroscience before the complexity of the relationship between genes and behavior can be fairly appreciated. But these studies, together with many others, amount to much more than "a scrap of evidence." Indeed, Alexander's rejection of any and all evidence has an a priori ring to it, as if no evidence of a relationship will ever be found because (he knows a priori) no relationship exists.

Some, like Rose, Kamin, and Lewontin, the only source of counter-evidence Alexander cites, challenge the plausibility of a relationship between genes and behavior out of fear of social misuse of such a relationship. Alexander's objection, I would guess, is not social or ideological but theological. There is, I believe, an implicit dualism in Alexander's theological anthropology. He does not make the dualism explicit, but it is a necessary presupposition of both his apriorism and his view of Redemption. A fuzzy doctrine of Redemption, recall, is the second major criticism Alexander levels at *The New Genesis*. It is to this criticism that I now try to respond, while at the same time showing its connection to the question of the relationship between genes and behavior.

Alexander's long excursus on the New Testament doctrine of Redemption focuses, like most modern theology, on the legal and psychological metaphors to the neglect of biological metaphors, which picture redemption as new birth, new nature, and healing. Neglect of the biological metaphors has coincided in modern theology, and in Alexander, with dissociation of

the human psyche and nature and the related assumption that only the disembodied psyche needs redemption. In this view, nature at most only needs redemption from the damage that human persons (i.e., nonnature) inflict upon it. Redeemed humans will treat nature well, as good stewards, and so all will be well with the cosmos. But sinful people damage nature. For Alexander, this is the "immediate and obvious link between the redemption of people and the redemption of nature."

I disagree. The immediate and obvious link is that people are part of nature. If there is *any* redemption at all, it must be a redemption of nature, including (let us hope) *our* nature. We are biological organisms, and our personhood or psyche is not nongenetic or nonbiological. If there is such a thing as redemption, it must embrace the level of the biological organism. At this point, the connection between Alexander's two criticisms should be clear. He debiologizes the human psyche or person, and genetics for him has nothing to do with behavior. Human persons need redemption, not as organisms, but as social or psychic entities. In his view, unlike mine, there is no need either to posit or to explain disorder in nature, apart from human damage to nature.

But then I am completely mystified when Alexander criticizes me for rejecting a historical Fall. Here we are in double disagreement: He apparently wants a historic Fall without disorder in nature. I want to see biological nature (human and nonhuman) as a result of Darwinian evolution, which is the source of both its creativity and its moral disorder, which I defined at length as that which is contrary to the intentions of the creator. If Alexander is a Pelagian with a Fall, I am an Augustinian without a Fall.

Fallenness or disorder, of course, is the doctrinal mirror image of Redemption. Now, Alexander apparently approves of my references to the stories of Jesus as healer, and the way in which I suggest that these accounts should ground the Christian view of the relationship between God and nature. I argue that if Jesus acts on occasion to change the course of nature, and if Jesus is the definitive expression of the character and purposes of God, then nature itself cannot be regarded as perfectly consistent with the intentions of God. This claim provides a basis for a qualified approval of our technological intervention in nature. But after apparently agreeing with me up to this point, Alexander comments that Jesus acts "irrespective of the root causes of human disease."

Well, the *cause* of disease does in fact matter very much to Christian theology, and has from the outset, at least for anyone who wants to avoid the charge of Marcionism, according to which the God of nature or Creation and the God revealed in Christ are two, morally contradictory powers. For if as Christians believe there is a divine Creator of all things, and if Jesus is seen as altering nature, then *either* Jesus is defying God (in which case his enemies were right when they accused him of being in league with the devils, and in which case all our technological alterations of nature are equally defiant); *or* (as I believe) there is some cause not in God but in nature itself of nature's disorder, such that the condition of nature, now or at any point in its evolutionary history, is less than wholly consistent with the intentions of God, in which case Jesus and we are permitted to change things.

Properly referring our technology to God is the most difficult and most important challenge that lies ahead. Alexander's careful criticisms of *The*

New Genesis have been helpful toward that end. In particular, I am gratified that he has taken up a daring theme that is introduced with little precedent in *The New Genesis*, namely, the relationship between genetic technology and redemption. By drawing critical attention to this theme, Alexander has contributed greatly to the theological task of properly referring genetic technology to the creative and redemptive intentions of God.

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Yoking Science and Religion: The Life and Thought of Ralph Wendell Burhoe. By DAVID R. BREED. Chicago: Zygon Books, 1992. Foreword, Preface, ix–xiv, 148 pages, illustrations, index. $12.95 (paper).

The prestige of science following World War II was enormous. Scientists claimed to be a fraternity of special men and women whose interests in experimental truth, commitment to freedom of publication, and obligation to debate and cooperation gave them an international passport to respectability. They could cross frontiers where dipiomats and business leaders met with hostility or suspicion. In part because of, in part despite, the development of the atomic bomb, scientists, for better or worse, seemed to hold the fate of civilization in their hands. As translators of the mysteries of the universe like relativity theory or quantum mechanics they were treated as a kind of priesthood of modernity. Called before Congress to testify about momentous social, military, and scientific problems, their names were widely known and respected: Albert Einstein, Harlow Shapley, J. Robert Oppenheimer. For much of the American public, science was simply confused with technology, so much so that consumer abundance was credited to scientific invention rather than the much more complex process of discovery, technological application, manufacturing, and marketing. Summing up this monumental prestige was C. P. Snow's essay, written ten years later, in which he divided culture into two tendencies, one scientific and progressive, the other retrograde and represented by conservative religion, politics, and culture.

Just as expansively, critics of scientific pretension claimed that civilization itself was threatened by the subordination of religion and ethics to science. One could point to science during the war, twisted to destruction and death in Germany, repressed and distorted in the Soviet Union, and dangerously immoral in the United States because of the atomic bomb. This

was much more a threat than William Jennings Bryan claimed in 1925 at the Scopes Trial. Postwar science threatened simply to make religion and philosophy irrelevant. Secular society might, thought a great many theologians, philosophers, and even scientists, lose its religious heritage. To a certain extent, this charge was a renewal of worries raised in the post-Enlightenment period, following the American Revolution and preceding the Second Awakening of the nineteenth century. But there were, it was keenly suggested, new and even more ominous threats.

This was the setting in which Ralph Burhoe developed his theology of science and religion, his combination of the two great and competing polarities in Western thought. This was an effort of great moment and a response designed to settle the debate that appears to have animated an important section of New England intellectuals, centered primarily in Boston and Cambridge. Working first in the American Academy of Arts and Sciences as the chief executive officer, then as one of the founders of IRAS, the Institute on Religion in an Age of Science, Burhoe worked steadily toward his goal of creating two frameworks. First, he sought to bring together religious leaders, lay intellectuals, philosophers, and scientists for discussion of the compatibility of science and religion. This ongoing discourse remained a primary aim throughout his life, even after he went to Meadville Theological Seminary in Chicago in 1964. His other design was an intellectual structure combining religion and science into a new evolutionary cosmology. This meant nothing less than recreating Christianity in the image of modern science. Along the way toward this goal, he had a significant influence on the Unitarian-Universalist denomination, as well as on colleagues and students at the Academy and later at Meadville.

This is the subject of David Breed's interesting intellectual biography of Burhoe. Breed sees his job primarily as one of accounting and exposition, discussing Burhoe's long and active career and, more important, explaining his complex and changing theology. The result is an insightful study of an interesting man and an arresting attempt to combine religion and science.

Breed sees, rightfully I think, the influence of positivistic philosophy of science on the development of Burhoe's thinking. Deriving his examples and applications primarily from physics and evolutionary theory, Burhoe wrote that religion was the aspect of culture, the evolutionary force even, that (in Breed's words), "accumulates and transmits ultimate values for human survival" (p. 94). God was the Creator of the universe, the source of experience, as well as the main preoccupation of physics. The determination of the right and good was dependent on the creation of more and more life, of higher development. In effect, this is the meaning of modern religion: an awareness of the cosmic purposes and order in which mankind is bound.

Although aware of some of the difficulties in Burhoe's theories, Breed is more interested in elaborating the complexities of these ideas. While there is no need to argue with Burhoe in this work, it might have been instructive to speculate a bit more about some of the intellectual predecessors of Burhoe and to fit him into the larger quarrel between religion and science that has fallen and risen since the Enlightenment. In particular, one hears echoes of William Paley's argument from design, as well as overtones of Hegelianism and the American thinkers Ralph Waldo Emerson, Charles Sanders Peirce, and even John Dewey. Much stronger, of course, are

evolutionary theorists like Charles Darwin and, especially, Jean-Baptiste Lamarck, who believed in the accumulation of acquired characteristics transmitted from one generation to the next.

What all of these disparate thinkers shared was a fascination with the relationship of the natural world to the ethical world. Unwilling to accept divisions between these states of being, they proposed a variety of ways in which the Enlightenment separation of religion and science might be overcome and the old dispensation linking the book of nature and the book of God reaffirmed. If not always religious themselves, they proposed ways to cross the divide generated during the late eighteenth century. Evolutionary thinking seemed especially fruitful as a means and inspired American thinkers—including Burhoe.

My only other hesitation about Breed's work is his exclusion of contemporaries like Harlow Shapley—also a cosmologist of sorts—a thinker Burhoe deeply admired and who had a profound impact on many of the early institutions where Burhoe developed his ideas and strategies. Nonetheless, I find this an enlightening book, a well-lighted map, as it were, through the difficult, sometimes obscure, but fascinating philosophy of the founder of *Zygon*.

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Explaining and Interpreting Religion: Essays on the Issue. By ROBERT A. SEGAL. New York: Peter Lang, 1992. 155 pages. $34.95.

Method and theory in the study of religion is garnering a new degree of respect in contemporary academic circles. Indeed, for some younger scholars, methodology itself is seen as a serious and necessary discipline, over and above whatever contribution it may have to the study of any particular religious tradition. The set of essays in this slender volume represents the second collection of works by Robert Segal. Known as a scholar who is well versed in the "methodological wars" of the academic study of religion, Segal draws together in this work a number of valuable insights for the scholarly study of the phenomenon of religion. Utilizing sources from the philosophy of science, anthropology, sociology, as well as psychology, the essays, written between 1988 and 1992, demonstrate a tightly woven argument centered on the methodological issues of explanation and interpretation. Segal's thesis, variously stated, is that religion can be both interpreted and explained and is therefore the domain of both the religionist and the social scientist.

In the first chapter ("Misconceptions of the Social Sciences"), Segal is mainly interested in demonstrating an ongoing fallacy in the religionists' thinking. Specifically, Segal shows that religionists condemn the perspective of the social scientists because of the false assumption that the latter's views are necessarily opposed to the believer's point of view. Segal argues against such religionists as Mircea Eliade and Peter Berger in that their position neglects to realize that the social sciences, though rejecting (possibly) the

believer's explanation as the *ultimate* explanation of the believer's religiosity, does not at the same time reject it as the *direct* explanation. The social sciences propose that the ultimate nature of religion may indeed be nonreligious.

Chapter 2 ("Fending off the Social Sciences") is a very short analysis of the religionist belief that the social scientific study of religion is functional, reductive, and explanatory; that it, as opposed to the religionist perspective, cannot deal with "meaning." Segal, here, seeks to show simply that, once again, religionists and social scientists are answering the identical questions in a different manner. Thus, social scientific analyses of religion can also be substantive, interpretive, and nonreductive.

The third essay ("Axioms and Dogmas in the Study of Religion"), written with Donald Wiebe, is a critique of Daniel Pals's attempt to set up what he (Pals) calls an "axiomatic" approach to the study of religion: an approach Pals seeks to establish on the basis of the work of Imre Lakatos. Segal and Wiebe find Pals's approach wanting because of its lack of precision as to what its parameters are, especially with reference to a dogmatic approach.

In the fourth chapter ("Meanings and Causes"), Segal takes on Steven Kepnes and Paul Ricoeur. Kepnes argues that "explanation," "functional," and "reductionistic" characterize the metholodogy of the social sciences, while "understanding," "substantive," and "nonreductionistic" characterize the methodology of the humanities. Segal seeks to disprove this and attempts to show that only "explanation" and "understanding" properly refer to methods as such. In the process, Segal winds his way through Clifford Geertz and Max Weber, amongst others.

Chapter 5 ("Religion as Interpreted Rather than Explained: John Hick's *An Interpretation of Religion*") sets out various ways in which explanation and interpretation are differentiated. Segal briefly states four main ways: (1) in terms of ontology (Max Weber, Talcott Parsons); (2) in terms of causes and meanings (R. G. Collingwood, Peter Winch); (3) in terms of explanation as an account for religion and interpretation as the message of religion (Paul Ricoeur, Clifford Geertz); and (4) in terms of interpretation assuming a theory and explanation validating the theory applied (Imre Lakatos, Carl Hempel, John Hick). In the remainder of this essay, Segal analyzes Hick's work as to its rationality with reference to social science explanations.

The sixth essay ("Interpreting and Explaining Religion: Geertz and Durkheim") is simply an attempt by Segal to draw out of the work of two prominent social scientists, Clifford Geertz and Émile Durkheim, the fact that both were indeed involved in explanation as well as interpretation.

In chapter 7 ("Clifford Geertz and Peter Berger on Religion: Their Differing and Changing Views"), Segal traces the development of the tension between explanation and interpretation, especially within the work of Clifford Geertz. For both Geertz and Peter Berger, Segal focuses on the gradual shift from religion as a societal phenomenon to religion as an individual phenomenon.

Chapter 8 ("J. Samuel Preus' *Explaining Religion*: A Review Essay") is merely a review and does not, to my mind, offer any new insights beyond those expressed in the other essays.

Last of all, chapter 9 ("How Historical Is the History of Religions?") is

an application of Quentin Skinner's political philosophy to the work of Mircea Eliade.

Overall, I find the essays in this volume quite valuable, yet somewhat uneven. Even given the nature of a collection of disparate writings, I found Segal's collection too oftentimes repetitive. His major points with reference to the viability explanation and interpretation seemed to be hammered home so frequently that the effect was lost in some of the rhetoric. Without doubt, Segal is a seasoned veteran in the academic study of religion, yet this may make this volume difficult reading for those who are not as familiar with the major players in these debates. Even with these qualifications, however, I found this second set of essays by Robert Segal to be a necessary and suggestive contribution to the issues of method and theory with respect to the phenomenon we call "religion."

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