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In this issue . . .

"The fear of the Lord
is the beginning of Wisdom."
Psalm 111:10

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Putting Things Into Perspective

The Fall 1991 issue of the *Christian Scholars' Review* featured a call by Christian philosopher Alvin Plantinga for a new "theistic science" to handle evolution. Responses by Ernen McMullin, Pattle Pun and Howard Van Till and additional remarks by Plantinga extended discussion of the proposal. William Hasker's "Evolution and Albert Plantinga" offers an overview and critique of Plantinga's position. Natural scientists become testy when philosophers, theologians or sociologists invade their space. However, when scientific ideas such atomism or evolution are extended beyond their bounds they deservably become fair game for those who deal with broader questions.

Paul H. Liben's "Science Within the Limits of Truth" speaks to the threat posed for the continued health of science by "naturalistic philosophical beliefs" and the tendency of Christian scientists and their secular counterparts to "impose their worldviews on their discipline." For Liben, "how scientists ultimately handle the evolution controversy ... may provide a clue as to whether they are authentically concerned about scientific integrity or whether they merely wish to advance their respective philosophical agendas, be they naturalistic or theistic."

Recent polls have shown that many American evangelicals hold views on scientific phenomena which have long been shown to be untenable. In the first paper of a two-part series, David F. Siemens, Jr. deals with the notion that "almost all geological phenomena" derive from the Noahic Flood. His paper offers a popularly written rebuttle which should be placed in the hands of the lay public.

Raymond E. Grizzle's Communication observes that, with the exception of evolution, most Christians accept the notion that theories of the natural sciences *should* not include God in their explanations. He argues that approaches such as "origin-science" unintentionally may lead to deism and suggests that a complementarian approach to the interaction of science and theology is more productive.

Howard J. Van Till's Essay Review of Christopher Kaiser's *Creation and the History of Science* highlights our Book Review section.

J.W. Haas, Jr.

Evolution and Alvin Plantinga

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When a contribution to the creation-evolution debate comes from one of the world's leading Christian philosophers, attention must be paid. Such a contribution is Alvin Plantinga's "When Faith and Reason Clash: Evolution and the Bible," which appeared in the September 1991 issue of the Christian Scholar's Review. *Some valuable initial responses to Plantinga's argument have come in the form of comments by Howard Van Till and Ernan McMullin, which were published along with Plantinga's article. Plantinga's reply to McMullin and Van Till, however, changes the situation by opening up aspects of his position which were not clear from the initial paper,*[1] *so it is necessary for the discussion to continue.*

My procedure will be as follows: I shall begin with a brief sketch of Plantinga's position, as set out in his original article, followed by a preliminary assessment. I shall then take up in some detail three aspects of Plantinga's position, the first dealing with the general significance of the controversy in the current intellectual climate, and the other two with Plantinga's handling of certain aspects of the evidence in the case. I conclude with an assessment of Plantinga's proposal for the inauguration of a "theistic science" which for Christians would provide an alternative to the methodologically naturalistic science[2] which is now espoused by virtually all scientists, whether they be theists, naturalists, or agnostics.

I. Summary of Plantinga's Position

Plantinga begins by asking how Christians should address apparent conflicts between faith and reason, such as those between the Bible and the teachings of science. He reviews and dismisses several views (including MacKay's "complementarity") according to which no conflict between science and Scripture is really possible. When a conflict does emerge, he tells us, we should not always assume that science is correct, so that our interpretation of Scripture must be altered, but neither should we invariably assume that our interpretation of Scripture is correct and our science is in error. There is no general recipe or formula for the resolution of such conflicts; rather, "All we can do is weigh and evaluate the relative warrant, the relative backing or strength, of the conflicting teachings" (p. 14). If our warrant for thinking that the Lord is teaching us something in Scripture on a certain topic is quite strong, and the evidence for a conflicting scientific view is weak or ambiguous, then we should conclude that current science is in error; but if the scientific evidence is strong and the evidence concerning what the Lord teaches in Scripture is less clear, it may be our understanding of Scripture which needs correction.

Turning to the issue of evolution, Plantinga first elaborates on the role this theory plays in contemporary Western culture, in particular, its role as a secular *myth* — "a deep interpretation of ourselves to ourselves, a way of telling us why we are here, where we came from, and where we are going" (p 17). He then proposes to consider, from a theistic and Christian perspective, how likely it is that the theory is true. He presents the Grand Evolutionary Story (GES) as comprising five distinct claims: there is the Ancient Earth Thesis, that the earth is several billion years old; the Progress Thesis, that life has progressed from relatively simple to relatively complex forms; the Thesis of Common Ancestry (TCA), which holds that all life on earth is descended from a single original form; the Darwinian Thesis, which

says that there is a naturalistic explanation of the development of life; and the Naturalistic Origins Thesis, which claims that life developed from nonliving matter without any special creative activity of God but just by virtue of the ordinary laws of physics and chemistry.

Plantinga then explains that he accepts both the Ancient Earth Thesis and the Progress Thesis — and on the other hand the Naturalistic Origins Thesis seems to him "mere arrogant bluster . . . vastly less probable, on our present evidence, than is its denial" (p. 20). So his serious efforts at evaluation are focused on the Thesis of Common Ancestry and the Darwinian Thesis. He points out that a number of prominent evolutionists proclaim evolution as absolutely certain, given the scientific evidence. But, he counters, these prominent evolutionists are all atheists, and so have ruled out in advance the possibility of divine creation; hence it is important for Christians to make their own, independent assessment of the evidence. In a brief review of several classes of evidence,[3] Plantinga finds it on the whole unimpressive; on balance, TCA is less probable than its denial, given the scientific evidence plus Christian theism (but setting aside the evidence from early Genesis, which is in dispute among biblical scholars). He concludes with a call for a new kind of science — Theistic Science — in which Christians will shed the constraints of "methodological naturalism" and consider the phenomena of nature and human life "from the perspective of *all* that we know — what we know about God, and what we know by faith, by way of revelation, as well as what we know in other ways" (p. 30).

On several of these points, I believe Plantinga is clearly correct. Certainly the fact that many leading evolutionists are atheists, and so for them evolution is "the only game in town," plays a role in explaining the claims of certainty which are often made for this theory. It is perfectly correct, then, to assert that Christians need to make their own, independent assessment of the evidence for evolution. And it is very plausible that the result of this assessment will be that this theory is less than maximally certain. So far, then, there is agreement, but some other points require further discussion.

II. Is Evolution Religiously Neutral?

One theme which receives considerable emphasis in Plantinga's paper is that evolution — TCA and GES — is "not religiously neutral." Howard Van Till appears to concede this, but only in the sense that evolution (like other scientific theories) is able to be incorporated into the "mythology" of a naturalistic culture. Plantinga replies that "to say that science was not neutral in *that* sense would be to make a statement weak *in excelsis*" (p. 84); what he had in mind was something much stronger. He goes on to say,

> GES plays an important role in the conflict between Christian theism and naturalism (taken as a mythology, a deep account of ourselves and the world around us). This role is that of providing an answer to a question that is both insistent and monumentally difficult from a naturalistic perspective: how did all this astounding variety of life with its millions of species get here? Their ancestors can't have just popped into existence, but neither, from a naturalistic perspective, could they have been created by God, so where does all this life come from, and how did it get here? Evolution gives an answer the naturalist can accept, and it gives the only such answer anyone can presently think of (p. 84).

Now it is certainly true that evolution can and does play this sort of role in naturalist mythology and naturalist apologetics — a fact which is acknowledged and deplored by Van Till (see pp. 37-42). But what conclusion should we draw from this fact? It should be noted that the characteristic Plantinga identifies in evolutionary theory — that of providing a naturalistic explanation for what otherwise might

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require the action of God or other supernatural powers — is by no means unique to GES and TCA, nor does it, by itself, provide any good reason for rejecting a theory which exemplifies it, provided only that (1) the theory provides a naturalistic explanation of some range of phenomena, and (2) some significant group of people has regarded these phenomena as direct manifestations of supernatural powers. If people are inclined to view wind, rain, and lightning as direct manifestations of divine activity, then a naturalistic theory of the weather can strike a blow against religion — a point exploited with vulgar effectiveness by Aristophanes in the *Clouds*. And if someone is disposed to regard natural disasters such as earthquakes as resulting from the actions of fallen angels (a hypothesis which Plantinga regards as not improbable on the basis of our evidence![4]), the explanation of earthquakes in terms of plate tectonics gives a boost to naturalism.

In spite of the fact that old-earth theory plays this crucial role in naturalist mythology, Plantinga embraces it with no apparent reservations, just because it is confirmed by good scientific evidence.

But we need not turn for examples to the archaic or the fanciful. Consider, for example, the hypothesis that the earth is several billions of years old. Doesn't this hypothesis "provid[e] an answer to a question that is both insistent and monumentally difficult from a naturalistic perspective: how did all this astounding variety of [geological formations, including continents, mountains, and complicated rock strata, as well as] life with its millions of species get here?" It's true that merely the general hypothesis of the earth's great age does not provide detailed answers to all of this, any more than the bare thesis that evolution occurred provides detailed explanations for those millions of species. But it's evident that *any* naturalistic explanation for all of this will require vast stretches of time; given a much shorter time-span, naturalistic geology (to say nothing of naturalistic biological evolution) simply cannot put the ground under our feet.

This fact, of course, has not gone unnoticed. It's precisely for this reason that Creation Science advocates are determined to resist the old earth hypothesis to the last ditch; they have correctly noted that old-earth theory is "not religiously neutral," that it plays a crucial role in contemporary naturalist mythology and apologetics. But here, of course, Plantinga and his Creation Science colleagues part company. *In spite of the fact that old-earth theory plays this crucial role in naturalist mythology, Plantinga embraces it with no apparent reservations, just because it is confirmed by good scientific evidence.*

What should we conclude from all this? Certainly we should note with concern the use of evolutionary theory by prophets of naturalism such as Carl Sagan. When a theory is being used in this way, we do well to scrutinize with special care whether the theory is really supported by good evidence as claimed, or whether on the contrary it has been adopted for its apologetic value in the absence of such evidence. (Of course we should scrutinize in the same way theories which are specially favored by *Christian* apologists!) If such a theory does withstand scientific scrutiny, then we should examine it carefully so as to detect and remove any "mythological accretions" which have been added to the scientific theory in order to make it more useful for ideological purposes. Clearly both of these kinds of scrutiny are greatly needed in the case of evolution, a theory which may well hold the all-time record for ideological accretions. But once this has been done, if a theory has been validated by good evidence and stripped of mythological accretions, then it can and should be adopted in good conscience by Christian scientists and intellectuals, notwithstanding any misuse that may have been made of it by the purveyors of naturalism. And this goes for evolution as much as for naturalistic meteorology, plate tectonics, and old-earth theory. And I believe Plantinga, Van Till, and McMullin would all agree with this, even though their respective *emphases* vary considerably.

III. Plantinga and the Bible

The reader of Plantinga's original paper might well be struck by two things concerning his use of the Bible: First, there are what appear to be fairly confident assertions about what the Bible teaches, or about what we have reason to believe the Bible teaches, on this or that subject, especially on subjects related to the divine creation of the world. Consider, for example, the following assessment of "what the Lord intends us to learn from early Genesis":

> Most clear, perhaps, is that God created the world, so that it and everything in it depends upon him and neither it nor anything in it has existed for an infinite stretch of time. Next clearest, perhaps,

> is that there was an original human pair who sinned . . . That humankind was separately created is perhaps less clearly taught; that many other kinds of living beings were separately created might be still less clearly taught; that the earth is young, still less clearly taught (p. 15).

But second, there is a complete lack of any reference to the kinds of hermeneutical questions which might seem relevant to understanding the Bible's teachings on creation; considerations of literary genre, for instance, or of the historicity of the early chapters of Genesis, or of the nature of ancient worldviews, or of the origin of natural science in a Greek and Western rather than a Semitic context.

... I think a reader might be pardoned for concluding that Plantinga feels entitled to interpret Scripture quite straightforwardly — without concerning himself with sophisticated hermeneutical issues.

In view of these two features, I think a reader might be pardoned for concluding that Plantinga feels entitled to interpret Scripture quite straightforwardly — to give a "face-value interpretation," as one might say — without concerning himself with sophisticated hermeneutical issues. Van Till apparently did conclude this; he chides Plantinga for ignoring the "difficult and relevant issues of epistemology and hermeneutics in the arena of biblical exegesis" (p. 35). Plantinga's reply is just a mite testy: "Academics, other intellectuals, the readers of this journal and the audience of my original lecture all get told about a dozen times a day that there are epistemological and hermeneutical difficulties in determining what the Bible teaches; this hardly needs further emphasis" (p. 81). To Van Till's assertion that "we need far more than a naive biblical hermeneutic or a simple 'folk exegesis,'" Plantinga replies, "That is hard to dispute, but I can't see why Van Till felt obliged to say it" (p. 82). Concerning the interpretation of the early chapters of Genesis, he writes, "this is a difficult area, an area where I am not sure where the truth lies" (p. 81). The passage cited just above, about "what the Lord intends us to learn from early Genesis," is not spoken by Plantinga in his own voice but is put into the mouth of an adherent of Creation Science.[5] Later on, he illustrates the perplexities of Genesis-interpretation by citing James Barr as follows:

> So far as I know there is no professor of Hebrew or Old Testament at any world-class university who does not believe that the writer(s) of Genesis 1-11 intended to convey to their readers the ideas that: (a) creation took place in a series of six days which were the same as the days of 24 hours we now experience; (b) the figures contained in the Genesis genealogies provide by simple addition a chronology from the beginning of the world up to the later stages of the Biblical story, and (c) Noah's flood was understood to be worldwide, and to have extinguished all human and land animal life except for those in the ark.[6]

The proper response to this sort of situation, according to Plantinga, is to recognize that the primary author of Scripture is the Lord, and that what we need to know in reading Scripture is "what *he* intends to teach in the text in question." What *God* intends to convey in a given text, furthermore, can vary more or less independently of what the human author meant by his words. The two *may* coincide, of course, but God can intend to teach us things never dreamt of by the human author (as in the case of various Old Testament prophecies) — and, on the other hand, God may very well *not* intend to teach us some things which are clearly asserted by the human author (i.e., by the text itself) — including, perhaps, the things which, according to Barr, are asserted in Genesis 1-11.[7]

What God intends to convey in a given text, furthermore, can vary more or less independently of what the human author meant by his words.

In view of all this, we can hardly accuse Plantinga of minimizing the difficulties of biblical interpretation. Still, it must be noted that he nowhere discusses in any concrete way how these issues apply to the text of Genesis, nor (with one exception[8]) does he say anything about the hermeneutical principles which guide his interpretations. I think we must conclude, therefore, that Plantinga's statements about what the Bible teaches are to be taken purely as personal opinions, items in his intellectual autobiography. The reader may, of course, find that she has reasons of her own for assenting to these views, and if so there is no reason why she need abandon them. But if she did not have such reasons before

reading Plantinga, she will have none after reading him.

Plantinga: "The proper understanding of the early chapters of Genesis...is a difficult area where I am not sure where the truth lies....Nothing in my paper hinges on these exegetical beliefs, however..."

But does this really matter? Plantinga thinks not; he says "I explicitly set aside questions of the proper understanding of the early chapters of Genesis, just *because* this is a difficult area where I am not sure where the truth lies." He goes on,

> I do believe that the Lord intends to teach us here not only that the world depends upon him for its existence, but also (at least) that the world has not existed for an infinite stretch of time, and that there was an original pair of human beings whose sin brought calamity upon the human race . . . I also think it likely that he intends to teach us that human beings were created in a special way and in an act of special creation; but I could be persuaded otherwise. *Nothing in my paper hinges on these exegetical beliefs*, however, or, as far as I can see, upon any other exegetical beliefs about which there is sensible controversy (pp. 81-82, emphasis added).

The claim that *nothing in his paper* hinges on those exegetical beliefs does not seem to be true. Setting aside the passage cited about what the Lord is teaching us in Genesis, there is also the following claim: "If, for example, current science were to return to the view that the world has no beginning, and is infinitely old, then current science would be wrong" (p. 14). (That the Bible teaches that the world has not existed for an infinite period of time is specifically listed as an exegetical belief on which "nothing in my paper hinges.")

What Plantinga may have intended to assert was that the *principal conclusions* of his paper do not depend on his exegetical views — in particular, this would be true of his conclusion that TCA is less probable than its denial, given only theism and the empirical scientific evidence. Here considerations about what the Bible teaches are not germane, since the conclusion is explicitly about what is probable apart from specific biblical teaching. But this does not settle the matter. For is it not possible that Plantinga's assessments of the probabilities in question have been *influenced by* his beliefs about what the Bible teaches? He holds (as all Christians must) that what God teaches us is certainly true, and he considers it probable that God has taught us that human beings were specially created. He may have *intended* to make his assessment of the probability of TCA independent of this and other exegetical beliefs, but can we be sure he has succeeded? I really don't see how we can be sure of this; nor does it seem to me that Plantinga's own views on this point are highly privileged. (Surely it is no longer necessary to argue that the causes of our beliefs are often hidden from us.) So I don't see how we can be at all confident that Plantinga's main conclusions really are uninfluenced by his exegetical beliefs[9] — and in view of this, his failure to provide any support whatever for those beliefs can hardly be dismissed as unimportant.

IV. Plantinga's Hypothesis

The most interesting question about Plantinga's hypothesis is whether or not he has one. McMullin assumes that he does, but just what it is is unclear:

> The presumed inadequacy of current theories of evolution is part of what leads Plantinga to propose his own alternative. What *exactly* is it? Is it that God brought to be in a miraculous way *each* of the millions of species that have existed since life first appeared on earth? . . . Perhaps he means that God just created the phyla. . . . But why not *all* species? How is Plantinga to decide just which thesis is more probable than TCA? (p. 73).

To this Plantinga replies, in effect, that he has no alternative to propose and doesn't need one:

> What I say is that from a theistic or Christian point of view, TCA is unlikely, somewhat less likely than its denial. That is all I am claiming; I am not proposing an alternative explanation . . . In order to claim quite properly that an explanation is improbable, you are not obliged to be able to point to a better alternative (p. 89).

This response immediately raises a number of questions. One thought which may occur is that Plantinga is gaining an unfair advantage by pointing out the weaknesses of a hypothesis he opposes, while leaving his own view in the dark and thus safe from criticism.[10] A more important consideration, however, is the apparent clash between his procedure and current philosophy of science. One of the best-learned lessons in recent philosophy of science is

that the evaluation of a scientific hypothesis does not, in the typical case, focus on just one hypothesis at a time; rather, the concern is with *pairs* (or other multiples) of *competing* hypotheses.[11] One of the reasons Karl Popper's "falsificationism" has been generally abandoned, is that it would lead to the rejection of far too many hypotheses; many theories, in fact, are "born falsified" in that, right from the outset, they fail to conform to all the known data in the field under study. If a hypothesis which has shown significant promise encounters anomalous data, the normal scientific response is to *retain the hypothesis until a superior replacement hypothesis emerges.* To recommend abandoning a theory with no replacement in sight is, scientifically speaking, a counsel of despair. Is this what Plantinga is asking us to do in the case of evolution?

As a result of conversations with Plantinga, I believe his response would be that he is not, himself, engaging in biological science and does not intend (at this point) to be making recommendations to scientists. His concern is with the *truth* of GES and TCA, not with their role as "paradigms" guiding scientific research. If he were speaking of the *acceptance* of scientific theories (as establishing "research programs," and the like) he would have other things to say. His claim is simply that, given the truth of Christian theism together with the available scientific evidence, both GES and TCA are less likely than their respective denials. How scientists should proceed in these matters is another question entirely.

If a hypothesis which has shown significant promise encounters anomalous data, the normal scientific response is to retain the hypothesis until a superior replacement hypothesis emerges.

It is possible to detect in all this the influence of the scientific anti-realism of a Bas van Fraassen — which is not to say that Plantinga would adopt van Fraassen's views wholesale. And it opens up an intriguing possibility: perhaps Christians who are scientists — including the proponents of Plantinga's "theistic science" — would be best advised to accept TCA and even GES as working hypotheses, pursue research programs based on them, and so on, all the while holding, along with Plantinga and other right-minded persons, that both GES and TCA are probably false. No doubt it would be surprising if things turned out this way, but Plantinga has said nothing that would rule it out.

His claim is simply that, given the truth of Christian theism together with the available scientific evidence, both the Grand Evolutionary Story and the Theory of Common Ancestry are less likely than their respective denials.

Clearly we are dealing here with some fascinating issues. But a more elementary sort of question now obtrudes itself, namely, *Can Plantinga stick to his refusal to offer an alternative hypothesis? And does he, in fact, stick to it?* I believe that, contrary to his protestations, he does need to present an alternative view in order for his argument to go through. And it's clear that he does have such a view, but unfortunately it is not specified in sufficient detail to do the work that is required of it.

The place where the need for an alternative shows itself is when Plantinga undertakes to assess the empirical evidence adduced in support of TCA. He says of one strand of evidence: "[It is] reasonably probable on the hypothesis of special creation, hence not much by way of evidence against it, hence not much by way of evidence for evolution" (p. 23, and see similar remarks on pp. 24, 103-04, 105, and 107-108). The burning question here is the one already posed by McMullin: *"Which thesis is more probable than TCA?"* What particular hypothesis does Plantinga have in view, so as to be able to say that the evidence is "reasonably probable" on *that* hypothesis? Here it clearly will *not* do to say that the hypothesis in question is simply the denial of TCA. For TCA is a fairly *strong* hypothesis, and its denial is correspondingly *weak* in its logical force — that is to say, it is compatible with an enormous range of alternatives, and the alleged evidence for evolution may be extremely probable with respect to some of these alternatives and extremely improbable with respect to others.

But of course, it simply is not true that Plantinga is committed only to the negation of TCA. It is quite clear, from various things he says, that his view is *at least* that "God did something special in creating initial forms of life, then something special in cre-

ating some other forms of life, then something special in creating human beings" (pp. 88-89). (And the "something special" in the latter two cases must be something which involves *lack* of continuity of descent from earlier forms. God might, quite conceivably, do "something special" in arranging that a particular, very improbable mutation should occur, leading to the appearance of a more advanced kind of creature. But this would not be "special" enough for Plantinga, for it would not be inconsistent with TCA.) So we know at least this much about Plantinga's view. Could we suppose, then, that what he means to be saying is that the evidence cited for evolution is not improbable on *that* hypothesis?

What would need to be further specified is* how many *"forms of life" have been specially created — or, better, at what* taxonomic level *this is supposed to have occurred.

I think we had better not suppose this — not that is, if (as is wise) we want to take Plantinga to be saying something sensible. For while the hypothesis stated above is far more determinate than merely the negation of TCA, it is nowhere near determinate enough to enable us to evaluate the alleged evolutionary evidence in its light. What would need to be further specified is *how many* "forms of life" have been specially created — or, better, at what *taxonomic level* this is supposed to have occurred. Suppose, for instance, that the view is just that God created the phyla, and after this allowed evolution to take its course. On *this* creationist hypothesis, the likelihood of most of the evidence for evolution is *exactly the same* as it is on TCA — for a great deal of that evidence pertains to taxonomic levels below the phyla, and with respect to these lower levels the predictions of this "phylum creationism" are exactly the same as those of TCA itself. And on the other hand, the complaints of creationists (including Plantinga) about the scarcity of transitional forms below the level of phyla would also lose their point; this scarcity is as much (or as little) a problem for phylum creationism as it is for TCA. It should be noted, furthermore, that phylum creationism comports badly with the view, dear to the hearts of Plantinga and other creationists, that *human beings* are specially created by God in a way that excludes pithecine descent. If God's special creative activity occurs nearly always at the level of phyla or above, then this claim about the special creation of a single species — or at most of a genus — has a strong *ad hoc* flavor about it; it becomes (to use one of Plantinga's favorite words) very much an "epicycle"[12] on the creationist view.

If, on the other hand, God's special creative activity is thought of as occurring frequently at lower taxonomic levels, then the situation with respect to the evidence changes. The creationists will gain in being able to chide evolutionists over the scarcity of transitional forms, but they will also incur the burden of explaining, in a non-arbitrary fashion, the evidence which is generally held to support the occurrence of evolution at these levels. It may be that somewhere the creationist will find an optimum balance between the two — a level of special creative activity which imposes the greatest burdens on the evolutionary hypothesis in comparison with his own. This level would be determined, as McMullin suggests, by "checking to see what evolutionary theory has . . . been able to explain successfully. And then whatever is left over, God is more likely to have brought about miraculously" (p. 73). Plantinga, however, maintains a discreet silence about all this.

At this point Plantinga might want to claim that his statements about the likelihood of the evidence on the hypothesis of special creation are mere offhand remarks, not essential to his main line of argument — thus, he does not after all need to offer an alternative hypothesis. I am not convinced that this is so. TCA, after all, is a theory for which considerable empirical evidence has been adduced.[13] In evaluating TCA, it is essential to try and determine how strongly that evidence supports the theory. And it is difficult to see how *that* can be done without considering whether there is a plausible alternative theory such that the evidence is as likely, or nearly as likely, on that theory as it is on TCA. The role of the alternative explanation seems to be essential here — but it's a role which Plantinga leaves unfilled.

In certain respects, then, Plantinga's handling of the empirical evidence for evolution leaves the reader in even greater perplexity than his treatment of scriptural data. Plantinga gives the reader no reason whatever to suppose that his interpretations of Scripture are correct, but there is no serious doubt as to what the interpretations *are*. But when Plantinga says that the evidence for evolution is reasonably probable on some alternative to the evolutionary hypothesis, we have no way of knowing, in sufficient detail, what that alternative is; thus, we are unable even to *formulate the proposition* which we would need to evaluate in order to determine whether Plantinga's claims are warranted.

V. Theistic Science

It's possible that Plantinga might be able to accept at least a good deal of this. (Though I don't predict that he *will* accept it!) He does not claim, after all, to be either a scientist or an exegete, and the primary aim of his paper is not to tell scientists and exegetes what conclusions they should reach. His remarks about the Bible and about the evidence for evolution can be taken as merely illustrative — examples of the kinds of conclusions that *might* be reached, if Christian scholars and scientists were to deal with these issues in the proper way. It is, however, the *way* in which these matters are to be handled, the *kind of study* which is to be made of them, which constitutes the main burden of his two papers. These concerns are focused in his proposal for "Theistic Science."

Now Plantinga's proposal for Theistic Science is fairly sketchy; it does not involve anything like a complete blueprint showing how such a science is to be constructed. Still, some things about it are reasonably clear, as is shown in the following quotation:

> In all the areas of academic endeavor, we Christians must think about the matter at hand from a Christian perspective; we need Theistic Science. Perhaps the discipline in question, as ordinarily practiced, involves a methodological naturalism; if so, then what we need, finally, is not answers to our questions from *that* perspective, valuable in some ways as it may be. What we really need are answers to our questions from the perspective of *all* that we know — what we know about God, and what we know by faith, by way of revelation, as well as what we know in other ways. In many areas, this means that Christian must rework, rethink the area in question from this perspective (p. 30).

McMullin expresses serious concerns about this proposal. One thing he objects to is Plantinga's principle, according to which, in cases of apparent conflict between science and Scripture, we "balance" one against the other and determine our interpretation accordingly: If the Scriptures are clear and the scientific evidence shaky, we modify our understanding of science, while if the scientific evidence is strong and the exegetical evidence weak or ambiguous, it is our interpretation of Scripture which must be changed. McMullin writes:

> [This principle] has one quite disastrous consequence: it sets theologians evaluating the validity of the arguments of the natural philosophers, and natural philosophers defending themselves by composing theological tracts. Either way, there will be immediate charges of trespass. The theologian challenges the force of technical scientific argument; scientists urge their own readings of Scripture or their own theories as to how Scripture, in general, *should* be read. In both cases, the professionals are going to respond, quite predictably: what right have you to intrude in a domain where you lack the credentials to speak with authority? The assessment of theory-strength is not a simple matter of logic and rule but requires a long familiarity with the procedures, presuppositions, and prior successes of a network of connected domains, and a trained skill in the assessment of particular types of argument (pp. 61-62).[14]

McMullin: "[Theistic Science] has one quite disastrous consequence: it sets theologians evaluating the validity of the arguments of the natural philosophers, and natural philosophers defending themselves by composing theological tracts."

McMullin also objects to the acceptance of nonempirical sources of knowledge (such as faith and revelation) in the proposed new science, for this means that such a science "lacks the sort of warrant that has gradually come to characterize natural science, one that points to systematic observation, generalization, and the testing of explanatory hypothesis." Indeed, this new discipline is not well described as *science*: since it "requires faith, and faith (we are told) is a gift, a grace, from God," and since it "appeals to a specifically Christian belief, one that lays no claim to assent from a Hindu or an agnostic," it "lacks the universality of science, as that term has been understood in the Western tradition. . . To use the term 'science' in this context seems dangerously misleading; it encourages expectations that cannot be fulfilled, in the interests of adopting a label generally regarded as honorific" (p. 57).

McMullin goes on to say,

> I do not object . . . to the use of theological considerations in the service of a larger and more comprehensive world-view in which natural science is only one factor. . . . But I would *not* be willing to use the term, "science," in this context. Nor do I think it necessary to do so in order to convey the respectability of the claim being made: that theology may appropriately modulate other parts of a person's belief-system, including those deriving from science (pp. 57-58).

And in the concluding pages of his comment, he provides an example by sketching out, in a manner inspired by Karl Rahner and Teilhard de Chardin, a way in which evolution can be incorporated into a Christian world-view and theology (pp. 78-79).

Plantinga: "Where there is apparent conflict between Scripture and science, we must try the best way we can to see how to resolve it; given present academic arrangements, this will inevitably result in someone's making pronouncements that are outside his field."

Plantinga rejects all of these arguments. To the objection that his "balancing principle" leads to excessive conflict and to persons speaking outside their proper areas of expertise, he replies

> Where there is apparent conflict between Scripture and science, we must try the best way we can to see how to resolve it; given present academic arrangements, this will inevitably result in *someone's* making pronouncements that are outside his field. . . . This could be avoided only if there were professionals, experts, who were expert in the relevant science, and also in philosophy and philosophy of science, and also in theology. None of us . . . fills a bill like that.[15] So if McMullin means to suggest that philosophers should stick to their philosophy, theologians to their theology, and scientists to their science, then no one could address apparent conflicts of the sort that occasioned my paper. But we, the Christian community, *need* answers to these questions . . . (pp. 92-93).

He goes on to note that McMullin also endorses the idea of a synthetic enterprise, involving science, philosophy, and theology, in which such issues will be addressed — and nothing is solved or answered merely by denying the name "science" to the enterprise.

Still, Plantinga is unwilling to give up the name "science." On the one hand, McMullin's charge that this discipline lacks the warrant that comes from empirical scientific research reflects a misunderstanding. Plantinga's Theistic Scientists will carry out such research, it's just that they will *also* consider the deliverances of exegesis and theology in reaching their scientific conclusions (p. 97). And as for "lack of universality," he responds that "science, if it is practiced in such a way as to honor the methodological naturalism McMullin urges, is by no means always universal" (p. 98). As an example, he cites a piece of sociobiology authored by Herbert Simon, in which benevolence and unselfish love are explained as "bounded rationality" and "docility." After discussing the application of this to Mother Teresa, he says, "I should think no Christian could even for a moment take this seriously as an explanation of [her] behavior" (p. 98). So methodologically naturalistic science is *not* necessarily universal; therefore the lack of universality in Theistic Science is no problem. And in general, Plantinga clearly regards methodological naturalism as an arbitrary dogma; he repeatedly issues challenges to provide a justification for it, while exuding confidence that no decent justification will be forthcoming.

In general, Plantinga clearly regards methodological naturalism as an arbitrary dogma; he repeatedly issues challenges to provide a justification for it, while exuding confidence that no decent justification will be forthcoming.

There is certainly some force in these replies. I believe, however, that at a number of points Plantinga has failed to fully grasp McMullin's objections, and thus his replies fall short. I do not think McMullin's complaint about the lack of empirical warrant in Theistic Science was based on a misunderstanding. Undoubtedly, the Theistic Scientist will carry out the customary activities of observation, experimentation, testing of hypotheses, and the like. But at crucial points, what grounds her conclusions will not be these activities but rather specific Christian theological beliefs — beliefs which, as McMullin rightly says, lay "no claim to assent from a Hindu or an agnostic." Her scientific conclusions, at these crucial points, will indeed be without empirical warrant. Plantinga waves off the problem of universality with his sociobiology example, but this misses the point. Sociobiology *is* universal, not in the sense that its *conclusions* are acceptable to everyone, but in that its *methods* are open to all: Anyone, be he Hindu, agnostic, or Calvinist, can pursue the empirical and conceptual inquiries which will validate or refute

sociobiology's claims.[16] (I would agree with Plantinga that many of them richly deserve to be refuted.[17])

It is true that McMullin's "comprehensive world-view" will require a synthesis of considerations from science, philosophy, and theology, and those involved in constructing such a synthesis cannot remain within narrowly defined disciplinary boundaries.

It is true that McMullin's "comprehensive world-view" will require a synthesis of considerations from science, philosophy, and theology, and those involved in constructing such a synthesis cannot remain within narrowly defined disciplinary boundaries. But I believe there is a distinct difference between the way in which McMullin envisages this procedure, and the way it would go on in Theistic Science. As I think McMullin conceives of it, the synthetic enterprise takes place at a rather advanced level of study in the respective disciplines. The day-to-day scientific work of the Christian biologist, geologist, or astronomer goes on in the same way, and according to the same principles (including methodological naturalism[18]) as that of her secular colleagues. Scripture scholars will determine the meaning of biblical texts according to the best methods of exegesis and hermeneutics, without straining to accommodate the texts to modern scientific conclusions. Theologians will determine the meaning of essential Christian doctrines in the light of Scripture, tradition, experience, and so on. Only when these inquiries have reached a fairly advanced stage does the synthesizer, the constructor of worldviews, bring the various disciplines together to fashion, as it were, the capstone on the edifice of truth.[19] Even at this stage, furthermore, there will be a disposition for the most part to accept the results of the various disciplines at face value, while appropriately "modulating" them so as to arrive at a unified perspective. In such an enterprise the possibilities of conflict and of territorial trespass still exist, to be sure, but they are greatly minimized.[20]

In Theistic Science, on the other hand, the interaction (and the potential conflicts) occur at a much lower level. The scientist practices his geology with the Book of Nature before him and the Book of God in his hand, and what he says about each will depend in part on what he reads in the other. The possibility of excessive and unproductive conflict, pointed out by McMullin, is much more pressing here. There is also the all-too-real likelihood that in a theologically conservative context (and that is the only place Theistic Science has a chance of being taken seriously) the theological disciplines will assert hegemony and, supported by the ecclesiastical authorities, will attempt to "call the shots" for the "lesser" secular disciplines. Plantinga's present academic setting effectively insulates him from such concerns — but recent events at his *alma mater*, Calvin College, should remind him that this is no idle possibility.[21]

Now if the Scriptures really are relevant to detailed scientific conclusions, this relevance must be recognized in spite of the practical difficulties just noted. But are they relevant? McMullin would not deny the relevance altogether; he does not think we can eliminate in principle the possibility of a conflict between science and faith. But these possibilities are largely limited to conflicts regarding human nature, freedom, and moral responsibility; the first two chapters of Genesis, on the other hand, "are not to be read as literal history" (p. 62).[22]

In Theistic Science, on the other hand, the interaction (and the potential conflicts) occur at a much lower level. The scientist practices his geology with the Book of Nature before him and the Book of God in his hand, and what he says about each will depend in part on what he reads in the other.

Plantinga apparently disagrees. But does he really? Consider again the quotation given above from James Barr. If Barr is right in holding that the author of Genesis intended to teach a literal six-day creation, a young age for the earth, and a world-wide flood, this will create some embarrassment for those who prefer to think that the biblical writers used an ancient world-picture only as a convenient manner of speaking and were not seriously committed to it. But Barr's view is absolutely devastating for those who, like Plantinga, hold that the creation story is relevant for deciding on a scientific view to be accept-

ed by contemporary Christians. If Barr is right, Plantinga's choices would seem to be stark: Either accept an uncompromising version of Creation Science, or admit the Genesis account is *not* relevant to our acceptance of scientific views about origins.[23]

Plantinga's response to this, in conversation, is that what follows from Barr's statement is at most that what the *human* author(s) of Genesis meant is not relevant to the assessment of our scientific theories; what is at issue, however, is what the *Lord*, the *divine* author, intends to teach us — and this, as has been noted, may be quite different than what the human author thought. This move solves the problem for Plantinga only by reminding us of the potentially wide gap between what the human author meant and what God meant by Scripture — a gap, let us recall, that *Plantinga has given us no directions whatever for crossing*. So for all that he has said, it could very well turn out that the relevance of Scripture to scientific hypotheses is no more extensive than Van Till and McMullin think it is.[24]

In the conclusion of his essay Plantinga points out that his call for Theistic Science is not new: It represents a key idea in the tradition of Reformed Christianity, the idea which was expressed by the founding of the Free University of Amsterdam as well as Calvin College. But, he says, "We must admit . . . that it is our *lack* of real progress that is striking" (p. 30). He goes on to attribute this lack of progress to the inherent difficulty of the undertaking, as well as to the lack of support and recognition for such an undertaking in the secular academy.

I wish to suggest a different assessment. It should be noted, to begin with, that precisely in the natural sciences the achievements of certain Calvin College faculty members (such as Davis A. Young, Clarence Menninga, and Howard Van Till) are far from negligible. But of course, not all good things come from Grand Rapids, or even from Friesland. There is in the twentieth century a vigorous tradition of Christian reflection on the natural sciences, carried on by such thinkers as Karl Heim, F. R. Tennant, Pierre Teilhard de Chardin, Ian Barbour, John Polkinghorne, Richard Bube, Donald M. MacKay, and, last but far from least, Ernan McMullin.[25] Each one of these, I am sure, would agree that a great deal remains to be done. But what they have accomplished should not be minimized — and here I believe Plantinga would agree.[26]

From the standpoint of Theistic Science, to be sure, all this may be quite unsatisfactory; the persons named have scrutinized and interpreted standard, "mainstream" science, but have not created a distinctively Christian natural science. But I think the lack of progress in Theistic Science can be linked to another historical tradition — one which includes Bellarmine and the persecutors of Galileo, the efforts of "flood geologists" in the eighteenth and early nineteenth centuries, much of the anti-evolution movement since Darwin, and in our own time the purveyors of Creation Science.[27] These efforts to create a "Christian" natural science have failed, I suggest, not because of lack of talent or effort but because the thing does not exist: there is one nature, and one science of nature, and the attempt to construct an alternative on a biblical basis is doomed to failure, because that is not what the Bible is about. At best, those who make such an attempt will repeatedly discover, fifty years too late, that the Bible does not "clearly teach" about science what their grandfathers said it did, and that the scientific knowledge their grandfathers rejected should indeed, albeit tardily, be welcomed as true insight into the structure of God's creation. Those who forget history are doomed to repeat it.[28] ✹

NOTES

[1] Alvin Plantinga, "When Faith and Reason Clash: Evolution and the Bible," pp. 8-33; Howard Van Till, "When Faith and Reason Cooperate," pp. 33-45; Pattle Pun, "Response to Professor Plantinga," pp. 46-54; Ernan McMullin, "Plantinga's Defense of Special Creation," pp. 55-79; and Alvin Plantinga, "Evolution, Neutrality, and Antecedent Probability: A Reply to McMullin and Van Till," pp. 80-109; all in *Christian Scholar's Review* XXI:1 (September 1991); page references in the text are to this material. I will draw upon a number of points made by Van Till and McMullin, but will not be giving a complete account either of their responses or of Plantinga's reply to them. Pattle Pun's paper, unfortunately, suffers a fate which comes frequently to comments which do not generate major disagreements; Plantinga acknowledges it with enthusiasm, but it is not picked up in the subsequent discussion and will not be pursued here.

[2] "Methodological naturalism" will be understood to mean that only natural objects and forces can be referred to in scientific explanations.

[3] In his Reply, Plantinga admits to an error here: "I represent myself as arguing against TCA . . . ; as a matter of fact, however, I am questioning the hypothesis that wings, brains and the like have developed according to the mechanisms suggested by contemporary evolutionary theory" (p. 103). He goes on to explain this lapse by saying, "These two hypotheses are of course intimately connected; in particular, it is hard to imagine (*given naturalism*) how the former could be true unless some version of the latter were" (p. 103, emphasis added). But how does this bear on what a *theist* should conclude about the probability of TCA?

[4] See his *The Nature of Necessity* (Oxford: Oxford University Press, 1974), p. 195.

[5] Here I rely on a conversation with Alvin Plantinga. I must say that the text of Plantinga's essay does not seem to me to make it clear that this passage is not stating Plantinga's own views, though it is certainly consistent with this interpretation. In any case, Plantinga does agree with several of the views

here attributed to the creationist; this is made clear in a quotation below, taken from pp. 81-82 of his Reply.

[6] P. 96; the reference for the citation is a "personal letter to David C. K. Watson, (April 23, 1984), published in the *Newsletter* of the Creation Science Association of Ontario, vol. 3, no. 4, 1990/91." Plantinga acknowledges that this view may not be held quite as universally by Old Testament scholars as Barr asserts—but it does appear that he embraces the substance of the view as stated by Barr.

[7] The only possibility which may be excluded is that God intends to teach us precisely the opposite of what the human author asserts—at least, Plantinga provides us with no example of this.

[8] The one exception is that, when our reasons for thinking God teaches us a certain thing in Scripture are comparatively weak, and there are very strong reasons from other sources to think that the view in question is false, then we should conclude that probably God does *not* intend to teach us the item in question. No doubt that is good advice, but taken by itself it will not get us very far.

[9] I must confess that I find it difficult to credit that any well-informed person, uninfluenced by biblical exegesis, could assign a high probability to the view that humans are specially created purely on the basis of theism and the empirical evidence.

[10] To avoid misunderstanding, let me say that I do *not* think Plantinga has deliberately proceeded this way in order to give himself an unfair advantage. I do believe that, as a matter of fact, his procedure does give him an unfair advantage.

[11] Prominent among the philosophers of science who have established this point are Thomas Kuhn (see *The Structure of Scientific Revolutions*, 2nd edition, Chicago: University of Chicago Press, 1970), and Imre Lakatos (see *The Methodology of Scientific Research Programmes: Philosophical Papers, Volume I*, ed. John Worrall and Gregory Currie, Cambridge: Cambridge University Press, 1978). Lakatos writes: "Important criticism is always constructive: there is no refutation without a better theory. . . . [W]hat normally happens is that progressive research programmes replace degenerating ones" (p. 6). Also, "A theory can only be eliminated by a *better* theory, that is, by one that has excess empirical content over its predecessors, some of which is subsequently confirmed" (p. 150).

[12] On at least seven occasions, Plantinga refers to actual or possible modifications of evolutionary theory as "epicycles." Presumably an epicycle is an *ad hoc* adjustment to a theory—but in several of these cases Plantinga makes no attempt to argue that the adjustments in question really are *ad hoc*. One is left with the impression that, for Plantinga, *any* modification of evolutionary theory to accommodate new data would be an "epicycle."

[13] There is to be sure another relevant question to be asked here; namely, what is the *antecedent likelihood* of God's proceeding in one way or the other? That is to say, leaving aside the empirical evidence concerning evolution, and leaving aside also the specific teaching of Genesis about creation, whatever it is, which is more reasonable to expect—that God would proceed by evolutionary means, or by way of special creation? Both Plantinga and McMullin devote considerable attention to this question (see pp. 21-22, 74-76, 99-102), and the results are fascinating though finally (in my opinion) inconclusive. In any case, Plantinga seems to be correct when he says that we must rely mainly on the empirical evidence rather than on these estimates of antecedent likelihood (see p. 102).

[14] I am taking a small liberty by applying McMullin's remarks directly to Plantinga's principle; they originally apply rather to a slightly different principle proposed by Galileo. But the points made do, in McMullin's view, apply to Plantinga's approach with equal force.

[15] What Plantinga says here is undoubtedly true. I think it is fair to remind the reader, however, that McMullin is one of the world's premier historians and philosophers of science, and is extremely familiar with the relationships between science and religion over the past several centuries. Plantinga is a superb metaphysician and philosopher of religion, but has no comparable credentials in science or the philosophy of science.

[16] I take it that the objective of sociobiology is to see how much of human behavior can be explained in terms of our inheritance from lower forms of life. In order to pursue such an enquiry it is by no means necessary to assume in advance that *all* human behavior can be so explained, and any such assumption should be rejected as an unwarranted "mythological addendum" to the scientific project.

[17] Another problem with Plantinga's appeal to sociobiology stems from the fact that his controversy with Van Till and McMullin concerns *natural* science, whereas this example is from *behavioral* science. It is widely recognized, however, that natural science and behavioral science are quite different from each other in respects which are highly relevant to the way in which they interact with the Christian and theistic worldview.

[18] To launch into a defense of methodological naturalism at this point would carry us too far afield. There is, however, a possible misunderstanding lurking here which deserves to be laid to rest. If a science is practiced in accord with methodological naturalism, this means that only natural entities and forces will enter into the explanations given by that science. (One possible reason for this might be that supernatural entities cannot be subjected to experiments, nor can their behavior be captured in our laws.) Methodological naturalism does *not* mean, however, that every event whatever must be explainable in terms of naturalistic science. The point is made nicely in the saying, sometimes heard in the discussion of an alleged miracle, "There is no scientific explanation for this event." This sentence captures *both* the idea that "scientific" explanations must be of a certain kind (viz., naturalistic), and *also* the claim that there are real events which cannot be explained in this way.

In a comment on this paper, David Wilcox poses the question of how theists, Hindus, and agnostics can work together to produce a common science: "What does a common assumption of 'methodological naturalism' mean? Clearly, it must mean something different for each worker, yet the *expected behavior* for each (such as uniformity and rational/lawful order) must be similar enough that the workers will make parallel predictions about experimental outcomes. *But*, the meaning of that methodological naturalism will be miles apart for the workers. That meaning is not implicit in the assumption. *That is as true for the materialistic world-view as it is for any other*. Thus, an agnostic is *always* as subjective as a theist."

[19] Philip Quinn has suggested to me that I am giving here a highly idealized description of the process of synthesis. No doubt this is true; a scientist or scholar concerned with synthesis will be unlikely to exclude all thoughts of the final result until a late stage of the process. What is crucial, however, is that the *methodological integrity* of the respective disciplines be maintained.

[20] There is a substantive underlying issue here: How seriously are the various sciences, as practiced in the secular academy, compromised by the naturalistic assumptions of their more influential practitioners? Clearly, McMullin takes a relatively optimistic view on this point: naturalistic bias and distortions no doubt exist, but they can fairly readily be separated from the healthy, "genuinely scientific" core of the disciplines. Plantinga, on the other hand, is much more prone to find the trail of the naturalistic serpent over everything. At this deep level, what we are dealing with may well be a conflict between Thomism and Kuyperianism.

[21] A significant suggestion at this point comes from David Wilcox, who writes: "If one accepts the idea that we live and work within a hierarchy of recognitional models (data patterns to world views), it becomes possible to do integration continuously. In fact, one must, for one can never 'shuck off' the

guidance of the higher levels, nor can one dodge the empirical pressure of the lower levels. However, each discipline works with a different part of reality. At the lower levels of data recognition, the 'world-view' effect is remote, mediated down through the hierarchy. Thus people of different world-views may, in part, work together. At the higher world-view levels, the effects of the 'data' is remote, mediated up through the hierarchy. Thus, Christians in different disciplines may, in part, be working together. Theologians, however, would have progressively less to say as they approached the data of the physical world, and scientists would have less to say as they approached the Biblical text. Disciplines would be distinct, and yet still sensitive to the Scripture as it spoke to foundational understandings in their areas. And that, I think, we are called to."

[22] McMullin writes, "I do not believe that Scripture *does* prescribe that the universe had a beginning in time, in some specific technical sense of the term, 'time'" (pp. 64-65).

[23] Note that each of the three items mentioned by Barr, taken separately, is incompatible with well-established scientific data quite apart from the issue of TCA vs. special creation. A literal six-day creation is incompatible with the long periods known to have elapsed between the appearances of various forms of life. That the genealogies provide a complete chronology is incompatible with abundant data which establish for *homo sapiens* an antiquity of 50,000 to 100,000 years. And a world-wide flood in historic times is incompatible with a very large range of geological and archaeological data.

[24] It should be kept in mind that neither Van Till nor McMullin rules out *a priori* any possible relevance of Scripture to scientific theories. It is rather that when they examine the actual content of science and Scripture respectively, they find the relevance to be minimal.

[25] To say that this list is *incomplete* would be an understatement; in reality, it is a mere sampling of those who could have been mentioned. The reader who finds one or more of his favorite names omitted is invited to add it to the list with my blessing.

[26] Plantinga informs me that his complaint about the lack of progress was directed at the Reformed community and its specific project, here labeled "Theistic Science"; he was not meaning to deny the achievements of thinkers such as those named in the text.

[27] I would not be strongly critical of the persons early in this list, though the persecution of Galileo was certainly reprehensible. In the eighteenth century it was quite reasonable to try and interpret the geological record in terms of Noah's Flood; to try to resurrect this failed science today is a different matter entirely.

[28] I am indebted to Alvin Plantinga, Ernan McMullin, Philip Quinn, and David Wilcox for valuable comments on earlier versions of this paper.

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Our society has long seen as inevitable the continued advance of science. Thus, it forgets how scientific progress is affected, for good or for ill, by the particular worldviews of scientists and also by how they relate such perspectives to their endeavors. If a critical mass of scientists comes to embrace worldviews that clash with science's very philosophical foundations, and if a disproportionate number so relate their worldviews to science that its inherent borders are distorted, then true science is threatened, and with it the progress which we have long taken for granted. Scientists must begin paying heed to this danger, for the integrity of science is at stake.

The October 1990 issue of *First Things* featured a lively and occasionally fierce debate on the subject of evolution. Initiated by Phillip E. Johnson of the University of California Law School at Berkeley, the debate included responses by a history of science professor (William B. Provine), a museum curator (Gareth Nelson), a biophysics professor (Thomas H. Jukes), and two editors (Irving Kristol and Matthew Berke). Of these participants, it was Berke who especially attempted to draw serious attention to the philosophical dimensions of the issue. Berke's principal point was that "philosophy, rather than science, is the final battleground in the evolution debate ... insofar as that debate becomes a struggle between naturalism and supernaturalism to have the final say on man's status." The point is well taken, and points to the larger truth that the evolution debate is itself a microcosm of a much broader philosophical struggle — a struggle over the very definition, boundaries, direction, integrity, and even validity of the entire scientific enterprise.

The manner in which this debate has been carried on, if it is truly indicative of the thinking of the participants in it, should trouble — even alarm — those who are concerned for the continued success of the scientific enterprise.

For as has been made vivid by the argument about evolution, two tendencies of thought are between them posing a serious threat to the continued health of scientific endeavor. First, there is the increasing prevalence within the scientific community of naturalistic philosophical beliefs which, if carried to their logical conclusion, would seem to imply a complete debunking of the enterprise. Second, there is a tendency on the part of both naturalistic and theistic scientists to impose their respective worldviews onto the realm of science and hence to distort the logical boundaries of that realm.

The first threat, that from naturalism, directly challenges the presuppositions upon which science as we know it was originally based — presuppositions which, though undoubtedly absent from the consciousness of many contemporary scientists, were quite clearly on the minds of those who pioneered modern science. These presuppositions concern both nature the observed and man the observer. Nature was assumed to "occur" in regular patterns. Earlier scientists such as Isaac Newton premised this assumption on a prior one that nature was created by an "orderly" God closely resembling if not identical to the God of the Bible who, having a fixed character, was presumed to have created nature with the same kind of essential order or stability. From this premise, it was concluded that nature was worthy of being observed seriously.

Having been deemed worthy of such observation, can an object, in fact, be observed? Is the observer capable of observing it? That depends on his rela-

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tionship to the object. When the object is nature, it would appear that man must be sufficiently detached or removed from it to be able to discover genuine truths about its operations. Hence the second major presupposition that would seem necessary in order for scientists to proceed with well-grounded confidence is this: Man the observer is not entirely immersed in nature the observed. Though long out of vogue within the philosophy departments of major universities, this presupposition of an existent subject/object relationship has for its detractors an especially annoying habit of regularly rearing its unwanted but formidable head in the real world. Words like "objective" and "objectivity" are inescapably premised upon the existence of such a relationship. When, for example, we deem a judge to be "objective," we mean that he, the subject, is sufficiently detached from the parties and their respective interests, the object. If his interests lie with either side, if he stands insufficiently outside of the parties' respective interests, it is understandably assumed that he may not handle the case in a manner conducive to the emergence or discovery of truth. Similarly, if man is intrinsically incapable of standing sufficiently outside of or transcending nature, logic would appear to dictate that the validity of his assertions concerning it could be called into question.

Absent this assumption of an existing subject/object relationship, it would seem that science cannot be ultimately practiced with a great degree of confidence. But on what grounds may we properly assume that a part of man can, in fact, transcend nature? The traditional answer has been that the same Deity who had created nature the observed and hence transcended it had placed in man the observer a similar kind of transcendence. It is no mere coincidence that science as we know it today began in the Judeo-Christian West and not the pantheistic East. Man's confidence in his ability to transcend nature and hence discover truths concerning it ultimately depends upon his rejection not only of dogmatic naturalism but of pantheism's attribution to Deity of complete immanence, in favor of a Western attribution to Deity of a transcendent character.

Thus far, it has been shown that a philosophical case can be readily made for the assertion that the validity as well as origins of science derive from the assumption of the validity of Western theistic premises. Nonetheless, as Phillip Johnson and many others have noted, most evolutionary biologists appear to have accepted uncritically the worldview of naturalism. If it is indeed the case that absent theistic assumptions, the scientific enterprise can be ultimately called into question, then by embracing naturalism, these biologists are effectually sawing off the branch upon which they are currently sitting. If naturalism is true, then all branches of the sciences, evolutionary biology included, could in the long run be in serious trouble.

Science, however, has faced, is facing, and will continue to face a far more obvious threat than that posed by the particular philosophical beliefs of scientists. It comes from a particular vocal group of naturalists on one side and a much smaller but equally noisy lot of creationists on the other, both of whom have increasingly been declaring their respective philosophical views not merely to be true but to be true in a specifically scientific sense. Those who have incurred the bulk of the media's wrath, or more commonly, ridicule, have of course been the creationists. Though it is entirely legitimate for a scientist, or anyone else, to present philosophical or theological arguments against naturalistic evolution, it cannot properly be claimed that such arguments are themselves scientific ones. Here we have the blind spot of creationism, for if we define science as the study of nature, then to offer an opinion concerning what lies outside of it is to step entirely outside of the scientific realm.

Even if all scientists declared evolution to be entirely errant, creationism could be taught as a science

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only in terms of what it denies, namely, that there is sufficient evidence for evolution. What it affirms — specifically, the creation of nature by a Supreme Being who transcends it — cannot represent itself as science. A creationist may argue eloquently and persuasively for the existence of a transcendent God. He may argue, as I have attempted to do, that the presuppositions behind science are ultimately theistic. But when he does so argue, he is speaking not the language of science, but rather of logic, philosophy, or theology. This is said, to be sure, not in denigration of these fields: for if Western theists are correct, then such fields are arguably of greater importance than science. But for the sake both of truth and continued human progress, the integrity and independence of science ought to be preserved against those who would compel it to state, as *scientific fact*, that something exists outside of its sole field of study, which is nature.

Every scientist, then, be he a pantheist, a naturalist, or a Western theist, has an ethical and professional duty to guard the scientific realm from being infiltrated by philosophy or theology and to restrain it in turn from infiltrating these and other fields.

Equally dangerous to science, however, if not more so, are those naturalistic scientists who play essentially the same game as the creationists, i.e., seek to lend credibility to their particular worldview by attempting to clothe it in scientific garb. It must be emphasized that even if what they believe is true and we theists are wrong, it is no more affirmable as science than creationism. The naturalists' assertion that nature encompasses all that exists can be neither verified nor falsified through its study. In other words, science by definition has boundaries, and when they speak *as* scientists, people simply cannot address the question of whether or not anything exists outside of nature.

Every scientist, then, be he a pantheist like Fritjof Capra, a naturalist like Carl Sagan, or a Western theist like Robert Jastrow, has an ethical and professional duty to guard the scientific realm from being infiltrated by philosophy or theology and to restrain it in turn from infiltrating these and other fields. In recognition of the boundaries derived logically from its very definition, science must both defend itself from invasion by, and at the same time resist the temptation to invade, other fields.

In centuries past, science's boundaries were continually threatened with invasion by the forces of institutionalized religion. One of the most egregious examples of this was the persecution of Galileo at the hands of the seventeenth-century Roman Catholic Church, which imprisoned him for his apparent sympathy for the heliocentric theories of Copernicus. For students of the history of science, this shameful incident is etched indelibly in their minds as an example of the bullying of science by those having an apparent stake in the upholding of a particular religious worldview.

In contrast, the past hundred years have witnessed an exactly opposite phenomenon, the effort at imperial expansion by certain naturalistic scientists. Buoyed by a self-confidence that, paradoxically, can only be justified by the theistic premise of man's capacity to transcend nature, these scientists began subjecting man himself to an increasing amount of scientific study. In light of the fact that man is located within nature, it is not in retrospect surprising that many of the results have been extraordinarily beneficial. We have come a very long way from the not-so-distant past when physical life on earth was for humanity as a whole "nasty, brutish, and short," as Hobbes succinctly put it. The findings resulting from the scientific study of man have ushered in a period of unparalleled progress, especially in the form of enhanced physical health and material abundance for hundreds of millions of people. But as man became increasingly the object of this kind of study, science eventually arrived at a crossroads. As man *was* indeed a part of nature, scientific study of man was, as we said, legitimate. But the question inevitably arises, is *all* of man located within nature? And science is by definition unable even to address this question.

But the question inevitably arises, is* all *of man located within nature? And science is by definition unable even to address this question.

Unfortunately, all too many advocates of science, both professionals and amateurs, presumed that science knew the answer. Naturalism came to be af-

firmed as axiomatic, and metaphysical or theological premises concerning man contemptuously dismissed as obsolete and hence irrelevant. In short, man came to be seen in his entirety as a creature of nature, and all assertions with respect to his transcendent capacities were peremptorily denied.

The effects on Western civilization of this imperialistic expansion have been both far-reaching and calamitous.

The effects on Western civilization of this imperialistic expansion have been both far-reaching and calamitous. So far- reaching have they been that it is no exaggeration to assert that the modern age can be most easily characterized as the time in which the penetration of virtually all fields of human endeavor has been accomplished on science's purported behalf by naturalists. And so calamitous have they been that despite recent worldwide successes in the political realm, Western civilization has yet to reverse or even stem the tide of cultural decay attendant on them.

The effects of the venturing of science beyond its borders came under the categories of determinism and relativism. As for determinism, naturalism's widespread acceptance in both the natural and social sciences implies that man, seen as a being completely subject to the chain of cause-and-effect that runs throughout nature, possesses no free will. The resultant denial of personal responsibility for thoughts, attitudes, and conduct has in a variety of ways affected the intellectual and academic disciplines from sociology, psychology, and criminology to political science, history,and the humanities. Even a cursory comparison, for example, of works of history written in this century with those written in centuries past provides an astonishing contrast, particularly with respect to discussions on the causes of various wars. In seeking to explain the commencement of armed conflicts among nations, writings from our century are far more likely to emphasize "environmental" causes, such as, of course, economics, than the free-will decisions of various leaders or the power of ideas. The implicit premise behind this "environmental," i.e., deterministic, analysis is that man is entirely submerged in the cause-and-effect processes of nature.

That such analysis is, to say the least, incomplete, can be easily demonstrated by even the most elementary critical scrutiny. If, for example, it is asserted that World War I was in large part caused by the economic rivalry between Great Britain and a newly emergent Germany, the question immediately arises as to why a divergence of economic interest between two nations would in itself result inexorably in their proceeding to fight each other, thus tearing apart both their respective societies and economies. Without turning to basic assumptions concerning the limitations of human nature, the power of ideas and attitudes, and, ultimately, the existence of free will, any explanation of the causes of war will ultimately be unsatisfactory.

The prevalence of determinism is even more evident in the field of psychology. In earlier decades, both Freudian psychoanalysis and Skinnerian behaviorism were examples of the widespread embrace of determinism on the part of psychologists. Though Skinner is the most obvious example of adherence to a particularly "hard" determinism, the ideas of Freud and many others had deterministic implications as well. The comparatively recent popularity of cognitive behaviorism, with its implicit nod to free will in its emphasis on the importance of beliefs, concepts, and ideas as well as environment in influencing human attitudes and conduct, shows that in some circles determinism is being somewhat moderated. Nevertheless it remains true that, with the exception of sociology, psychology has been more influenced by naturalistic (and hence deterministic) presuppositions than any other field in the social sciences and humanities. The result, especially where psychotherapy is involved, has been a serious de-emphasis on personal responsibility. Moreover, for some years now a "pop" version of psychological determinism has been spreading throughout our culture, making a large contribution toward the undermining of an ethic of personal responsibility.

The result, especially where psychotherapy is involved, has been a serious de-emphasis on personal responsibility.

Which is to say, the adverse effects of determinism have in no sense been confined to the academy. The increase in virtually every form of social pathology throughout the West, especially in the latter part of this century, may in no small part be attributable to the steady erosion of the belief in free will. The characterization of criminals as primarily victims of their environment, a notion that became in-

creasingly popular among public policy analysts and social critics beginning in the 1950s, is the clearest example of the erosion of this belief. Though the idea of criminal as victim does seem to be falling somewhat out of fashion — possibly because certain policy analysts and social critics have themselves experienced some of the increasingly widespread criminal behavior — it is interesting to note that more and more offenders have become conversant with and adept at the rationalizing language of determinism. Prison rehabilitation experts have duly noted the difficulty of breaking through the numerous rationalizations of inmates who refuse to accept any kind of responsibility for what they have inflicted upon themselves or others.

As we have seen, free will is not the only thing denied by naturalism. As naturalism is affirmed, transcendence is denied, and with it the existence of absolute and objective standards. Affirmed is a throughgoing relativism that has come to pervade virtually every area of life. Nothing seems immune from this onslaught. Even defining the nature of a given field of study has become an increasingly difficult and frustrating endeavor. Western culture has been plunged into seemingly endless debates about what is art, or what is philosophy, or what is theology, and over and over again those who stirred such debates arrived at the answer that there are no answers. That such an idea is self-contradictory seemed only to confirm it.

The process of draining logic and meaning from everything came to full fruition in the 1960s and 1970s, when it began to be felt profoundly in the daily lives of many Americans, with such things as the proliferation of "alternative lifestyles," the diluting or jettisoning of academic standards at every level, the increasing inability of the legal system to make in practice sufficient or consistent distinctions between victim and victimizer among many others too familiar to all of us to need spelling out. Determinism and relativism have together made a lethal contribution to the cultural decay.

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It is no coincidence, then, that creation science and the emergence of the Religious Right as a social force should have come together in the 1970s and early 1980s. Both were essentially a backlash against the crisis of decadence wrought by naturalism's legacies of determinism and relativism. While the Religious Right sought in various ways to combat these legacies, the creationists specifically attacked the root of the problem, naturalism itself.

The inherently necessary borders of science can best be protected in the future if all scientists were to agree to draw a clear and careful and inviolable line between scientific and philosophical/religious truth.

Unfortunately, both employed the wrong kinds of arguments for the respective areas in which they engaged their opponents. As Richard John Neuhaus emphasized in *The Naked Public Square*, the Religious Right improperly employed the essentially private arguments and language of special Revelation in the public realm. With equal impropriety, the creationists often employed the thought and language of religion and philosophy in their area of concern, the study of nature. Thus while they have, as have the Religious Right, usefully called into question the harmful influence of the naturalists, when it comes to the well-being of science, they are probably as much a hindrance as a help. They appear to be no more respectful of science's proper boundaries than are their naturalistic opponents. While all too many naturalists seek, as we have seen, to expand these boundaries, the creationists, knowingly or not, advocate their shrinkage.

The inherently necessary borders of science can best be protected in the future if all scientists were to agree to draw a clear and careful and inviolable line between scientific and philosophical/religious truth — that is, if they would conscientiously seek to avoid making purportedly scientific statements concerning questions whose answers lie beyond the scope of scientific inquiry. How scientists ultimately handle the evolution controversy in all its aspects may provide a clue as to whether they are authentically concerned about scientific integrity or whether they merely wish to advance their respective philosophical agendas, be they naturalistic or theistic. It would certainly be welcome, not only with respect to the interests of science, but to those of society in general, if scientists of all stripes began truly to respect the limits of their own enterprise.

By now, however, even this would not by itself be enough. For it would still be the case that a disproportionate number of scientists remain dogmatic naturalists and their denial of human transcendence would still threaten the very basis of confidence in the efficacy of the scientific enterprise. This issue would so far no doubt appear to most scientists and scientific devotees to be a rarified one addressed chiefly by people of an incorrigibly philosophical bent. But it is simply a matter of time before others, especially those naturalists who insist upon unflinching and brutal intellectual honesty with themselves, carry the logic of naturalism to its inevitable end and ask the perhaps unconsciously dreaded questions: How can we be objective if as naturalists we have rejected the very basis upon which to believe in objectivity? And if we cannot in fact be truly objective, then who is to say what is science or, for that matter, anything else?

What will happen then? Facing these questions, will naturalists undergo a serious change of worldview? It is, naturally, quite impossible to predict. But if they do not recognize the consequences, in both thought and practice, of the present state of their beliefs, we whose bent is philosophical rather than scientific may be forgiven for worrying about what the scientific future holds. ✹

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Some Relatively Non-Technical Problems With Flood Geology

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A popular view among evangelicals holds that Noah's Flood produced almost all geological phenomena. Understanding most scientific difficulties with this view requires at least a little sophistication. Virtually none is needed to understand the arguments presented here. These include problems with the geographic distribution of marsupials, flightless birds, salamanders and other creatures. Also noted are problems with the nourishment of animals on their trek from the Ark to their various destinations. The argument from population growth is shown to be faulty. In addition, a careless contradiction is noted.

In the evangelical Christian world, many people adopt the view that almost all geological phenomena are the product of the Noahic Flood. Because they accept recent creationism, the theory that the earth is only a few thousand years old, diluvianism follows. This flood geology cannot be simply equated with the neptunism and catastrophism of the eighteenth century.[1] So far as I can discover, contemporary flood geology began with the writings of the Adventist George McCready Price.[2] Recent writers have repeated some of his arguments along with newly developed ones.

Most arguments against such diluvianism tend to involve some technical sophistication. Consequently, they have not reached the lay public. For example, Wonderly's arguments[3] seem not to have produced changes in publications from flood geologists. Similarly, van de Fliert's study[4] has had little effect. At least the untrained public can be led to believe that segregation of materials by a universal flood explains the observations, especially since flood geologists insist that only recently laid down, unconsolidated strata can be bent to the degree observed.[5] Similarly, any radioactive dating is met by a declaration that the techniques are untrustworthy. Not many persons can read and understand the research papers that spell out the procedures used in such dating. Fewer can follow the quantum-theoretical papers that explain the observations of the half-life of each of the radioactive isotopes. So the popularity of flood geology continues undiminished.[6]

In contrast, I propose to present some arguments which can be spelled out so that no special expertise is needed to evaluate the evidence, and no complications are likely to obscure their relevance.

I. Post-Diluvian Marsupials: Nutriment and Trek Vectors

The distribution of marsupials presents one of these problems. There are no pouched mammals in Africa, Asia or Europe. One, *Didelphis virginiana*, the common opossum, is native to the United States. Other opossums and the less-known caenolestids range southward from Mexico. But the vast majority of marsupials are found in Australia and the nearby islands.[7] There are carnivores: marsupial "cats" and "wolves," as well as the Tasmanian devil. There are rodent-like marsupials, grazers, arboreal forms with prehensile tails—and without them, an anteater and some gliders. Why would the Creator specialize in marsupials in Australia to the almost total exclusion

This article is the first in a series of two by the author on this subject.

of eutherians (placental mammals),[8] and in the "Old World," eutherians to the total exclusion of marsupials? It cannot be argued that the "primitive" marsupials would not survive in competition with the "advanced" placental mammals. The opossum seems to have no problem surviving. Indeed, it has extended its range significantly.[9] But the Florida panther, Utah prairie dog, giant kangaroo rat, Stephens' kangaroo rat, black-footed ferret, a number of bats, and various other eutherians are on the current endangered species list in the United States.

However, since Morris and others claim that all living species had to get from Noah's Ark to their present homes, the specific complication is:[10] how did almost all the marsupials and all the monotremes (egg-laying mammals) head unerringly to Australia? Why were there no stragglers across Asia? What did these pilgrims eat on their trip? Since a great circle route from Mt. Ararat across the Indian Ocean to the closest point in Australia is very close to a quarter of the way around the globe, the trek could not have been brief. Most grazers and browsers would presumably find plenty of grasses and other vegetation.[11] But what did the koalas eat until they reached the first stand of the right kind of eucalyptus? If God caused mature eucalyptus trees to grow so that they would have nourishment, why have none of the trees survived along the route? Species of eucalyptus do well in the many parts of the world where they have been introduced.

It is important to understand the magnitude of the problem. First, there is the easiest case: the carrion eaters, who might be thought to have found year-old carcasses right after exiting the ark. According to the chronology of the flood, explicitly underscored by Morris,[12] Noah, his family, and all the animals were in the Ark 371 days. The first 40 days were the time of rising waters, until every bit of land was under at least fifteen cubits of water.[13] So the last possible death of terrestrial life had to have occurred at least 331 days before any creatures (except for birds) exited the Ark. Although the common scavengers we recognize (for example: vultures, buzzards, kites, hyenas, jackals, sarcophagus beetles and flies) would have drowned in a universal flood, bacteria and saprophytic fungi would certainly have been active. So all the flesh would have been putrefying for eleven months.[14] While dead animals may mummify in arid areas, this will not happen in a warm, moist environment. So all the dead animals floating in the sea and deposited on the surface of the land would have been pretty well decomposed.

This is not the end of the problem, however. Morris speaks of the flood waters raging over the surface, specifying that

> ... a worldwide tranquil flood is a contradiction in terms, comparable to a tranquil explosion .... it is obvious that a worldwide flood must have had worldwide geologic effects.
>
> Especially this must have been true in such a Flood as described in the Bible ... Such a Flood would have destroyed every earlier physiographic feature on or near the earth's surface, redepositing the eroded materials all over the world in stratified sedimentary rocks of the earth's crust.[15]

This seems to entail that any animal that was not deeply buried would have been torn to bits by the raging waters, especially since it had to have been pretty well rotted long before the waters receded.[16] Hence it is unlikely that scavengers issuing from the Ark would have found any food available to them.

The situation worsens when a 6000-plus-mile trek is considered. How long would it take?[17] While few people will think in terms of the Pony Express, at about 250 miles a day, they are likely to consider that a reindeer can travel about 40 miles in a day;[18] camels, 30,[19] and llamas, 20.[20] However, the rate of travel that can reasonably be expected is much less.

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For example, the Confederate cavalry under Jubal A. Early spent July 2-11, 1864, getting from Winchester, VA, to Silver Spring, MD, about 90 miles.[21] Of course, they were held up for two days. But this was a highly mobile force intent on surprise. Sherman took from January 10 to March 23, 1865, to make the 425 miles from Savannah, GA, to Goldsboro, NC — about six miles a day.[22] But it took him 119 days, from May 5 to September 10, 1864, to get from Chattanooga, TN, to Atlanta, GA.[23] The distance is about 119 miles.

What has just been noted involves large mammals—camels, llamas, horses, men. The pace of smaller creatures must be much slower. So, even if there had been some carrion available at the start of the trek, there would hardly have been any after the lapse of years. But, with only a breeding pair of each "kind" available, there would hardly be enough new deaths to meet the need for food for the carnivores. Even if "the dinosaurs, the pteronodons, the creodonts, the glyptodons, and other bizarre creatures of the past" were on the Ark,[24] and lumbered on ahead of the trekkers and conveniently died, there would not be enough flesh to feed all the carnivores during the years immediately following the Flood. Beyond this problem, the Tasmanian wolf eats only fresh kills, to which it does not return.[25] How many members of the sole surviving pairs were killed to keep these thylacines alive?

While almost all of the marsupials were heading for Australia, other mammals tended to spread in different directions. For example, lions were spreading south and west to Africa, east to India, north to eastern Europe, with some remaining in the Near East. Lynxes headed mostly for the northern hemisphere — North America, Asia and Europe — although one species also occurs in Africa.[26] Leopards are found through Asia and Africa. Tigers are found only in Asia, but from Siberia to China and India. The problem of food for all these carnivores is essentially the same as that for the carnivorous marsupials, but aggravated by the greater number of species.

II. A Secondary Problem with Distribution

There is the additional problem of explaining why some kinds headed off in every direction, while the others went one direction only, with no stragglers.

III. Marine Barriers to Distribution

How did the flightless kakapo and kiwi and the wingless moas get to New Zealand? It is well over a thousand miles to Australia, and at least 400 from most other islands.[27] According to the standard navigational charts, the water is at least 2000 fathoms deep on any track between New Zealand and Australia or Asia, and 1000 between New Zealand and the archipelagoes to the north.[28] Sea level has been as much as 66 fathoms lower during the glaciations,[29] but this is nothing compared to what would be needed. So walking is out. The distance excludes swimming. While ferrying the smaller birds might be possible, a 12-foot *Dinornis maximus* poses a large problem.

IV. Climatic Barriers to Distribution

How did the salamanders, especially those without lungs, get to America? In an experiment, two salamander species with lungs could go 0.1 and 0.13 kilometers per hour for two hours. But two without lungs, who breathe only through their skin and the lining of the mouth and throat, could go only 0.05 kilometers per hour for 90 minutes and two hours, respectively, before becoming exhausted.[30] This amounts to just over a quarter kilometer for the best, and 0.075 for the worst—about a sixth of a mile and less than a twentieth. If they could rest and repeat the trip a second time each night, the one could go a mile in about three days; the other, in about 21 days. A direct route from Ararat to the tip of Siberia is over 5500 miles. From there to their range in the United States is about 4000 miles for the slower species. The trip would take over 40 years for the faster, and over 315 years for the slower. But there would have to be springtime stops at ponds for three of the species to reproduce, inasmuch as salamanders do not live forever. The fourth species, a lungless form, guards the eggs that it lays in a damp place. The need to reproduce would probably extend the longer trek to at least 420 years, and the shorter to 60—assuming that the hatchlings could keep up with the adults right after metamorphosis. Otherwise, the three months or so for metamorphosis into small adults would not be the only slowdown to consider. There would be the slower pace of the young as well.[31] In addition, whenever any of the salamanders had to seek shelter from the cold of the winter, the time of the trip would be extended.

Of course, these numbers assume a direct route. Since salamanders cannot survive apart from moist surroundings, the routes would surely have been more circuitous. Hence, they would have taken even longer. Also, since salamanders need protection from extremely cold weather, they could be expected to have had very grave problems trying to cross a land bridge between Siberia and Alaska. Such a passage

can only be opened by the extreme chilling of an ice age. The current distribution of all salamander species, including the most hardy, is south of Anadyr and Norton Sound on the two sides of the Bering Sea.[32] This is at least 120 miles south of where the bridge would have been open. Is there any way that less hardy species could have made the trip when the area was much colder?

V. "Creationist" Perscription : Alter Parameters p.r.n.

One of the arguments repeatedly advanced for the recency of the flood involves mathematics. In a simple form this argument is presented by Morris:

> ... the present human population of the world supports the Genesis record. The world population in 1800 has been estimated at about 850,000,000, whereas in 1650 in was only about 400,000,000. The population thus seems to be doubling itself about every one hundred years, and there is no objective reason to assume this rate was significantly lower in the past. The present rate seems to be more rapid than this, in fact. Now if the original population was two (Noah and his wife), one can easily calculate that the population would only have to double itself thirty-one times to produce the present world population. Assuming the Ussher chronology to be correct, Noah and his wife had their family about 4,500 years ago. This gives an average doubling interval of 145 years, which is quite reasonable and conservative.
>
> However, if the original pair lived, say, five hundred thousand years ago, which is much less than the usual anthropological estimate, the average doubling time is over sixteen thousand years, which is absurd....[33]

This uses the simplest approach, doubling. That is, beginning with 2 and assuming the period given, one has a total population of 4 after 145 years, 8 after 290, 16 after 435, 32 after 580, 64 after 725, 128 after 870, etc. But there is a little problem: eight people exited the ark, not two. Of course, the computation is easily fixed by shoving everything over—8 at zero, 16 after 145 years, etc.

There is also a more sophisticated approach, using essentially the same formula used to calculate compound interest:

$$P_n = P_0 (1 + r)^n$$

Two simplified forms of this general formula are given by Morris for an initial population of 2.[34] There is a difference in the interpretation of the formula, of course. For finances, P_n represents the principal plus interest after n years; for population, the population living at the nth year. Similarly, P_0 is the principal or the original population, respectively. For finances, additional elements are usually added to deal with percentages and compounding more often than once a year.

If we use Morris's figure of doubling every 145 years, r is approximately 0.00479 for annual compounding. Assuming that we are 4300 years from the flood, Morris's more precise date,[35] and beginning with an original population of 8, there are between 29 and 30 doublings (29.66), giving a current population between 4,294,967,296 and 8,589,934,592 — a little high. The formula calculates 6,712,710,724.[36]

If we apply the same procedure to the period between the Flood and the time of Abraham's entry into Canaan, about 400 years,[37] we have time for fewer than three doublings. This gives a population of fewer than 64. The formula calculates a population of about 54. Yet, as Morris notes, there were cities and nations.[38] Since this is impossible with a total population of 54, Morris shifts parameters. He calculates 40-year generations, an average family of 8, and a lifespan covering 5 generations, to give a population of about 2,800,000 after 400 years.[39] This gives $r = 0.0324$ or a doubling about every 22 years. However, this has the consequence of allowing only about 3900 years to go from 2,800,000 to 4,000,000,000. Consequently, for this post-Abrahamic period, $r = 0.00186$ and doubling takes 373 years. Such changes of an order of magnitude are arbitrary, showing that the entire argument is purely ad hoc, unwarranted, and irrelevant.

VI. A "Creationist's" Careless Contradiction

Morris also writes that "many of [the million or so species of insects, whom], no doubt, could have survived outside the Ark."[40] Within a few pages, however he notes that "everything in the dry land that had life would be, literally, 'wiped out' from the face of the ground."[41] On the following page he again notes that the destruction applies to "all existence," including "plants as well as animals."[42] Later he notes again that "every living substance [was] destroyed."[43] Faced with the exclusive alternatives: that some terrestrial life could have survived outside the ark and that no terrestrial life could have survived outside the ark, how can he choose both? He has produced nonsense.[44]

Summary

These are a few of the problems with the theory of a relatively recent flood. The theory has no explanation for the restriction of marsupials and monotremes to the vicinity of Australia. There is no explanation how the carnivores' need for food was met right after the flood. There is no explanation for why some species spread widely and others went to one region. There is no explanation as to how slow, delicate animals like salamanders could get to their destinations. There is no sense in the computations of population growth that are used. These difficulties have not, to my knowledge, been faced by proponents of diluvianism. Their theory does not seem to stand up to critical examination.[45]

NOTES

[1] Werner, the neptunist, held that all rocks are sedimentary, laid down over time. He was opposed by Hutton, the plutonist, who had a place for sedimentary strata, but argued for a volcanic origin for granites. Both views require an ancient earth, though neither specified billions of years.

Evidence forced Cuvier, the catastrophist, to shift from a single Flood to multiple limited floods and multiple creations. Buffon presented a day-age theory, with as long as 35,000 years to one Genesis "day." He was forced by the theologians of the Sorbonne to retract this estimate.

There were recent creationists during the eighteenth and nineteenth centuries. But some were arguing that ours is a recreation of an earlier, perhaps original, creation destroyed catastrophically. In this scheme, the Flood is a minor event in a long geological history. So the Creationists should not represent themselves as simply continuing a universally held traditional view.

[2] His output included:

Outlines of Modern Christianity and Modern Science. Oakland, CA: Pacific Press Publishing Company, 1902.

Illogical Geology, the Weakest Part in the Evolution Theory. Los Angeles: The Modern Heretic Company, 1906.

2nd ed.: *The Fundamentals of Geology and Their Bearing on the Doctrine of a Literal Creation.* Mountain View, CA: Pacific Press Publishing Association, 1913.

4th ed.: *Evolutionary Geology and the New Catastrophism.* Mountain View, CA: Pacific Press Publishing Association, 1926.

God's Two Books, or Plain Facts about Evolution, Geology and the Bible. Washington, DC: Review and Herald Publishing Association, 1911.

Q.E.D., or New Light on the Doctrine of Creation. New York: Fleming H. Revell Company, 1917.

Science and Religion in a Nutshell. Washington, DC: Review & Herald Publishing Association, 1923.

The New Geology: A Textbook for Colleges, Normal Schools, and Training Schools; and for the General Reader. Mountain View, CA: Pacific Press Publishing Association, 1923. 2nd ed., 1926.

The Phantom of Organic Evolution. New York: Fleming H. Revell Company, 1924.

The Predicament of Evolution. Nashville, TN: Southern Publishing Association, 1925.

A History of Some Scientific Blunders. New York: Fleming H. Revell Company, 1930.

The Geological Ages Hoax: A Plea for Logic in Theoretical Geology. New York: Fleming H. Revell Company, 1931.

Modern Discoveries Which Help Us Believe. New York: Fleming H. Revell Company, 1934.

The Modern Flood Theory of Geology. New York: Fleming H. Revell Company, 1935.

Some Scientific Stories and Allegories. Grand Rapids, MI: Zondervan Publishing House, 1936.

Genesis Vindicated. Takoma Park [MD], Washington, DC: Review and Herald Publishing Association, 1941.

How Did the World Begin? New York: Fleming H. Revell Company, 1942.

If You Were the Creator: A Reasonable Credo for Modern Man. Mountain View, CA: Pacific Press Publishing Association, 1942.

Common Sense Geology, a Simplified Study for the General Reader. Mountain View, CA: Pacific Press Publishing Association, 1946.

In addition, there were two textbooks co-edited by Price, a debate, two works on theology, a work on socialism co-authored by Price, and some pamphlets.

[3] Daniel E. Wonderly, *God's Time-Records in Ancient Sediments* (Flint, MI: Crystal Press Publishers, 1977); *Neglect of Geological Data: Sedimentary Strata Compared with Young-Earth Creationist Writings* (Hatfield, PA: Interdisciplinary Biblical Research Institute, 1987).

[4] J. R. van de Fliert, "Fundamentalism and the Fundamentals of Geology," *Journal of the American Scientific Affiliation (JASA)*, 21:69-81 (1969). Howard J. Van Till, "The Legend of the Shrinking Sun: A Case Study Comparing Professional Science and 'Creation-Science' in Action," *ibid.*, 38:164-174 (1986), and John R. Armstrong, "Seeking Ancient Paths", *ibid.*, 41:33-35 (1989), deal with only one of their arguments apiece. Most other articles deal with the interpretation of Scripture, not with the specific scientific claims of diluvianists. This last is what I address. The closest previous approach to this is the pair: Thomas Key, "Does the Canopy Theory Hold Water?" *ibid.*, 37:223-5 (1985), and Stanley Rice, "Botanical and Ecological Objections to a Preflood Water Canopy," *ibid.*, pp. 225-229.

[5] See, for example, John C. Whitcomb, *The Early Earth* (Rev. ed.; Grand Rapids, MI: Baker Book House, 1989), pp. 80f.

[6] See, for example, the responses of Morris, Wheeless and Raaflaub to van de Fliert in *JASA*, 22:36-38 (1970). Also the reference in Morris's note 5, p. 37.

[7] With the exception of one family, the phalangerids, the range is from New Guinea to Tasmania. Some species of phalangerids are found on the Celebes Islands, the Timor Islands and the Solomon Islands.

[8] In addition to *Homo sapiens* and *Canis dingo*, the only other eutherians in Australia when the first Europeans arrived were some rodents and bats.

[9] See, for example, Robert Bruce White, "Opossum," *Audubon Nature Encyclopedia* (Philadelphia: Curtis Publishing Co., 1964-65), 7:1387; G. B. Sharman, "Opossum," *Encyclopedia of the Animal World* (Sydney: Bay Books, 1980), 7:1322. They note extension of the range from the southern United States to New England between 1900 and 1960, and into southern Canada by 1980.

[10] Henry M. Morris, *The Genesis Record: A Scientific and Devotional Commentary on the Book of Beginnings* (Grand Rapids, MI: Baker Book House, 1976), pp. 199-205, 683-86; *idem*, *The Biblical Basis for Modern Science* (Grand Rapids, MI: Baker Book House, 1984), pp. 258-60, 313-6. In subsequent references, these will be abbreviated as *Genesis Record* and *Biblical Basis*, respectively. See also Steven A. Austin, "Did Noah's Flood Cover the Entire World?: Yes," pp. 210-228 in Ronald Youngblood, ed., *The Genesis Debate* (Nashville: Thomas Nelson Publishers, 1986).

[11] A question that needs consideration: how many seeds will still sprout after at least 341 days soaking in turbulent water? On the theory, the water was fresh at the beginning of the Flood. But how salty did it become through dissolving continental deposits, if there were any? The answer to this question may affect the answer to the former.

[12] *Genesis Record*, pp. 192f, 199-202, 207-211.

[13] *Ibid.*, pp. 200f.

[14] Morris says that the nature of wine was probably known to the antediluvians. He further notes that "fermentation is a decay process" (*Genesis Record*, pp. 233f). Also, he claims bacteria and other microorganisms to antedate even the Fall (*ibid*, p. 125). So he cannot claim that the activity of bacteria and fungi on flesh did not begin until sometime after the Flood.

[15] *Ibid.*, pp. 198, 204.

[16] According to a recent experiment, dead sea urchins held together at least 5 to 10 weeks at low temperatures. Then the ligaments holding the shell together were too rotted to maintain its integrity. See Richard A. Kerr, "Taphonomic Down and Dirty," *Science*, 252:33 (1991). It may be recalled it is claimed that the climate at the time of the Flood was warm. Warmth hastens decomposition.

[17] Morris complicates the problem by suggesting that the trek had to wait for the Ice Age to open up land bridges sometime following the Flood. This would have made the trip much longer, entailing going via Malaysia and New Guinea. But he is not certain that there was a land bridge reaching Australia. See Henry M. Morris, *Science and the Bible* (Rev. ed.; Chicago: Moody Press, 1986), p. 87. [This book will be abbreviated *Science* in subsequent entries.] Also see Morris, *Genesis Record*, pp. 215, 261. For Morris, there is only one Ice Age, several centuries to a millennium long, after the Flood. *Ibid.*, p. 215, *cf.* pp. 256, 261, 303; *Science*, p. 81.

A moderate lowering of sea level by an ice age would allow land animals to migrate between New Guinea, Australia and Tasmania. The water on a track between New Guinea and Australia is about 10 fathoms deep. Between Australia and Tasmania it reaches 35. See section III, below. However, between the main group of Indonesian islands and the Australia-New Guinea complex the water is at least 450 fathoms deep. See Defense Mapping Agency Hydrographic/Topographic Center WOPGN 524 and 623 (1970).

[18] George C. Goodwin, "Reindeer," *Encyclopedia Britannica* (1989), 23:350. But Goodwin notes that this pace cannot be continued several days in succession.

[19] J. L. Cloudsley-Thompson, "Camel," *Encyclopedia Americana* (1989), 5:263.

[20] Fernando Dias de Avila Pires, "Llama," *Encyclopedia Americana* (1989), 17:626.

[21] Samuel Eliot Morison, *The Oxford History of the American People* (New York: Oxford University Press, 1965), p. 692.

[22] *Ibid.*, pp. 697-698.

[23] *Ibid.*, pp. 687f.

[24] *Genesis Record*, p. 215; cf. p. 252; *Science*, p. 87.

[25] G. B. Sharman, "Marsupial 'Wolf'," *Encyclopedia of the Animal World*, 7:1198.

[26] "Cats," *Van Nostrand's Scientific Encyclopedia* (5th ed.; New York: Van Nostrand Reinhold Company, 1976), pp. 455-7.

[27] The exceptions are Chatham Islands, to the east, and Aukland Island, to the south. The ocean depth between New Zealand and these islands is at least 300 and 196 fathoms, respectively.

[28] Defense Mapping Agency Hydrographic/Topographic Center, Map WOPGN 622 (1970).

[29] Peter R. Grant, "Biosphere," *Encyclopedia Britannica* (1990), 14:1016.

Another author, D'Arcy McNickle, "North America," *Ibid.*, 24:984, makes it 40 fathoms.

[30] R. J. Full *et al.*, "Exercising with and Without Lungs, I," *Journal of Experimental Biology*, 138:479f (1988).

[31] G. E. Freytag, in vol. 5 of Bernhard Grzimek, ed., *Animal Life Encyclopedia* (New York: Van Nostrand Reinhold Company, 1979), p. 344, notes that the slowest species tested, *Desmognathus quadramaculatus*, has an extended larval period. It is almost an aquatic species. John L. Behler and F. Wayne King, *The Audubon Society Field Guide to North American Reptiles and Amphibians* (New York: Alfred A. Knopf, 1979), p. 317, note that it "prefers sizable, swift and boulder-strewn mountain streams." These factors would make it difficult for the creature to get from stream to stream at the divides, and down to the coast for a move from continent to continent.

[32] G. E. Freytag, *op. cit.*, p. 309.

[33] *Science*, p. 86. Cf. *Genesis Record*, pp. 226f; *Biblical Basis*, pp. 424-426.

[34] *Biblical Basis*, pp. 425f.

[35] *Ibid.*, p. 426.

[36] We would come closer by assuming a doubling time of about 149 years or r = 0.00467. Seemingly insignificant initial differences become significant when compounded over millennia.

[37] *Biblical Basis.*, p. 422.

[38] *Ibid.*, pp. 422f.

[39] *Ibid.*, p. 423. Cf. *Genesis Record*, p. 285.

[40] *Genesis Record*, p. 185.

[41] *Ibid.*, p. 191.

[42] This seems to imply that only seed stored by Noah in the Ark would be available to grow plants. Can he mean this? But see note 11, above.

[43] *Ibid.*, p. 202.

[44] At least as far back as the Middle Ages, logicians have recognized that introducing a contradiction, as Morris has done, allows the valid conclusion of every statement whatsoever. This includes "Morris staunchly defends organic evolution." Or, to phrase it differently, whenever a contradiction is introduced, all possibility of rational discussion disappears. Although Morris did not intend this, this is a necessary consequence of his statements.

[45] Thank you, referees, for helpful suggestions.

Books Received and Available for Review

(Please contact the Book Review Editor if you would like to review one of these books.)

S. Bratton, *Six Million and More: Human Population Regulation and Christian Ethics*, WJK

D. Browning & I. Evison, (eds.), *Does Psychiatry Need a Public Philosophy?*, Nelson-Hall Publishers

V. Brummer, (ed.), *Interpreting the Universe as Creation*, Pharos

N. Cameron, *The New Medicine: Life and Death after Hippocrates*, Crossway

T. Campolo & G. Aeschliman, *Fifty Ways You Can Help Save the Planet*, IVP

F. Capra, *Belonging to the Universe: Explorations on the Frontiers of Science and Spirituality*, Harper

R. Chandler, *Racing Toward 2001: The Forces Shaping America's Religious Future*, Harper-Collins

J. Chirban, (ed.), *Health and Faith: Medical, Psychological and Religious Dimensions*, University Press of America

H. Corben, *The Struggle to Understand: A History of Human Wonder and Discovery*, Prometheus

J. Finn, *And the One Became Two: The Key to Unlocking Genesis*, Vantage

R. Franklin & J. Shaw, *The Case for Christian Humanism*, Eerdmans

Communication

Some Comments on the "Godless" Nature of Darwinian Evolution, And a Plea to the Philosophers Among Us

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Introduction

Phillip E. Johnson's book *Darwin on Trial* was recently reviewed and discussed by several individuals in *Christianity Today*.[1] It was pointed out that one of Johnson's main concerns is that "Darwinian evolution is grounded not on scientific fact, but on a philosophical doctrine called naturalism." "Darwinism" was defined as "fully naturalistic evolution — meaning evolution that is not directed or controlled by any purposeful intelligence." "Naturalism" in most of its forms would certainly be antithetical to any variety of theism because it denies the existence of God.[2] However, all of modern science, not just biological evolutionary theory, by definition, excludes God.[3] Note, I am *not* saying that modern science *denies the existence* of God, but rather, that its descriptions are limited to the observable natural world. Hence, biological evolutionary theory today does not include God in any of its explanations, and neither do the theories of physics, chemistry, astronomy, geology, or any other natural science. There is no rulebook that spells this out, and indeed it has been argued that it is an arbitrary restriction. Furthermore, this has become the case only in the last 100 or so years. Nonetheless, this is one of the restrictions almost universally put upon science by those who practice it, and it seems to me quite desirable and likely that science will retain this restriction in the foreseeable future. This is also one of the ways that "scientific" pursuits can be differentiated from other lines of intellectual inquiry such as philosophy, religion, etc. However, this does not mean that science cannot point beyond itself to our Creator — indeed, it often does. I recently had a student tell me he was brought back to a belief in God by a cell physiology course! Nonetheless, science itself, by definition, cannot consist of descriptions that mention God. So, in one sense, Darwin's theory of evolution must be "godless" in order to be "scientific" by today's standards.

I am aware that a major part of Johnson's argument was aimed at scientists who adhere to naturalism and use their metaphysical presuppositions as well as Darwinian theory to deny the existence of God. This is implied in the definition of "Darwinism" given above. I agree that this strategy by agnostic or atheistic scientists is invalid and should be resisted. However, I am also concerned that the "godless" (or theologically neutral) nature of science does not seem to have been widely appreciated, especially among those of us who are Christians. And I think a careful look at some of the ramifications of it could be quite important as we evangelicals continue to struggle with Darwin's theory. My primary objective in this communication is to discuss some of the possible implications of the "godless" nature of science, especially biological evolutionary theory. Secondly, I would like to call out to the philosophers (theological and scientific) among us for help.

Implications

In most cases for most natural sciences, the restriction to natural causes seems to be understood, accepted, and generally thought to be of little consequence by both scientists and others. For example, when was the last time you heard or read a "Christian critique" of quantum mechanics, or of continental drift theory? Probably never. Yet if God is continually "at work" in maintaining his creation, then these theories actually describe God's actions in the non-biotic part of creation. However, when it comes to the theory of biological evolution, it seems that every Christian has heard some pastor, theo-

logian, or other Christian leader expound upon his or her position on the matter. And the Christian's position on this scientific theory is typically based upon an interpretation of what the Bible has to say concerning how God brought about his creation. In particular, how literally/historically we as Christians in general view the first two chapters of Genesis largely determines how most Christians as individuals feel about evolution. In other words, we press our Scriptures, which are primarily concerned with God and his dealings with creation, into direct comparison with scientific explanations which cannot contain any mention of God. I think this approach has proven itself to be extremely counter-productive, and in fact is essentially the trap that Christians have fallen into for centuries when they have reacted to various scientific theories. Nonetheless, the conflict continues. Why?

Obviously the answer is complex, involving principles of interpretation of the Scriptures, value/risk judgements, etc. However, I think one major reason, pertinent to this communication, concerns a widely held perception that biological evolution is in direct competition with most concepts of creation, or at least it is problematic in regards to them.[4] It seems that the main topic in evangelical circles with regard to science and theology continues to be "evolution vs. creation." I get the impression that many evangelicals, even if they tentatively accept biological evolution as the "best" theory available for its subject matter, are simply uncomfortable with evolution, and they secretly (some not so secretly!) hope it is someday abandoned. However, even if this were to happen, we must keep in mind that by today's definition, no "creation" theory (e.g. "progressive creationism," "recent creationism") could become a part of science because all *imply* a creator or supernatural cause. The fact remains: all of science today is by definition "godless." I think we need to do more to get beyond this stage of "evolution vs. creation" so we are not hindered as we deal with other pressing issues touching upon science and theology.

Another reason for the continued conflict concerns disagreements over boundaries or limitations of science, and thus the definition of science. For example, the topic of biological origins is generally considered to be at the boundary of science, if what is meant by the term is the initial appearance of life on earth. The "origins" of species from previously existing species, which is really what Darwinian evolution is about, is perhaps less problematic in this respect. Nonetheless, there recently has been much discussion in evangelical circles about differentiating between "origin-science" and "operation-science," indicating that there are different kinds of science, or at least different levels of certainty within science. One of the things, as best I can tell, that those advocating this distinction want to do is to eliminate the restriction of science to natural causes. I think this is misguided because the vast majority of scientists today seem to have firmly settled that question — God cannot be a part of any scientific description. And I think it follows that any description that *implies* a creator will probably also be looked at as improper by most scientists.[5] Furthermore, I am concerned that this type of dichotomy allows God as a cause for "origins" but not for things happening today. In fact, the Scriptures seem to clearly teach that God is the *ultimate* cause of not only the initial appearance (origin) of creation, but also its day to day "operation." These are among the many topics in the philosophy of science that need much work. So what should we do?

Suggestions

I believe we have the broad outline of the path to take, yet we seem to have been reluctant to vigorously pursue it. And this reluctance has been at least in two areas. First, the theologian/philosopher Langdon Gilkey has, in my estimation, accurately assessed the situation in academic science programs (and in some seminaries?) when he stated: " ... complex questions of the relation of science and its truths to other aspects of culture ... have been blithely ignored. The history and philosophy of science which *do* deal with these relations — are absent from most scientific programs ... "[6] Hence, although there has been much written on the pages of journals such as *Perspectives on Science and Christian Faith (PSCF)*, I suspect there has been little accomplished in the way of systematic training of our future leaders in college, university, and seminary classrooms. Assuming this problem should be addressed, what should be taught? This is the second problem area.

Although most evangelicals, and particularly ASA members, seem to embrace some variety of "complementarity," we have not, in my opinion, vigorously pursued this or related concepts. In the article cited above, Gilkey deals with the concept of "levels of explanation," and the domains and restrictions of theological and scientific explanations. The two are different because their domains or perspectives are not the same. If this is the case, the idea of "complementarity" must also be relevant. Both concepts are old, dating in some form at least to Galileo, who maintained that God had "two books" — one his creation and the other the Bible.

You studied creation (using science) if you wanted to learn "how the heavens go," and you studied the Scriptures if you wanted to learn "how to go to heaven." Hence, Galileo had no theological problem with the heliocentric theory of the universe and the motions of the planets, but those who based their science on what they *thought* the Bible taught certainly did. The Scriptures teach that God created the "dry ground," but geologists explain the formation of land features such as mountain ranges in terms of crustal "folding" and "thrust faulting." Jesus said that his Father feeds the birds (Mt. 6:26), but no ornithologist would include the Father in a scientific description of bird feeding ecology. Each of us is created in God's image. Yet a "complete" biological explanation of the events that occur during the fusion of the sperm and egg, embryonic development, birth, growth and maturation, would not include God. There *are* different levels of explanations, and they *can be* complementary. Hence, I suggest that the "path" I mentioned above begins with the concepts of complementarity and levels of explanation.

As implied above, I am fully aware that these concepts are not without critics, and they do not represent an instant panacea for science/theology conflicts. Nor are they meant to provide a neat way for us to keep theology and science completely compartmentalized, as some have suggested. Furthermore, I am aware that there are different kinds of "complementarity" and a host of ways to view science/theology interactions. However, as Richard Bube has stated in reference to the overall approach: "We may indeed debate whether one should say that science and theology are complementary, but it does not appear that there is any debate that scientific descriptions are often complementary to theological descriptions of the same events. If this were not the case, what other options do we have?"[7] I hope we evangelicals can some day bring forth the light and healing that these concepts in their broadest form seem to contain.

I have tried to keep up with some of the work on these topics, and it is not my point to be critical of anyone publishing in this area. My point here is that we need to more vigorously work on determining just *how* science and theology are to interact, and not only effectively communicate the findings to each other, but also to students in our classrooms and leaders in the church. In the latter case, I urge the philosophers (both theological and scientific) among us to publish their work, when appropriate, in places that are read by people other than philosophers and interested scientists. I have read for years journals such as *PSCF* and *Zygon*, and they have contained some marvelously helpful articles. But these publications have very limited readership. It may be true that most scientists (and philosophers?) who are not serious Christians probably do not care about such issues. However, I suspect that regardless of their background, many Christians, and indeed many non-Christians who are seeking answers, would probably be quite interested in such work. Periodicals such as *Christianity Today*, *Christian Century*, and others would be excellent places for philosophically oriented articles.

In essence, the basis for my suggestions herein has been that we respect one of the foundational premises of modern science. We criticize agnostics and atheists for mixing their metaphysics and science. I wonder if we evangelicals don't also need to be on guard against our tendencies to try to reintroduce God into science. Are we in danger of starting back down the road to the kind of science that Copernicus, Kepler, Galileo, Newton, and Darwin led us away from?

ACKNOWLEDGEMENTS

I thank Richard Bube, Wilbur Bullock, Jim Neidhardt, Dave Wilcox, and an anonymous reviewer for their comments and suggestions on a draft of the manuscript. This essay grew out of my interactions with college students during an evolution course I recently taught. I thank them for giving me some insight into how they viewed the "creation issue." ✹

NOTES

[1] Woodward, T. "A professor takes Darwin to court." *Christianity Today*, August 19, 1991. Three responses were also published, two by ASA members.

[2] Angeles, P. A. *Dictionary of Philosophy*. 1981. .Barnes & Noble Books, New York.

[3] Del Ratzsch provides a good introduction to the major views on what science is, its possible limitations, and other relevant topics in his *Philosophy of Science*, 1986, InterVarsity Press, Downers Grove, Illinois.

[4] For example, see articles in the August 12, 1988 issue of *Christianity Today*.

[5] Charles Thaxton recently discussed the negative reviews that the high school biology book entitled *Of Pandas and People*, 1989 by P. Davis and D. H. Kenyon has received. It has been criticized by both scientists and theologians. Central to these criticisms is the issue of "intelligent causes" in science. This is an issue that Thaxton would like to see debated. I suspect that the negative responses by the scientists reflect how most scientists may feel — intelligent cause implies a creator, and is therefore non-science.

[6] Gilkey's article is in a collection of essays entitled *Science and Creation: Geological, Theological, and Educational Perspectives*, 1986, Robert W. Hanson (ed.), American Association for the Advancement of Science. Wilbur Bullock provided a review in *Perspectives on Science and Christian Faith*, 1988, Vol. 40, p. 175-176.

[7] *Journal of the American Scientific Affiliation*, 1983, Vol. 35, p. 242.

Essay Review

Can The Creationist Tradition Be Recovered? Reflections on *Creation and the History of Science*

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The Creationist Tradition Defined

In today's discussion regarding natural science and Christian belief one hears frequent appeal to the "deliverances of the faith" [1] and to the "creationist tradition" as the proper measures to be used by Christians in their evaluation of scientific theories. This is especially the case for theories about the formation of the universe and the creatures that inhabit it. But to what specific beliefs do these labels refer? Exactly what is "the creationist tradition" that Christians ought to count as one of the normative deliverances of the faith?

Having been personally involved in numerous discussions on this issue, I have a rather direct reading on how a major portion of the contemporary North American Christian community would express itself: central to the prevailing concept of the creationist tradition is the belief that the Bible provides a true and accurate historical account of God's creating the world as we now see it. The early chapters of Genesis are viewed as a listing of important historical particulars. Although diversity of judgment is sometimes tolerated, there is still considerable anxiety regarding timescale — whether to speak of thousands of years or billions of years. Strong emphasis is generally placed on the importance of God's creative acts being "special," that is, extraordinary acts of "miraculous intervention" that bring new things into being and serve as beacons to inform the world of God's unrestricted power over all of creation. Essential to this vision of the creationist tradition is the belief that in numerous instances God has accomplished by direct action things that could never have happened in the normal course of natural processes. Furthermore, evidence for these special acts of creation ought to be discoverable by the application of empirical study, rightly interpreted by faithful Christians. After all, "A God who can never do anything that makes a difference ... is of no importance to us." [2]

But is this popular contemporary picture of the creationist tradition true to the historical roots of the Christian doctrine of creation? Emphatically not, says Christopher Kaiser in his book, *Creation and the History of Science* (Grand Rapids: Eerdmans, 1991). Trained in both astrophysics and theology, and knowledgeable in the history of both physical science and Christian doctrine, Kaiser finds that a careful study of the relevant literature from the intertestamental period to the present reveals a very different picture. Broadly stated, to see the world as God's creation is to see it as something that exists only by God's wisdom and will, and that "is subject to a single code of law which was established along with the universe at the beginning of time" (p. 6). Under this broad umbrella Kaiser finds four subthemes that together comprise the creationist tradition: (1) the created world is comprehensible "because the same Logos that is responsible for its ordering is also reflected in human reason" (p. 10); (2) the heavens and the earth are united as parts of the same creation, since "Scripture made it clear that the heavens were not to be accorded any special status and that they were subject to the same laws as the earth and its inhabitants" (p. 12); (3) the created world possesses relative autonomy, where "By the 'relative autonomy' of nature, we mean the self-sufficiency nature possesses by virtue of the fact that God has granted it laws of operation" (p. 15); and (4) as God's special creatures, we are called to engage in a ministry of healing and restoration, using our knowledge of the created world for the benefit of others.

Kaiser traces each of these four subthemes over the full span of Christian history, taking note of their development and modification as they were

articulated or practiced in a changing cultural environment. Of especial concern to Kaiser is the way in which theological and scientific concepts interacted with one another, each having an influence on the other. The histories of science and theology are not independent, but interactive.

But three of the four themes are relatively unproblematic for the readers of this journal. Most of us are fully aware that the very science we practice is possible only because God has provided a generous measure of order to the properties and behavior of the natural world, and has endowed us with the requisite rational capacities to apprehend that order. We are also aware that the objects located in "the heavens" are made of the same "earthy" elements that we study in our terrestrial laboratories. And we are equally aware that God calls us to employ all that he has given us — including our knowledge of the created world — to the benefit and well-being of others.

But one theme identified by Kaiser as an integral part of the creationist tradition has been problematic through most of Christian history, especially so at the present time — what Kaiser calls the *relative autonomy* of nature. Hence, for the remainder of this review essay I shall focus only on that issue.

Before tracing its history, however, the term must be defined. As noted above, by "relative autonomy" Kaiser means the God-given powers of the created world to function in an orderly manner according to set patterns or laws.

> Like all laws, the laws of nature may come to be viewed as enslaving and inflexible, but, in their original sense, at least, they were viewed as liberating (from chaos) and life-giving. The autonomy of nature is thus "relative" in the sense of being relational (to God), as well as in the sense of not being self-originated or entirely self-determined (p. 15).

Kaiser's point, as I understand it, is this: the basic substances of this world, and things (whether animate or inanimate) made of these substances, exhibit regular, patterned behavior; the capacities to behave in this lawful manner are neither self-derived nor in contention with God, but God-given (that is, manifestations of the authentic and dynamic being that God has given them) and prepared by God to perform the tasks for which they were called into being. From this perspective, then, the lawful behavior of nature would never be interpreted as an indicator of God's absence or inactivity, but rather as a sign of God's continuing faithfulness in actively sustaining the dynamic capacities that were given to the creation at the beginning.

The Roots of Relative Autonomy

Kaiser cites numerous Old Testament texts that provide a biblical basis for this concept of relative autonomy. The first extrabiblical literature cited by Kaiser is from the intertestamental period, the second century B.C. in particular, in which the idea of nature's relative autonomy is further developed by Jewish writers, partly as an outgrowth of their dialogue with Greek natural philosophy. Dialogue with Hellenistic thought continued into the early Christian era and, according to Kaiser,

> the idea of relative autonomy ... was clearly fixed by the time of Basil [Bishop of Caesarea during the fourth century]. Indeed, it was deeply embedded in the Hellenistic-Jewish-Christian tradition that Basil inherited .... Basil merely gave practical examples from everyday experience to illustrate the principle of the relative autonomy of nature as it had been understood since the time of Jesus ben Sirach and Aristobulus [second century B.C.] (pp. 20-21).

Continuing in that same tradition,

> Augustine (writing 386-430) developed the idea of the autonomy of nature to an unprecedented degree by stressing the transcendence of God ... and explaining the unfolding of nature (and history) in terms of seminal causes that God implanted at creation so as to have their effects in a predetermined sequence (pp. 21-22).

Anticipating an accusation that is now commonly directed toward an Augustinian approach, Kaiser is quick to add that

> Augustine was not a deist in the modern sense, however .... God's eternal decree functioned as a continuously creative activity by virtue of which seminal causes could produce their respective effects. Still, given the fact of that continuous activity, the inevitability and predictability of cause-effect sequences seemed to follow (p. 22).

By identifying the concept of creation's "relative autonomy" as a fundamental element in the creationist tradition, Kaiser has, I believe, done the Christian community a great service. We are well served both by his drawing our attention to this concept and by his effort to uncover its deep roots in the biblically-shaped Judeo-Christian tradition. Having said that, however, I must add that I judge that the concept needs to be augmented in a way that will do even greater justice to the creationist tradition and

thereby provide a perspective essential to contemporary discussion — especially the discussion concerning a Christian evaluation of scientific theories regarding the origin and evolution of life.

Kaiser's term, "relative autonomy," draws our attention primarily to the way in which the creationist tradition envisioned the delicate balance between the created world's powers and limitations. The created world has authentic being and possesses real capacities to act in full accord with that being; but both its being and its capacities to act are gracious gifts from the Creator and must be continuously sustained by his will and enabled by his power. Created substances and things have the power to engage in authentic activity, but only within the limits established by the Creator at the beginning.

Historically, as Kaiser's work illustrates, Christians have tended to think of those limits almost exclusively in terms of *upper* limits: creaturely substances and beings are deemed able to do x and y, but not z. Contemporary argumentation against the concepts of abiogenesis and macroevolution provides numerous examples of this kind of thinking: atoms can chemically combine to form molecules, but never molecules as complex as DNA; complex molecules can, in an appropriate environment, spontaneously assemble to form aggregate structures, but never structures that are genuinely alive; lifeforms can experience mutations that give rise to diversity, but never sufficient diversity to make macroevolution possible.

But such argumentation would, I believe, have seemed foreign to early Christian thinkers like Basil and Augustine. In many respects they showed more concern to recognize the *lower* limits of nature's capacities — that the creation was endowed at the beginning with *no less* capacity for action than would be required for bringing forth in time what the Creator intended. Basil's *Hexaemeron*[3] and Augustine's The Literal Meaning of Genesis[4] are replete with examples of how these respected exegetes interpreted Scripture, especially Genesis 1, to teach that at the beginning God created, from nothing, all substances and forms, but that the forms of creatures became actualized only in the course of time. Most importantly, these creatures appeared in the course of history not as a consequence of some new, direct and "special" act of God (an "intervention"), but as the consequence of created substances employing their God-given capacities to bring about in time what the Creator had in mind from the beginning.

According to early creationist tradition, then, God did not have to act like a Demiurge by forcing material substance to assume forms foreign to its own potential; neither did God have to act directly in the course of creation's formative history to compensate for gaps or deficiencies in the capacities of created substances. Every capacity that would be needed was provided from the very beginning. In other words, the creationist tradition includes not only what Kaiser calls the "relative autonomy" of nature, but also what one might call the concept of the "gapless economy" of the created world. Synthesizing these two concepts into one, we have what I have elsewhere called creation's functional integrity.[5] Furthermore, since this element in the creationist tradition appears to have been neglected for centuries, as Kaiser's work testifies, perhaps we would be well justified in calling this *the forgotten doctrine of creation's functional integrity.*

This is not the place to develop the full set of references from the *Hexaemeron* or *The Literal Meaning of Genesis* to support this thesis, but my own reading of Basil and Augustine leads me firmly to the conclusion that this forgotten perspective needs to be recovered — both as a foundational element of the creationist tradition and as an effective antidote to the God-of-the-gaps strategy that appears to dominate the conservative evangelical interaction with contemporary naturalism. I would even go so far as to venture that unless this forgotten doctrine is recovered and faithfully employed, the so called "creation/evolution debate" will continue its disastrously unfruitful course and the intellectual community will become even more alienated from the Christian faith.

Two Kinds of Divine Action?

But we must return to Kaiser's account of what became of the creationist tradition after the formative contributions by Basil and Augustine. Within the space restrictions of this review we must be content with only a small sample of Kaiser's work; for the remainder, one must read the book. It's well worth the effort.

In eighth century Britain the Venerable Bede

> presented the following generation of scholars with an ordered universe of cause and effect in which as many phenomena as possible were reduced to general laws .... The eighth century thus marked a turning point at which the creationist tradition ... gave rise to the earliest stages of Western scientific thought (p. 25).

During the eleventh and twelfth centuries, however, that tradition appears to have developed into two

factions that would, centuries later, separate into irreconcilable adversaries. According to Kaiser, it was during this time "that the dichotomy between the natural and supernatural, so ingrained in modern Western thought, had its origin" (p. 30).

The problem appears to be traceable to the scholastic distinction made "between the regular power (*potentia ordinata*) of God, reflected in the normal sequences of cause and effect, and his absolute power (*potentia absoluta*) at any time to suspend or alter those sequences" (p. 30). While this may have appeared to be a theologically and exegetically convenient distinction, it had the unfortunate effect of encouraging the original creationist tradition to split into two mutants, neither of them Scriptural. As Kaiser describes the situation,

> In place of a *relative* autonomy of nature based on the efficacy of God's creative word, one then had an impossible choice: either an autonomous world, created by God but virtually independent of his continued presence and power; or else a world so utterly dependent on God's will moment by moment that all rational, scientific investigation became impossible (p. 30).

If the reader recognizes in this twelfth century bifurcation of the creationist tradition the beginnings of both reductionistic naturalism and anti-scientific interventionism, well and good. But Kaiser wishes it clearly understood that the concept of relative autonomy (which, supplemented with gapless economy, yields *functional integrity*) is not the culprit responsible for the division and deterioration. "It was not the original biblical and patristic tradition, but a distortion of it, that tended toward the determinism, reductionism and atheism that characterizes so much of modern Western thought" (p. 34). Having lost a sense of the need for God's immanent sustaining and enabling activity in the regular functioning of creaturely capacities, the heirs of the creationist tradition appeared to be faced with a devastating dilemma: choose either a world in which matter functioned with absolute autonomy in a gapless natural economy, or a world in which God's direct and irruptive actions served to fill the gaps in the creation's functionally deficient economy. Does that pathological either-or choice sound familiar?

Gaps in Creation's Economy?

In the context of our concern for the historical interactions of theology and natural science, the late medieval period (roughly the thirteenth through fifteenth centuries) was made most remarkable by the rediscovery of Aristotelian science and its incorporation into theological discourse. As Kaiser sees it, the problem facing thoughtful Christians in the thirteenth century was essentially the same as one that faces us now:

> How can we reconcile a science which seemingly owes nothing to Christian faith, and may conflict with it at any point, with a faith which encourages belief in the possibility of science and values its benefits, yet cannot sanction its teachings or its applications without further scrutiny? (p. 57).

A variety of strategies were offered, ranging from sharp division of territory, to synthesis with limited overlap, to full integration of science with theology.

The thirteenth century synthesis of Aristotelian science with Christian theology, with Thomas Aquinas being its chief architect, required a careful balancing of the regular activity of God in the world accessible to science with the episodic or occasional activity of God in personal experience; it further required a careful correlation of the respective roles of human reason and divine revelation. Kaiser views Aquinas as one who both promoted the creationist tradition regarding the relative autonomy of natural processes and encouraged the study of nature for its own sake.

> Aquinas ... insisted on the pure potentiality of matter. Yet, in order to avoid making nature appear to be recalcitrant to formative influence from above, he ascribed to it a "capacity for obedience" to God's command (*potentia obedientalis*), a capacity instilled at creation by God himself (p. 79).

But Aristotelian thought included a particularly problematic feature. Aristotle's cosmology, with its hierarchy of spheres and God as the First Mover of the outermost sphere, tended to place divine action at some distance from terrestrial affairs. "So with the influx of Aristotelian thought [into Christian theology] a spatial gap threatened to open up between the regular activity of God and events on earth" (p. 70). In Kaiser's view this gap opened up along fracture lines introduced in the previous century with that distinction between *potentia ordinata* and *potentia absoluta*, and served to encourage the oft-cited medieval dichotomy of nature and grace.

> In effect, the normal, everyday life of medieval humans was viewed as taking place on two levels: one of nature, in which God's providence was mediated through the hierarchy of celestial spheres; and one of grace, in which God's power was mediated, for the most part, by the hierarchy of the Church (p. 70).

The concept of the restricted immediacy of God's normal activity in the world was taken a step further with the introduction of a new metaphor in the fourteenth century: the celestial and terrestrial world became pictured as a vast clockwork, leaving God the role of clockmaker. Kaiser calls attention to a noteworthy progression in the historical succession of metaphors employed to portray the relationship of God to natural causation.

> From the ancient Near Eastern ideal of kingship to the Neoplatonic and Augustinian concept of transcendent Being, to the Aristotelian First Mover, to the late medieval Clockmaker, the idea of God's normal activity became gradually less immediate to the events of the world, leaving the relatively autonomous cycles of nature to take on the appearance of a completely autonomous mechanism (p. 73).

One variation on the Clockmaker metaphor, one that remains prominent in Christian belief to this day, must be noted. Henry of Langenstein reasoned that although God had established the normal order of cause and effect at creation, he could suspend that order at any time and did, in fact, suspend it routinely for selected phenomena (stars, for example, twinkled, but planets did not). "Even though Henry's universe was mechanical like a clock, there were gaps in the natural order which could only be filled by an appeal to the direct action of God" (p. 76). Thus, already by the end of the fourteenth century, the vision of God as the Creator of a world having both relative autonomy and a gapless economy — that is, a world having *functional integrity* — had become superceded by a vision of God as the Creator of a functionally incomplete world that required irruptive divine action to make up for deficiencies in the economy of its ordinary causal nexus. As Kaiser put it, "The almighty God of Scripture was well on his way to becoming a 'God-of-the-gaps'" (p. 76).

Under the Threat of Absolute Autonomy

According to Kaiser, the 16th century was a period in which the basic themes of the creationist tradition were rediscovered and reaffirmed. Copernicus, for example, is described by Kaiser as a person whose work was guided by "one of the basic ideas of the creationist tradition: the laws of nature are not intrinsic, and cannot be deduced *a priori*: rather they are imposed or infused by God in such a way that they appear to operate automatically" (p. 110).

Among the principal Reformers there seems to have been a reaction to those spokespersons for the creationist heritage whose emphasis of the regular course of nature appeared to encourage viewing it as fully autonomous Nature. While their solution to the problem may have differed from the twelfth century distinction between *potentia ordinata* and *potentia absoluta*, by Kaiser's measure it still "amounted to a differentiation of nature and supernature, or ... a clear distinction between God's indirect operation through second causes and his direct operation with or without the cooperation of second causes" (p. 133). The sticking point appears to have been what we earlier referred to as the concept of creation's "gapless economy." According to Kaiser, "In reaction to the naturalism of the Aristotelian philosophers of their time, Luther, Zwingli and Calvin came to view efforts to achieve complete causal explanations as a threat to the sense of God's providence appropriate to Christian piety" (p. 134). Consequently, "they cited apparent gaps in the web of second causes, gaps which were evidence of the direct action of God even within the sphere of *potentia ordinata*" (p. 133).

Although Kaiser sees the Lutheran tradition, extended by Melanchthon and Kepler, as able to retain a sense of the relative autonomy of nature based on the creation ordinances, the Calvinist tradition is cited for giving rise to conflicting emphases. On the one hand there is an affirmation of natural science as a valid study of the created world; on the other hand there is a suspicious fear that if science is too successful in describing natural phenomena within the framework of a gapless economy, then the necessity of divine providence will be cast into doubt. But introducing the idea of gaps in the fundamental economy of the natural world has created an apologetic and theological nightmare. In Kaiser's words, "As belief in the existence of such gaps declined in the seventeenth and eighteenth centuries, the locus of God's immediate influence was gradually to become restricted to inward experience" (p. 149).

But some scientists in the Reformed tradition took strong issue with the idea that the Creator placed gaps in the economy of the created order, gaps reserved for God's direct action. Francis Bacon, for instance, was adamantly opposed to invoking God's providential action as a substitute for natural causation, for "certain it is that God worketh nothing in nature but by second causes" (quoted on p. 137). Kaiser describes Bacon's program as one which encouraged observers of natural phenomena to regain a sense of God's immanent activity in *all* things.

> Rather than trying to carve out a place for piety within the framework of Aristotelian natural philosophy, as Calvin and the other Reformers had

> done, Bacon projected a new view of nature which allowed both the full operation of second causes and the full dependence of all things on God. In this new order there would be no gaps in natural explanation, so God would have to be seen to function immediately in the whole of nature or else not at all (p. 138).

But the proposition that there were barriers or gaps in the economy of the created order did not retreat into obscurity. In the seventeenth century Robert Boyle, for instance, held that matter, through the lawful divine governance of its physical behavior, could accomplish much, but, in Kaiser's words, "could not be expected to produce the kind of organization one observes in living beings. In these cases, seminal principles must be involved ... and these in turn pointed to the design and activity of God" (p. 173).

Newton, consistent with the tenets of mechanical philosophy, thought of matter as inherently passive but continuously subjected to supra-mechanical active principles (like gravity) that made manifest God's active governance of material behavior in perfect conformity with strict mathematically expressible laws. But even these active principles were judged to be inadequate for sustaining the orderly operation of the material world. Newton suspected, for example, that irregularities would eventually arise in the orbits of planets and would require occasional adjustment by direct divine intervention. Similarly, because of the loss of motion caused by dissipative forces, God would have to act by divine intervention to restore systems to their proper functional states. Summarizing Newton's strategy, Kaiser writes that, "The need for supra-mechanical, active principles and for periodic supernatural interventions were his two principal ways of securing God's participation in nature" (p. 185).

The philosopher Leibniz, however, took strong issue with Newton's strategy.

> Both Newton and Leibniz were concerned to see nature as the product of the activity of God, but in differing ways. Whereas Newton and his disciples saw the activity of God in his use of supra-mechanical principles and repeated intervention in the activity of matter, Leibniz found it in the operation of the original divine decree by which matter was invested with an energy that would continue indefinitely and undiminished in quantity (p. 159).

The position advocated by Leibniz is the traditional creationist concept of nature's relative autonomy, not to be confused with later mechanistic concepts of nature's absolute autonomy independent of God.

> God, according to Leibniz, is like a king who not only provides laws, but also educates his subjects and endows them with the capacity to fulfill them. Moreover, the coordinated fulfillment of such decrees was inherently teleological and could not be accounted for in strictly mechanistic terms (p. 160).

The disagreement between Leibniz and Newton should sound familiar to the reader — it remains unresolved within the Christian community to this day. "To Newton, a lack of complete autonomy in nature was consistent with the omnipotence of God. For Leibniz, on the other hand, it was a denial of the perfection of the original creation and, hence, inconsistent with the omnipotence of God" (p. 183). Then, as now, a common commitment to honor the Creator's omnipotence does not ensure agreement on the particular way it will be expressed in the qualities of the creation.

From Newton to Now

From Newton forward to the present time the story becomes increasingly complex and difficult to summarize. Recall, however, the background: The historic creationist tradition, as identified by Kaiser, incorporated high and biblically-informed views of both God the sovereign and benevolent Creator, and the world as his lawfully governed and beloved kingdom. As the Creator, God is the sole source of both the creation's being and its capacities for action. God is not only the creation's transcendent Originator, but its immanent Sustainer and Provider as well. In the Creator's wisdom and love are found the purpose for the creation's existence and the direction for its meaningful history. And because the universe is God's creation, it is characterized by comprehensibility, unity and relative autonomy (or *functional integrity*).

Over the centuries, especially with the flowering of empirical science, an increasingly detailed and comprehensive concept of matter was developed, including the awareness that it exhibited regular behavior that could often be described in terms of concise mathematical "laws." Beginning around the twelfth century, perhaps as an outgrowth of an unfruitful theological distinction, the action of matter and material systems grew increasingly to be viewed, not as continuous manifestations of the Creator's immanent governance, but as fully autonomous activity in competition with God's action — the natural versus the supernatural. In that context the creationist tradition became unstable and vulnerable to bifurcation into incompatible strains.

At one extreme, a high view of matter was not only retained but also expanded at the expense of discarding the traditional creationist high view of God. Beginning in earnest in the eighteenth century, scientific naturalism transformed the concept of creation's relative autonomy into a dogma of Nature's absolute autonomy, putting God to rest with nothing at all to do. In the arena of epistemology science came to be treated as the sole source of knowledge, and the Bible was relegated to the museum as little more than an interesting artifact of religious history.

At the other extreme, a high view of God was not only retained but also modified at the expense of discarding the traditional creationist high view of creaturely capacities. Beginning, perhaps, with Suarez, Descartes and Newton, the concept of creation's relative autonomy (and gapless economy) was substantially reduced; matter was seen as incapable of performing certain complex tasks, so that gaps in the functional economy of the created order had to be routinely bridged by acts of divine intervention. Miracles, once seen as extraordinary acts of God, freely performed for their revelatory and redemptive value, became viewed as necessary components in the ordinary functioning of creation's economy. In the arena of epistemology the Bible's role of providing information regarding historical particulars was fortified and the role of the historical sciences (like historical geology, astronomy and biology) became reduced to the function of confirming what had already been deduced from a literalistic reading of the Bible. As I see it, the twentieth century phenomenon of "creation science" is unmistakably an outgrowth of this deviation from the historic creationist tradition documented by Kaiser in this work.

I suspect that most readers of *Perspectives* find themselves at odds with both of these extremes. For us (I include myself in this category) the question is, How can we articulate the historic creationist perspective in a way that retains appropriately high views of both divine action and creaturely capacities? How can we be at once faithful to what Scripture reveals to us regarding God as our Creator and also cognizant of what we have learned, using our God-given capacities, about the world that is his creation?

In *Creation and the History of Science*, Kaiser has provided us with a historical overview of immense value to our contemporary discussion of natural science and Christian belief. Because this study spans more than two millenia, numerous details and themes had to be omitted. What is presented to us in this work is Kaiser's selection, organization and interpretation of a much larger body of source material. Professional historians of science or theology may wish to take issue with some of Kaiser's specific choices and judgments, and some readers may wish that Kaiser had provided more detailed documentation by footnotes in addition to the reading lists provided at the ends of chapters. The indexes of subjects and names are very brief; more complete indexing would have been helpful.

Kaiser's choice to focus his attention on the physical sciences is understandable, given his training in astrophysics. But that means that in his treatment of the last two centuries the important issue of biological evolution had to be left on the shelf. Hence, one of the most problematic issues in the contemporary discussion — the question of whether or not the concept of creation's gapless economy applies to the formation and historical diversification of lifeforms — remains unresolved. Perhaps it was because of the omission of this question that the distinction between "relative autonomy" and "gapless economy" was underdeveloped in Kaiser's treatment of the creationist tradition in relation to the physical sciences.

Another area that deserves considerable additional attention is the role of Scripture and its interpretation. The concept of creation is influenced not only by knowledge gained through scientific investigation, but also by prevailing concepts of biblical hermeneutics and the proper epistemological role of the biblical text in the formulation and evaluation of both theological and scientific theories, especially theories regarding the formative history of the creation.

But no book can cover everything. And although Kaiser's work may have left two large issues for others to develop — the question of a gapless evolution of lifeforms, and the question of Scripture's role in scientific theorizing — I believe that *Creation and the History of Science* provides us with a valuable and accessible historical study that will be foundational to our continuing efforts to deal with these two weighty and problematic issues. If the readers of this review wish to participate in that effort, then Kaiser's book must be placed near the top of their reading lists. ✹

NOTES

[1] Alvin Plantinga uses this phrase repeatedly in his essay, "When Faith and Reason Clash: Evolution and the Bible," *Christian Scholar's Review* XXI:1 (September, 1991), pp. 8-32.

[2] Phillip E. Johnson, *Darwin on Trial* (Downers Grove, IL: InterVarsity Press, 1991), p. 115. In this work, Johnson not only criticizes scientists for instances of overstated confidence in

contemporary evolutionary theory, but also argues that the concept of common ancestry is unacceptable to Christian belief and must be countered by holding to "miraculous interventions" in the history of lifeforms on earth.

[3] St. Basil the Great, *The Hexaemeron* in *A Select Library of Nicene and Post-Nicene Fathers of the Christian Church*, 2nd Series, Vol. VIII, ed. Philip Schaff and Henry Wace (Grand Rapids: Eerdmans Publishing Company).

[4] St. Augustine, *The Literal Meaning of Genesis*, 2 vols., Ancient Christian Writers, nos. 41-42, trans. John Hammond Taylor (New York: Newman Press, 1982).

[5] See "When Faith and Reason Cooperate," *Christian Scholar's Review* XXI:1 (September, 1991), pp. 33-45.

Book Reviews

WHO'S WHO IN THEOLOGY AND SCIENCE: 1992 Edition by The John Templeton Foundation, Framingham, MA:Winthrop Publishing Co., 1992. 400 pages, various indexes.

The late Harold Nebelsick and, more recently, John Webster have led a monumental task in seeking to provide an international guide to people, organizations and publications which address science and theology. The listing includes 1,000 individuals, 60 organizations and 12 journals. Indices provide useful subject matter and geographical listings which complement the biographical and bibliographical guides which make up the bulk of the directory.

Who's Who encourages browsing, as it offers an astounding diversity of individuals and interests; from Deborah Enilo Ajakaiye, Dean for Faculty of Natural Sciences at the University of Jos, Nigeria (who specializes in theology and science in an African context) to Takashi Yoguchi, assistant director of the Japan Lutheran Hour (with interests in physics and religion and the history of Christian journalism in Asia.) Readers with a yen to travel can find those with common interests in more than 42 nations.

Projects of this nature invariably suffer from some unevenness of content, inevitable exclusion of some worthy individuals and are out of date from the moment of publication. This is said to encourage the production of a second edition which can address these problems and encompass more fully a set of disciplines which represent this burgeoning field.

The Templeton Foundation has provided an invaluable reference for professionals in the field and the general public. *Who's Who* should be in college libraries and on the desk of those actively involved in science-religion discussion.

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THE TECHNOLOGICAL BLUFF by Jacques Ellul. (Translated from the French: *Bluff technologique* by Geoffrey W. Bromiley). Grand Rapids: Eerdmans, 1990. xvi + 418 pages. Hardcover; 24.95.

Jacques Ellul is one of the most interesting thinkers of our century. One of his first books, *The Technological Society* (1954), is of the same magnitude as the works of Veblen, Mumford, Spengler, or Giedion and much deeper and penetrative than works of Toffler, Kahn, or Servan-Schreiber. He is interested in the role of technique in civilization. Technique, defined as "the ensemble of means," is the driving force of social development, more important than the ends it is supposed to serve. Technique became an end in itself and the society is organized around it. In 1954 Ellul pointed to the need of certain changes to subdue technique, but as he presently assesses it, "it is now too late to change the course of technique. We have lost a decisive opportunity in human history" (p. xiii). However, technique is frequently pictured as the only hope for a better future and the only means of making the world more humane. And that is the sort of statement that Ellul calls the technological bluff. Technology is a discourse on techniques: therefore, the bluff lies not in the failure of techniques as such but in presenting them in a falsely optimistic light.

The author formulated in 1954 two laws of technical progress: first, it is irreversible: second, it advances by a geometric progression. Thus, a computer revolution changes nothing in the nature of technical progress, although products are new. This progress is hampered not by internal mechanisms, but by maladaptation of the social body to it, since society is rooted in the past and constantly refers to it. On the other hand, technique is future oriented and discards as valueless everything that cannot be incorporated into the web of techniques.

Technical progress gives rise to a new aristocracy, technocrats, who combine authority with competence. Their knowledge is indispensable for the proper functioning of the society. However, if they talk about democracy, ecol-

ogy, culture, etc., they are "touchingly simplistic and annoyingly ignorant." For instance, when stating that everyone will have access to data banks, only other technicians are meant, not poor farmers or the young unemployed. Technocrats are also the main source of the technological bluff, since when picturing tomorrow's society they often disregard such problems as pollution, growth of armaments, or stagnation of some countries. In their eyes, to halt building nuclear power stations is the same as returning to the caves. Technical progress is good by its very nature and thinking otherwise is a mark of obscurantism.

In Part I, Ellul discusses one of the features of the technical world, uncertainty. "Technical progress does not know where it is going. This is why it is unpredictable" (p. 39). It always has both positive and negative effects, and they are inseparable; technical progress also creates more problems than solutions. Ellul even goes as far as to say that "using techniques always pays off in the short term and then brings disaster" (p. 64). The last factor contributing to an increase of uncertainty of the future of techniques are internal contradictions of the technical system and society. For instance, a vulnerability to accidents grows proportionally with the size of organizations. Similarly, the more powerful a technique is, the more it disturbs the world.

Part II, "Discourse," is an analysis of technical discourse. The techno-discourse is a discourse about humanity and the ways of advancing it — of course, by the means of techniques. Some humanists, on the other hand, think that the technique can be saturated with traditional values. Today's culture has just an operational value detached from tradition, molded by the technical progress and economic needs. As B. Lussato put it, bad culture chases out good culture (cf. Gresham's law stating that bad money always drives good money). Next, despite many statements, man has lost control over technical development. There is no greater power, political, moral etc., that could direct at will its potential. And finally, science, especially after Hiroshima, is not a pursuit for truth any more, but for power. An emerging ideology of science is soteriology — the view that only science holds the key to the future. Science has become divine. This image of science entails a high status of experts, who all too often fail and resolve nothing.

Part III, "The Triumph of the Absurd", shows innumerable instances of absurdity springing up from the position held by technology. Many needs and trends are absurd. A pursuit for producing more and more at all costs and doing it faster and faster is also absurd. The latter feature strikes a blow at democracy, which is slow. Moreover, some very costly projects are launched, with no clear vision for their purpose (e.g., orbital stations), or knowing that their full power will not be used (e.g., fast cars), only because technology makes it possible. It is absurd to rely on technology as the means of increasing productivity. For instance, a growth of rate of productivity in France is larger than in Japan and the US.

In part IV, "Fascinated People", Ellul describes the way people are manipulated by TV and advertising, and discusses the means of diverting people "from thinking about ourselves and our human condition," such as computer games or sports.

Technological progress goes on trampling upon our freedom and humanity. "We are radically determined," says Ellul. Are we? Not quite, and Ellul sees a gleam of hope in the ability to criticize: "this is the only freedom that we still have if we have at least the courage to grasp it" (p. 411). More importantly, the hope lies in education; but Ellul shuts this door up by stating that today the only goal of education is to adjust students to technological society, to shape them according to the needs of the emerging future. He does not even refer to an interesting theory of tensions borrowed from Max Weber and expanded in his *The Political Illusion* (1965). Tensions "between facts and values" are to be the means of maintaining a true democracy.

If we agree with the statement that "it is by being able to criticize that we show our freedom," then certainly Ellul appears to be very free. And, in fact, this criticism is a good antidote to frequently pronounced over optimistic assessments of technology and simplistic views concerning the future. Ellul shows the downside of progress, sometimes forgetting some positives. He sees just doom and gloom and his reaction is to strike back — with words. Nevertheless, his book (and most of his forty books) is very deep in its analysis, leaving no reader indifferent. It should be read by humanists and technocrats, and especially by Christians to see if really the only hope is in criticism. Ellul, a staunch Christian himself, has no polite words to the movement within the church, and his remarks should be considered very seriously.

Reviewed by Adam Drozdek, Duquesne University, Pittsburgh, PA 15282.

IN THE ABSENCE OF THE SACRED: The Failure of Technology and the Survival of the Indian Nations by Jerry Mander. San Francisco: Sierra Club Books, 1991. 446 pages. Hardback; $25.00.

In the Absence of the Sacred is composed of two books the author originally intended to publish separately, whose topics are indicated in the subtitle. He quickly realized that technological development and suppressing Indian nations are two sides of the same coin: the latter is the outcome of the first. However, the original intention can be easily noticed in his book, since its two parts are rather loosely connected and could have been published as two separate books without much harm.

Mander is a harsh critique of technology, or rather technological enchantment that makes people see in technological progress the ultimate purpose of all enterprises

and the only hope for humanity. Mander is not original in that respect, since many authors have critically analyzed technology, to mention only Lewis Mumford and Jacques Ellul. But Mumford's and Ellul's analyses are more theoretically oriented than Mander's. His book is largely anecdotal, since Mander quotes many facts from his life and events recounted by his friends, but it is also very richly documented with historical facts, especially when discussing the history and the present situation of Indians. Many facts quoted by Mander are surprising, some of them quite shocking and incredible. All of them are to prove that if technology remains unbridled, then the future of humanity is very uncertain.

There are one and a half million Indians in America, and many of them continue to live in their original environment with no desire to adjust to the American culture. Indian tribes are a part of 3,000 native nations in the world that, from the standpoint of our civilization, stand in the way of progress and technical development by blocking natural resources and by refusal to adjust. Technological development is imposed upon society by those who exercise power, that is, government, military, and large corporations. There are no, or at most very weak, democratic mechanisms of technology assessment. The public knows about directions of technology development *post facto*, when it is already very difficult to change the course of events. However, each technological innovation should be thoroughly and openly discussed before its acceptance and "assumed guilty until proven innocent."

Mander denounces a frequently used claim about neutrality of technology. He indicates that specialized technology requires specialists which easily leads to emergence of the class of technocrats. This technology results in centralized power that has to oversee, for instance, nuclear power plants.

All elements of technology are intimately interwoven, with computers occupying a prominent position. Computers enable developments in genetics, military, data gathering for surveillance, etc. Computers were invented primarily for military purposes and only later were applied in business. Still, the military is the largest financial supporter for computer science research. It is also the largest beneficiary of this technology, with the effect that "the possibility of computer-directed, instantaneous, worldwide holocaust is not theoretical" (p. 74).

Mander is the author of a controversial book, *Four Arguments for the Elimination of Television*, and many of its points are reiterated also in *In the Absence of the Sacred*. He is one of very few authors who claims that our society would be better off without TV. TV became an excellent tool for promoting consumerization and a manipulation tool in the hands of large corporations: 75% of commercials are paid for by 100 corporations, out of nearly half a million corporations in the country.

"Our society is characterized by an inability to leave anything in nature alone" (p. 160). As a result, there are two drives of contemporary technology: toward infinitely large and infinitely small, that is, space exploration and genetic engineering, or even molecular engineering. "If it can be done, do it" is a maxim. Ethical considerations become irrelevant, and the sense of sanctity of life unimportant. There remains a march of technology.

Then Mander gives a well documented account of Indian history after the discovery of America, political systems of Indians, their economy, beliefs, and their constant striving for survival and to maintain identity. Many facts are not widely known, such as the declaration of independence of a Navajo community in 1979. Mander gives also an overview of the situation of native tribes all over the world. This account proves that the march of technology promoted by large corporations tramples upon the rights of those who do not want to accept it and desire to maintain their way of living.

After twenty chapters of showing the ills caused by technology, Mander very briefly tries to relieve the reader's uneasiness by indicating in the epilogue some solutions. The author's activity indicates that he does not see just gloom and doom, as his book certainly indicates, but that he sees some solutions at least in active participation of such groups as the Sierra Club or Greenpeace. He proposes reexamination of the goals of humanity, by including more in the picture than just growth and profit. The "present negative trends" are reversible, and many current political changes would allow waiting for the future with some optimism.

The author also suggests that reevaluation of our values and regaining the lost "sense of the sacredness of the natural world" is needed. Mander points his finger to Christianity as a cause of this loss, since "Judeo-Christian religious doctrines have de-sanctified the earth and placed humans over it" (p. 187). The blame is not new (see Van Dyke's article in *Perspectives*, Sept. 1991) and it may mean that revitalizing the pagan view of the world is the antidote for the ills of technology. Needless to say, this view is at least questionable.

Reviewed by Adam Drozdek, Duquesne University, Pittsburgh, PA 15282.

A BRIEF HISTORY OF ETERNITY by Roy E. Peacock. Wheaton, IL; Crossway Books, 1990. 160 pages. Paperback: $9.95.

This little volume is offered as something of a companion piece to Stephen Hawking's *A Brief History of Time*. Christian readers will find stimulation in the book. The non-Christian reader may find food for thought in Peacock's overlay of meta-physics on the thinking of Hawking.

The author is identified as a specialist in aerodynamics, and a visiting professor in aerospace sciences at the University of Pisa, were Galileo worked 400 years ago.

There is a special charm to the book: the writer communicates respect for and pays homage to the great thinkers from Aristotle through Einstein to Hawking. There is no "putdown" of any scientists, regardless of their religious convictions or lack of them. It is refreshing to read a discussion of a controversial subject — cosmology — which contains no animosity.

Peacock traces the development of science, and shows how each great thinker has relied and improved upon the thoughts of this predecessors in answering the "hows" of the universe. Then, like Hawking, he touches upon the "whys." But he goes further than Hawking, and sees in science itself some indicators of the "whys."

The writer focusses on the laws of thermodynamics, and especially the concept of entropy, in dealing with the origin and destiny of the universe. He speaks of boundaries which enclose the capacity of science to learn — one at the creation event and one when entropy has run its full course.

Don Page, a collaborator of Hawking's, calls *A Brief History of Eternity* a fascinating story, written from a Christian perspective. He observes, "While admitting that the heavens do not *prove* the existence of God, this book illustrates how they declare his glory."

But the reader will suspect that Peacock sees the proof of God in the very lives and words of the scientists themselves.

Reviewed by Fred P. Lollar, Associate Professor of Journalism, John Brown University, Siloam Springs, AR 72761.

A BRIEF HISTORY OF ETERNITY by Roy E. Peacock. Wheaton, IL; Crossway Books, 1990. 160 pages. Paperback: $9.95.

The title of this book is obviously a take-off from Stephen Hawking's book *A Brief History of Time*. Peacock's intention is to deal with many of the issues Hawking raises, and while the book successfully accomplishes that mission, he also considers other issues related to physics and astronomy, such as black holes, the Doppler effect, and the origin of the universe.

Peacock is a specialist in thermodynamics and a visiting professor in the area of Aerospace Sciences at the University of Pisa. He has taught and worked in the United States, Europe, and England. He certainly has the credentials to write such a book.

Hawking believes the universe is eternal, with no beginning or ending. In contrast, Peacock affirms the biblical position of a beginning and ending, often ushering in scientific evidence for his conclusions. He clearly shows that Christian faith is fully compatible with good science.

A key emphasis is the historical development of ideas in these areas. From the ancient Greeks to Einstein, the lives and concepts of the great scientists are considered (though not in sufficient depth to overwhelm the uninitiated). Often Peacock points out the Christian world view and presuppositions that famous scientists of the past maintained.

The big questions that relate to the *why* of the universe are also considered. Again science is used to help explain the meaning and purpose of creation within a Christian framework.

While the reviewer has sometimes been disappointed with books by Christians that respond to or refute a specific book by a non-Christian, this work is one of the better of the genre. The arguments are well stated, illustrations are helpful and generally easily understood by the layman, and the book is as entertaining as Hawking's book.

Reviewed by Donald Ratcliff, Box 800248, Taccoa Falls, GA 30598.

THE NEXT ONE HUNDRED YEARS by Jonathan Weiner. New York, NY: Bantam Books, 1990. 241 pages, notes and sources, index.

Jonathan Weiner is identified on the book jacket as a "noted science writer and author of numerous magazine articles and the bestselling *Planet Earth*," a companion book to a PBS documentary. *The Next One Hundred Years* is Weiner's first venture into the murky mists of futurology and is based on interviews with a number of earth scientists from several disciplines.

The book is divided into eleven chapters, the majority of which deal with the greenhouse warming of the earth's atmosphere and the presumed attendant environmental effects. Other environmental and ecological effects such as species habitat destruction by changing land use patterns and the health effects of stratospheric ozone depletion are described. A theme running through the text is the interconnectedness of the planet's seven "spheres" (earth, water, air, sun, ice, life, and mind) and the controversial "Gaia hypothesis" (attributed originally to James Lovelock and Lynn Margulis) which treats the earth itself as a living organism and emphasizes the effect of life on geochemical and geophysical processes. The book contains only a few diagrams or charts, being written primarily for the educated non-scientific community; scientists will be disappointed to find that there are no units on the axes of any graphs.

The book's main thrust is that widespread ecological and human disaster within the next hundred years will almost certainly accompany global heating as a result of increasing $C0^2$ and other greenhouse gases. These trends and effects will be exacerbated by increasing human population, economic development, and land exploitation. Weiner weaves together ideas of planetary connectedness,

selected developments in earth sciences, and the future scenarios of some earth science modelers to convince the reader of the scientific basis for this view. The North American summer of 1988 is presented as a foretaste of this future in the chapter "The First Summer of the Third Millennium."

A number of books about the environmental future of the earth have been written, including ones at several levels of scientific sophistication (recall the predictions of the Club of Rome). Within this collection, Weiner's book offers nothing uniquely innovative. Perhaps the book's major strength (or is it a weakness?) is to demonstrate how convincing a case for a scenario can be made by the judicious selection of sources. Many earth scientists do not accept the idea that currently rising $C0^2$ levels will inevitably lead to major changes in planetary mean temperature; there may be other factors which have a more significant short or long term effect on mean temperature. Weiner styles our response as a kind of ecological Pascal's wager: if we elect to slow down rising $C0^2$ levels and the models are incorrect, what have we lost? But if we continue on our present course, we may well suffer dire consequences. In fact, according to Weiner, we are likely to suffer some of these consequences whatever we do.

Weiner's chapter on the Gaia hypothesis seems out of place in a book in which he attempts to maintain scientific credibility. The view of the earth as a robust, adapting, regenerating goddess seems to suggest that whatever we do, life in some form will bounce back. But in the final analysis, Gaia is such a mixture of pseudo-science and pseudo-religion that one of her many faces will suit almost anyone's fancy.

This reviewer was uncomfortable with the author's use of overly simple comparisons, overextended analogies, and the interchange of words between scientific and common uses, all of which occur all too frequently in books explaining scientific issues to non-scientists. The book jacket describes the book as "a prescription for planetary repair before it is too late," but the book contains no substantial answers to the greenhouse future. For example, nuclear power (an energy source with no $C0^2$ emission) is briefly considered and dismissed as being too risky environmentally. Other alternatives, such as a hydrogen based energy system, are not even considered.

Despite these shortcomings, many people will undoubtedly evidence their fascination with the future by reading the book. ASA members will find little of scientific substance in the book, but may find it interesting reading to see what the educated public is being offered.

Reviewed by David L. Swift, Professor of Environmental Health Sciences, Johns Hopkins University, Baltimore, MD 21205.

The Myth Of
Religious Neutrality

An Essay on the Hidden Role of Religious Belief in Theories

Roy A. Clouser

"In clear, accessible language, Clouser discusses the nature and types of religion and religious belief, its relation to theories, and the various alternatives (e.g., irrationalism, rationalism, biblicism, and scholasticism). He then outlines various mathematical, physical, and psychological theories, critiques reductionism, and outlines biblical theories of reality, society, and state. The book is controversial not only for its central thesis... but also for its definition of religion as not necessarily involving belief in God."—*Library Journal* $39.95 cl., $18.95 pa.

At bookstores or send list price + $3.00 postage to:
University of Notre Dame Press
P.O. Box 635, South Bend, IN 46624

THE NON-REALITY OF FREE WILL by Richard Double. New York: Oxford University Press, 1991. 229 pages, end notes, references, index; Hardcover; $32.50.

Double is Assistant Professor of Philosophy at Edinboro University of Pennsylvania. In this book he takes on a problem which has taxed the great minds of the world for centuries, the reality or non-reality of free will. The book assumes that the reader has some skill and training in philosophy and is definitely not a book for a novice in the field.

The book also probes some other issues such as determinism and responsibility as they relate to free will. Double summarizes various positions which others have taken on this subject, and does so quite well. The one exception might be his failure to refer to Jonathan Edward's great work on *Freedom of Will*, perhaps because the author is addressing the subject strictly from a rational-philosophical perspective.

The author lists three conditions of free will. Free agents must have the ability to make different choices than they actually do. Free agents must control what their choices shall be. Free choices must be reasonable. In further analyzing the free will question, the author gives us five autonomy variables which must be present in order for one to conclude the reality of free will. These are: self knowledge (knowledge of one's own mental states), rea-

sonability (the motivation to critically evaluate one's choices), intelligence (skill in using knowledge), efficacy (the power to control our mental states, including our choices) and unity (implying a single agent underlying free choices).

The book's bottom line is, of course, stated in its title. There are no rational-philosophical theories which can meet all the criteria necessary to establish the reality of free will. The author refers to the comment by Stephen Stich about the failure of analytical philosophy to reductively define any philosophically interesting concepts, free will being no exception. This is an astonishing admission to make and might cause a budding philosopher to wonder if one should invest one's life in such an uncertain field.

The author concludes that neither determinism nor indeterminism can be rationally verified. When we speak of persons being free and responsible in their actions we are merely expressing an attitude or personal opinion. The truth or falsity of such statements simply cannot be demonstrated in any deep or absolute sense.

Christian readers may be frustrated by the scant treatment God receives in the book. He dismisses God by saying "the existence of a morally perfect being is problematic" (p. 165). While that statement is certainly true if one begins from a rational-empirical base which excludes any "God" who cannot be rationally-empirically verified, it only raises the question, "Are human reason and experience adequate to solve the basic issues of life?" The author seems to admit that analytical philosophy cannot give clear cut answer to the ultimate questions in life. That is why some of us try to answer the real life questions by assuming God has spoken to us in Scripture, where such questions as human responsibility and morality are addressed.

One should not conclude that the author is saying there is no such thing as free will. He is rather admitting that philosophers have failed to rationally demonstrate the reality of free will. He is saying that free will and moral responsibility are incoherent concepts. He does end up with what he calls a "common sense" view of freedom which can sustain us. The crucial question for the author is not "Was he or she free in that action?" but "Was the action reflective of his/her character?" He believes the first question cannot be answered, while we can affirm the second, and this is enough to sustain a common sense view of freedom. The book is very thought provoking for those willing to grapple with some of the difficult ideas and terminology involved. The author has tried to push human reason to the limit to solve the free will question, only to come up empty. Yet, he is forced to admit that we must assume that people act responsibly and freely even though philosophical proof is not forthcoming. Our ability to relate to each other meaningfully depends on it.

Reviewed by Richard M. Bowman, Pastor, First Christian Church (Disciples of Christ), 441 North Church Street, Dectur, IL 62522.

THE JUSTIFICATION OF SCIENCE AND THE RATIONALITY OF RELIGIOUS BELIEF by Michael J. Banner. New York: Oxford Press, 1990. 196 pages, index, bibliography. Hardcover; $55.00.

Can religious belief be defended as carefully as scientists defend scientific beliefs? This is the primary philosophical question answered by Banner's book. Banner's book is not an apologetic for a particular religious belief. It is a carefully drawn logical treatise on the philosophical "right" to defend both scientific and religious belief. It is written by a leading philosopher who is currently the Director of Studies in Philosophy and Theology at Peterhouse, Cambridge, England.

Banner argues that religious belief, like science, can be placed in a rational setting. Religious discourse is descriptive and capable of being judged as right or wrong by the same basic guidelines used in arguing the validity of scientific principles.

To prepare this argument, Banner first must show that science itself is rational and justifiable. This he does in Part I, dealing primarily with issues raised by Thomas Kuhn on the philosophy of science. In these two chapters Banner argues for "rational realism" and the validity of scientific truth.

Having argued that scientific belief is justifiable, the author defends religious belief in Part II (chapters 4-7). This argument culminates in chapter six, where religious belief is justified, *in parallel to scientific belief*, as an explanatory process. Religious belief is compared with two scientific theories whose logic and sensibility eventually overwhelmed scientific opposition. Banner first analyzes Darwin's theory of the origin of the species, and then looks at the theory of relativity. In each the scientific theory has three valuable components — its ability to explain known (past) data, its ability to predict future results (experimental confirmation), and its simplicity of form or explanatory power. Both Darwin's work and the theory of relativity had shortcomings in various predictive categories. Both did not explain certain know facts and both falsely predicted future events. Still, both — partly because of their explanatory power and *general* success — were eventually accepted by the scientific community. Banner argues that these same guidelines can structure a rational defense of religious belief.

Chapters six and seven, the climax of the book, are very good. The analysis in chapter six of the emerging acceptance of evolution and of relativity is exquisitely done. In chapter seven, the author acknowledges the existence of evil as "the most pressing and persuasive objection to belief in the existence of God." This chapter, like much of the book, is carefully and subtly argued and requires of the reader total concentration, a strong cup of coffee, and a perfectly silent environment.

The entire book is hard reading. It is a philosophy text intended for the professional philosopher. It could serve as a supplemental text for a graduate course in the Philosophy of Religion (or the Philosophy of Science), but

the ordinary scientist — even if he or she reads Plato at bedtime — will find this book very difficult. Particularly difficult are the steady references to the recent writings of other modern philosophers. The first two chapters discuss arguments of Kunh, Newton-Smith, and Laudan; later chapters casually refer to Swinburne, Phillips, Luas, Mackie, Newman, and Wittgenstein, assuming that the reader is either familiar with these authors or is ready to look up their papers.

The author's careful conclusion deserves wide distribution:

> ...A careful and patient apologetic which clears a path to faith... helps the enquirer to perceive that pattern in experience which points to the existence of God. There is no reason in principle why such apologetics could not be as compelling as the apologies which are made for currently accepted scientific theories. And since it may provide the grounds for faith, its neglect is more than regrettable.

This $55 text does not provide that apologetic, but does provide the foundations for it.

Reviewed by Ken W. Smith, Department of Mathematics, Central Michigan University, Mt. Pleasant, MI 48859

ANIMAL EXPERIMENTATION: The Moral Issues by Robert M. Baird and Stuart E. Rosenbaum (eds.). Buffalo: Prometheus Books, 1991. 182 pages. Paperback; $14.95.

Animals have always been used by humans for a variety of purposes. They have been used for food, clothing, pets, entertainment, and experimentation. Some animals have enjoyed a privileged (e.g., cows in India), but in most cases animals are not held in high esteem. But should we treat animals on an equal footing with tools? Can they be used for any purpose imaginable and in any way we please? Do we have moral responsibility toward animals as we do toward people? These are the questions posed in papers included in *Animal Experimentation.*

Recently, various organizations have sought decent treatment for animals both in their natural setting and in laboratories. The use of animals for medical research has become a sensitive and personal issue. Should we inflict pain upon animals in experiments in an effort to save human lives? As Robert White put it, "there are many people who would let my grandsons die rather than allow any animal to be used in medical research" (p. 22). However, the defenders of animal rights are not always against *any* use of animals in scientific research but against their cruel treatment. Steven Zak knows from experience that researchers have "a natural tendency to lose all empathy with one's animal subject" (p. 30). However, a philosophy behind a struggle for animal rights relies on evolutionism and draws it to a seemingly inevitable conclusion: animals do have rights.

Man is an animal, says Richard Ryder, who "arrogantly exaggerates his uniqueness;" but with accepting our "biological relationship with other animals" we should take a next step and "acknowledge a moral relationship" and treat animals as our relatives, thereby stopping all research on animals. The next step would be a rigid vegetarianism; but what to do with pest control? Would it not be cruel to annihilate those with whom we have a moral relationship?

To avoid such consequences, Robert Wright sees in sentience "a condition for the possession of high moral status," and not in reason or self-consciousness. But in this way he is unable to argue why killing 100 baboons to save a human life is not the same as killing a human to save 100 baboons "unless you can create a moral ratchet called 'human rights'."

But Carl Cohen is certainly right when observing that "rights arise, and can be intelligibly defended, only among beings who actually do, or can, make moral claims against each other" (p. 104), or beings participating in "a community of moral agents." It is the moral dimension that becomes a hallmark of beings to whom we can ascribe rights, both legal and moral. Therefore, animals are not called to the court on account of their moral irresponsibility nor held responsible for their deeds. It is this moral dimension that was elevated by Kant to the highest status, since in his philosophy practical reason (ethics) has a priority over pure reason (cognition). Of course, it does not justify any cruelty, unnecessary use of animal specimens in experiments, inflicting needless pain, or hunting for pleasure. But animals are not humans and they should not be treated on equal footing with them. If no difference is seen between these two worlds, then, to be sure, we can be appalled with Peter Singer, who laments that "even the most profoundly retarded human being is entitled to the respect and moral consideration that we properly deny to the most intelligent dog" (p. 61).

But how can one determine whether certain experiments are unnecessary? Drawing from Singer's ideas, Edwin Hettinger says that we should try to answer the question: "Would the investigator still think the experiment justifiable if it were performed on a severely retarded human at a comparable psychological level as the animal? If not, then the experiment should not be conducted" (p. 126). Only "arbitrary preference for members of our own species" would allow us to conduct this experiment. Thus, there should be no difference in treatment of a rat, an ant, or a lizard and a retarded human whose intelligence does not exceed the IQ of these animals. We can wonder if it amounts to elevating animals to the level of humans (the way Hinduism does by including them in the cycle of reincarnation), or to pushing humans down to the level of animals.

Animals are under human dominion, but it should not mean that they can be treated in an inhumane, cruel way. They are not humans and despite superficial similarities there is a gap between the worlds of animals and men. Impressive as they may be, the achievements of the society of ants will never measure up to those of humans,

and the language acquired by Washoe will never attain the level of the first grade student. Humans were created in the likeness of the Creator, not animals, and humans have a dominion over animals. They are to use animals wisely and lovingly, tending them and protecting. But they cannot be treated as equal with humans and if there is a problem of whose life to choose, then the lives of humans are always more precious than the lives of animals, however retarded the humans may be.

Reviewed by Adam Drozdek, Duquesne University, Pittsburgh, PA 15282.

ALTERNATIVE MEDICINE AND AMERICAN RELIGIOUS LIFE by Robert C. Fuller. New York: Oxford University Press, 1989. 164 pages, index. Hardcover; $19.95.

Fuller is Professor of Philosophy and Religious Studies at Bradley University. He is the author of *Religion and the Life Cycle* and other books. During the late 1980s, Americans have shown a great interest in the New Age movement with its unconventional practices and beliefs, and many have found in it spiritual fulfillment and healing of the body. Fuller tries to show in this book that such alternative forms of healing and religion are nothing new in American culture. He claims that the belief in the importance of an individual's rapport with the cosmos is a characteristic of American unchurched religious life. He gives a sympathetic account of the history of alternative medicine which related to unorthodox religion, and provides interesting cultural and sociological interpretation.

In chapter one, "Introduction," Fuller explains that religion and medicine were closely related in the human history. Only in the recent secularized Western society are orthodox medicine and religion separated. He observes that the persistence and popularity of unorthodox medical systems is due to their articulation of a different religious world view. According to their view, a higher energy could filter in and work upon a person's body and personality. He notes that not every unorthodox medicine relates to a religious view, and that this book only surveys alternative medicine which relates to unchurched American religious life. This book also does not discuss "faith healing" within orthodox religion.

Chapter two, "Sectarian Healing and Protestant Perfectionism in the Nineteenth Century," treats the development in the 1830s of Thomsonianism (which held that all disease was caused by cold and could be cured by heat), homeopathy (principle of like is cured by like), hydropathy (philosophy of water cure), and Graham's dietary regimens for disease prevention. Fuller claims that they represented a physiological Arminianism, that is, individuals could take control of their own physical and spiritual salvation. Graham's Christian Health Movement led to the establishment of the Seventh Day Adventists and the founding of Kellogg and Post cereal companies. He observes that these developments did not educe any metaphysical theory of healing.

Americans applied the ideological resources of two European "isms" to get the connection between metaphysical and physiological reality. The ideas of Swedenborgianism and mesmerism and their influence on America are explored in chapter three, "From Physic to Metaphysic: The Spiritualizing of Alternative Medicine." These systems, which sprang up in the 1830s and '40s, proposed a connection between the physical and spiritual realms. They gave Americans opportunities to experience an ecstatic influx of divine spirit. Mesmer claimed that health can be achieved by supercharging one's nerve system with a mysterious energy—animal magnetism. The process of mesmerizing brought a person into an intimate rapport with the cosmos. Swedenborg also claimed that there is an indwelling cosmic force which can be approached by inner adjustments. These metaphysical thinkings gave birth in the 1880s to American religious philosophies such as New Thought and Christian Science.

The fourth chapter, "At the Fringes of Orthodoxy: Chiropractic and Osteopathic Medicine," examines the emergence of these two unorthodox healing systems in the late nineteenth century. Fuller shows their indebtedness to mesmerism although they have gradually muted references to metaphysical concepts of disease.

The twentieth century's concern with holistic approach to medicine is treated in the fifth chapter, "The Contemporary Scene: Images of the 'Higher Self' in Holistic and Psychic Healing Movement." Fuller points out the underlying concept which recognizes the spiritual dimension of disease in diverse healing practices such as Ayurvedic medicine, Yoga, Shiatsu, rolfing, psychic healing, Therapeutic Touch, Alcoholics Anonymous, and New Age crystal healing.

In the last chapter, "Healing as an Initiatory Rite," Fuller gives his interpretation of all these events in American history and argues that these groups are very effective in bringing the resource of religion into the healing process. He concludes very positively about the influence of these groups in fostering spirituality in their adherents. They offer people a more vivid experience of a 'sacred reality' than do most organized religions. According to Fuller, by emphasizing the transcendence of God, orthodox religion cannot help believers to have profound psychological connection with God. It also cannot retain intellectual assent because of the advent of modern science, biblical criticism, and comparative religion.

Overall this book provides an interesting history of alternative medicine which culminates in spiritual pantheism. Fuller has a good mastery of American religious life. However, the connection between the movements in the previous century and those of this century is not as strong as he has argued. A gap of seventy years is related to the phenomenal advance of the modern medicine. The resurgence of alternative medicine and unorthodox spirituality after the 1970s is more related to an impasse of the medical progress, revolutionary change in American

society, and the influx of Eastern religions and merchandise. His opinion about orthodox religion is also debatable.

Reviewed by T. Timothy Chen, National Institutes of Health, Bethesda, MD 20892.

VARIETIES OF MORAL PERSONALITY: Ethics and Psychological Realism by Owen Flanagan. Cambridge: Harvard University Press, 1991. 393 pages. Hardcover.

All existing ethical theories are, according to Flanagan, inadequate in not sufficiently stressing the psychological dimension of man. These theories are overly interested in social aspects, as though ethics were restricted only to the social dimension of man. But ethical investigations must not be divorced from psychology, meaning both philosophical and scientific psychology. The goal of this book is to trace links between ethics and psychology, and to discuss current ethical theories from the standpoint of their sensitivity to psychological issues.

The first part of the book is a long introduction to the problem of psychological realism. The author spends one chapter just defending the view that "each of us is a separate individual with a distinctive personal point of view" (p. 58) — and at least that much has to be acknowledged by any moral theory. This is a claim of minimal realism; the position of strong realism — which, for instance, wants to put a limit on impartiality — is indefensible.

Having stated that, the author formulates a meta-ethical principle of minimal realism according to which all prescriptions and ideals of any ethical theory have to take into account "the creatures like us." They simply should not be detached from reality, in particular from psychological reality, and impose rules that are unrealizable by anyone. Theories claiming that psychology is irrelevant for ethics do not even deserve a serious discussion.

In Part Two, Flanagan discusses communitarian theory, which states that a proper social arrangement contributes to a proper development of persons. The author does not deny the reality of this contribution, but he indicates that there is a problem with determination of such proper social arrangements. Communitarians are right in indicating that there are social determinants of personality of concrete communities, but their generalizations are unsubstantiated.

Part Three begins with a long critique of the assumption that there is a the deep structure in the moral psychology of Piaget and Kohlberg. There are a number of definite moral forms, and each person's moral development goes through the same series of moral stages. Flanagan himself does not deny the existence of the deep structure, but he sees it as an insignificantly small piece of common ground between various moralities. For him "it seems simply unbelievable that there could be a single ideal moral competence and a universal and irreversible sequence of stages" (p. 195).

Next comes a lengthy discussion of the claim that moral ideals are gender-specific; for instance, the assumption that male moral reasoning is more rule-governed than is female reasoning. The claim of gender-specificity is all too simplistic and cannot be defended on either theoretical or empirical ground. It is an example of a formalistic approach to ethics, and "more contentful direction seems ... like the right direction in which to move" (p. 252). And Flanagan moves in this direction himself in Part Four.

Following Fodor's idea that the mind is divided into autonomous and encapsulated modules, Flanagan introduces a moral competence module, which possibly is divided into submodules. Also, dispositional modules, or traits, are customarily assumed to be stable in different situations. But situations very often reinforce certain traits and suppress the others. "Persons are ubiquitously *in* situations" (p. 260), and it is always reflected in the way the moral competence module and other dispositional modules affect human behavior.

Philosophical ethics may have a tendency to confine themselves to moral issues alone with an exclusion of context in which moral problems have to be solved. Psychological ethics may go in a similar direction by restricting the analysis of moral problems to man's *psyche*. What Flanagan stresses throughout his book is the validity — and the need — for a psychological approach to moral problems without loosing sight of the fact that man is a part of a larger context, and this context has an impact upon the moral dimension of man. Moreover, the character ethics should not "make the mistake of ignoring the vast array of moral personalities, of failing to see that both good character and good action are realized in multiple ways, and of thinking of traits of character as more solid, unequivocal, and decontextualized than they are" (p. 332).

Reviewed by Adam Drozdek, Duquesne University, Pittsburgh, PA 15282.

HEALTH AND OPTIMISM by Christopher Peterson and Lisa Bossio. New York: The Free Press, 1991. 214 pages. Hardcover; $19.95.

I liked this book. It's succinct, lucid, interesting, timely, and scientific. It presents the latest research on the relationship between positive thinking and physical well-being. The research is organized around the topics of optimism and pessimism. The first topic discussed is the relationship between health and explanatory style (the way people explain unpleasant ambiguous experience). After this, related lines of research are examined including dispositional optimism, hardiness, self-efficacy, social support, stress, coping, inhibited power motivation, type A behavior pattern, and bereavement. The conclusion is not unexpected: one's thoughts and feelings indeed affect one's mortality and morbidity.

The origins of optimism are discussed. It develops in a person's childhood and is based on a number of factors, the most important of which is a happy home where harshness is absent. A recipe for producing optimistic children, made up of 16 ingredients, is given. There is also a chapter on what adults can do to turn themselves from pessimists into optimists. Helpful endnotes, references, and indices appear at the end of the book.

I recommend this book to those who want to better understand how they acquired their explanatory style and what to do to change it. This volume would be especially helpful to those who want to include this topic in a psychology of adjustment or health course. Finally, for those who wondered about the merits of the message preached by the apostles of positive thinking, this discussion will show that optimism is not the philosophy of fools.

Reviewed by Richard Ruble, John Brown University, Siloam Spring, AR 72761.

IN GOD'S IMAGE AFTER ALL: How Psychology Supports Biblical Creationism by Paul D. Ackerman. Grand Rapids, MI: Baker Book House, 1990. 101 pages, no index, discussion questions. Paperback.

Ackerman is assistant professor of psychology at Wichita State University and is active in creation science organizations. He has also written *It's a Young World After All.*

Ackerman was a psychologist before he became a Christian and has sought ways to incorporate his knowledge of psychology into a biblical world view. His thesis is that the findings of modern psychology support the biblical view of human nature.

In each chapter of his book, Ackerman addresses one aspect of human nature that is studied by psychologists, such as morality, free will, or learning. He summarizes the currently accepted psychological theories about each characteristic and then provides the results of a couple of well-known experiments done in that field. He interprets the results to show that they actually support the biblical view expressed on that issue, also giving relevant Scriptural citations. Ackerman concludes that we strive to become our own god, but that in fact we are completely dependent on God to sustain us, as evidenced by our involuntary actions.

His preface is a good summary of the dangers of trying to get science to prove the Bible, as opposed to having science witness to the veracity of the Bible. Ackerman certainly accomplishes his goal of showing how certain well-known and reputable psychological studies can be shown to support the biblical view of humanity, but the number of studies selected was very small. I was often left with the question: "Is this really the dominant view in psychology?" If a number of other studies coming to the same conclusions were at least referenced, this would have answered my question without dramatically increasing the length of the book. In addition, a chapter on the different interpretations of the phrase "God's Image" would have been welcomed.

Another criticism is that I think that the choice of subtitle was inappropriate. This book supports a biblical view of human nature, but not one which has anything to do with either biblical creationists' or old earth creationists' views This book does not deal with any of the issues in this hotly contested debate and it would therefore appear to be inappropriate to take sides. This book would support both views, but may be less widely read because it claims to support only one.

This book is certainly suitable for those without a background in psychology. It would be a helpful introduction to the issues in this field. It also provides some interesting support for the Christian world view. I would imagine that a student of this field would be very familiar with most of this material, though it may be presented from a different perspective. It would be useful for group discussions as many of the questions in the appendix are very thought provoking.

Reviewed by Donal O'Mathuna, Assistant Professor of Chemistry, Mount Carmel College of Nursing, 127 S. Davis Ave., Columbus, OH 43222.

PSYCHOLOGY OF RELIGION: Classic and Contemporary Views by David M. Wulff. New York: John Wiley and Sons, 1991. 640 pages plus glossary, references and index. Hardcover; $38.95.

Two of the most significant figures in twentieth century psychology, Erik Erikson and B. F. Skinner, have high praise for this text. (Their views are accurately summarized in this book.) Paul Pruyser, late of the Menninger Foundation, characterizes it as "magnificently informative and broad-scoped." The publishers describe the book as "the first truly comprehensive, non-Christocentric treatment of the psychology of religion." It also avoids sexist language. Chapter introductions, case studies, a glossary, tables, biographical sketches, figures and illustrations supplement the text.

The book aims to integrate theoretical, empirical, and clinical literature into an analysis of the world's major religions. In addition to citing works published in the United States, Wulff also includes source material from other parts of the world. The book is organized around two basic viewpoints: objective (experimental and correlational methods), and subjective (depth, existential, and humanistic psychologies). Comprehension of the text is possible without a background in psychology.

Major space is given to the perspectives of Sigmund Freud, Erik Erikson, C. G. Jung, and William James. Additional viewpoints discussed include those of Hall, Galton, Allport, Fromm, and Maslow. Wulff does not take the approach of discussing a major religion in each chapter. Rather, his approach is thematic in which he uses different religions to illustrate the various topics. Wulff refers to the major religions of the world including Buddhist, Christian, Hindu, Islamic, and Jewish.

Some of the topics discussed with which readers of *PSCF* will want to interact are narcissism and Christian faith, belief as reflex arc, behavior theory as a means of attacking religion, experimental studies of prayer, religion and prejudice, and the question of whether religious faith can be meaningfully measured?

The book is written in an objective, textbook style. Therefore, it should not be offensive to those of any religious tradition. The book is not a critique of religion, although same of those referenced take a negative view of the religious experience. Wulff had three audiences in mind when he wrote this book: undergraduate students who have no background in the topic, advanced students in the psychology of religion who need a comprehensive overview, and scholars of religion who need a handbook to summarize and evaluate the subject.

Wulff is professor of psychology at Wheaton College in Massachusetts, where he has taught for 20 years. Trained in experimental psychology and personality psychology, Wulff is deeply interested in the history of psychology and the psychology of religion. His own view is that "the study of religion is inevitably an adventure that is both intellectual and personal."

Reviewed by Richard Ruble, John Brown University, Siloam Spring, AR 72761.

KINSEY, SEX AND FRAUD: The Indoctrination of a People by Judith A. Reisman and Edward W. Eichel; John H. Court and J. Gordon Muir (eds.). Lafayette, LA: Huntington House Publishers, 1990. 234 pages, 4 appendices. Hardcover.

The claim of this book is that the legendary Kinsey reports of 1948 (male) and 1953 (female) were based on research that was poorly conducted from a statistical standpoint, indicating a higher level of sexual promiscuity and homosexuality than was true. This may have contributed to the sexual revolution of the 1960's ("Everyone else is doing it, so why not me?")and its attendant increase in sexually related diseases, including AIDS. It is also the basis on which projections of the number of AIDS cases today have been made, projections which are being found to be overinflated.

Kinsey's main investigational flaw was his selection of interviewees, since a larger than representative number of prison inmates were included. There was a further bias which Abraham Maslow (Hierarchy of Needs) pointed out, in which volunteers in a sex survey were more likely to be non-traditional and less conservative in their sexual activities and preference. Kinsey ignored Maslow's advice and included that group of volunteers in his numbers.

Fraud is suggested by the fact that experiments in sexual stimulation and response were done on children and babies, frequently by pedophiles.

The authors claim that these reports were not the result of unbiased scientific research but rather research to support Kinsey's idea that sexual response is an animal response and is the same regardless of the stimulus, homosexual or heterosexual. There's a spectrum of sexual orientation with bisexuality in the middle and exclusive hetero- and homo-sexuality at either end. He felt that the best-balanced people should be in the middle.

Kinsey's current day followers have gotten control of the programs that train sex educators, and they continue to push this philosophy. Equally disturbing is the concept that children, as sexual beings, have a right to a sex life. This should be encouraged by adults who would interact with them sexually.

It's unclear from this book what the authors feel is the answer, or why the "Kinsey Agenda" is wrong. Are they Christians who are trying to alert a wider audience, one which would instinctively believe in a sexuality that was Bible-based, even though they were unable to articulate their reasons?

The authors, Reisman and Eichel, are, respectively, educator-pornography researcher and psychologist-sexologist. The personal experiences of Eichel, having gone through one of the master's programs on training sex educators, were particularly disturbing — students touching each others' genitals, for example. Court and Muir are listed as editors, and they co-author several of the chapters. Court is a professor of psychology at Fuller Seminary, and Muir is a physician and now president of Lochinvar, Inc.

Regardless of the position of the authors, Christians should be aware of the disturbing message of this book, and those of us in science should be able to refute those who claim this new direction for sex in America is based on science and nature.

Reviewed by Edward M. Blight, Jr. Professor of Surgery, Loma Linda University, Loma Linda, CA 92354.

VIBRATIONAL MEDICINE: New Choices for Healing Ourselves by Richard Gerber. Santa Fe, NM: Bear & Company, 1988. 502 pages, appendix, recommended reading list, glossary, index. Paperback.

Gerber is an internist, trained in a respected American medical school and a practitioner of standard American medicine. He thinks, however, that the true basis for health and disease is not the molecular, mechanical understanding of it we have now. He believes, rather, that there are subtle energy fields that affect wellness and illness, and that our efforts at diagnosis and treatment should be directed along these lines. He labels the traditional, mechanistic basis as Newtonian and the newer, energetic basis as Einsteinian, and he gives great credit to William A. Tiller of Stanford University's Department of Material Science and Engineering. Tiller has developed the idea of subtle energy fields into "The Tiller-Einstein Model of Positive-Negative Space/Time," which includes such concepts as magnetoelectric (different from electromagnetic) energy and negative entropy.

Gerber says we are each defined not only by our physical bodies but by a hierarchy of energetic fields with increasingly higher vibrational frequencies which affect our physical bodies. These are, in increasing order, the etheric, astral, mental, causal and even higher spiritual bodies, one of which ultimately is our Higher Self. If we can measure subtle energy disturbances, we can diagnose our illnesses, and if we can affect these fields, we can cure.

These energies enter our bodies through several body gates known as CHAKRAS, and thence proceed throughout the body via pathways called NADIS. This is all closely tied in with the acupuncture theory. Since treatment is by varying energy vibrations, homeopathy and such treatments as flower essences and gem elixirs replace antibiotics, surgery and radiotherapy. Obviously, vibrational medicine is closely related to New Age thinking, Eastern thought and reincarnation.

The book is well written. Gerber has a talent for clear articulation of concepts that are difficult to grasp. At 500 pages, there is a considerable amount of repetition, but perhaps that explains the previous point. There is early, experimental evidence that there may be some truth to some of these theories of the effect of subtle energy, and many of Gerber's conclusions are ones we would agree with. Most physicians, for example, recognize that much disease is caused by anxiety, stress and anger, and that by cleansing ourselves of these emotions, we will live healthier lives. In Gerber's thinking, though, this cleansing comes by getting in touch with our Higher Self, which has lived through innumerable reincarnations and can help us get our energy vibrations in order, rather than praying to a loving, personal God and laying all our cares on Him.

As scientists, we need to be open to evidence and proofs, both scientific and spiritual, from God's trustworthy world. We also need to be astute enough to see where Gerber and others leave scientific evidence and start deducing conclusions from a world-view other than a Christian one.

This is an important book for those interested in New Age thinking, but it should be read along with *New Age Medicine* by Reisser, Reisser and Weldon, reviewed in *PSCF*, March 1990, page 59.

Reviewed by Edward M. Blight, Jr., Professor of Surgery, Loma Linda University, Loma Linda, CA 92354.

TOXIC FAITH: Understanding and Overcoming Religious Addiction by Stephen Arterburn and Jack Felton. Nashville, TN: Nelson, 1991. 320 pages. Hardcover.

Toxic faith, say the authors, has nothing to do with God and everything to do with people inventing their own self-serving brand of religion which dishonors the true God. People who do this are not evil; they are misguided. They are people with low self-esteem, people from dysfunctional families, people burdened with guilt, people with a history of emotional, physical or sexual abuse, people with addictive personalities, people who create a faulty religion to avoid or control the negative aspects of their existence. Their efforts to create a religion which involves no commitment, pain, fear, growth, or reality lead to faith toxicity. This book aims to distinguish between healthy faith and misdirected religiosity which lead to toxic faith.

The book has ten chapters and two appendices. Appendix A contains 20 questions designed to help readers measure the maturity of their faith. Appendix B gives 12 steps as a guide to overcoming religious addiction. The 12 steps are similar to those used by Alcoholics Anonymous. The book concludes with a two page description of the programs of New Life Treatment Centers. A toll free telephone number is included for those who seek further help.

Titillating topics include 21 toxic beliefs, 10 toxic faith characteristics, 10 toxic faith rules, 17 healthy faith characteristics, and treatment and recovery from toxic faith. The book is written in lucid language with ample illustrations to keep it interesting. Boxes filled with news items, statistics, or lists permeate the text. A few of the toxic beliefs discussed are suggested by these headings: conditional love, instant peace, investment tithing, spiteful God, irrational submission, heavenly matchmaking, Pollyanna perspective, and divinely ordained happiness.

This book will be helpful in elucidating toxic religious addiction to a wide range of persons. For the layperson, the counselor and therapist, the Bible teacher and preacher, *Toxic Faith* will provide some new insights and an overview of the pitfalls false faith entails.

Stephen Arterburn is the founder of New Life Treatment Centers and the author of seven books including

Drug-Proof Your Kids. Jack Felton is founder of Compassion Move Ministries and associate pastor of a church. Both the book and its authors are praised on the dust jacket by Robert Schuller, Bill Hybels, and Tony Campolo.

Reviewed by Richard Ruble, John Brown University, Siloam Spring, AR 72761.

RELIGION AND COUNSELING: The Psychological Impact of Religious Belief by Robert J. Lovinger. New York:Continuum Publishing Company, 1990. 198 pages, footnotes, no index. hardcover; $17.95.

The author is a clinical psychologist involved in the training of students for this field. The basic theme of the book is the impact which religious beliefs have upon the mental state of clients who seek out a therapist. The author also attempts to give summary statements in reference to the main religions in this country, including some discussion of various denominations, and also contemporary cults. The author appears to be generally sympathetic to religion, identifying his own religion as Jewish, and advocates that counselors relate to a client's religious beliefs from a neutral perspective.

While the counselor may or may not have religious beliefs, his or her function is to attempt to identify how religion brings order and meaning to a client's world, not to pass judgment on the client's religion. The author rightly observes that the majority of persons in this country profess some religious belief, making it important for counselors to understand those beliefs. Since there are times when religion may be an integral part of the client's psychological situation, to ignore that dimension is to be cut off from a critical part of the client's world. He even suggests that clergypersons be consulted in cases where the counselor may have no understanding of the client's religious orientation. Since some counselors avoid religion like the plague, Lovinger's approach seems more realistic.

The author gives examples of how religious ideas may reveal insight into a client's psyche. A client who sees God as distant and unapproachable may be reflecting a human father with similar qualities. He points out that sometimes religion has been used as a means to frighten and/or control persons. Thus, a client may be engaged in a behavior which may lead to eternal damnation, according to parental or church teaching. In such cases, helping clients see alternate meanings in the Bible may be a means of helping them to arrive at a different perspective. Thus, for a therapist it is important to focus on possible meanings of religious ideas rather than focusing on their truth or falsehood.

The book has a chapter on how special problems may be handled in the light of religious overtones. He speaks briefly to such contemporary issues as abortion, alcoholism and homosexuality, among others. Persons with strong opinions on such issues may not find this section very satisfactory.

Further, there are times when the author, in spite of his attempts at neutrality, allows his own religious bias to slip in. He makes an interpretive statement suggesting that the New Testament authors expected the world to end soon, a statement which many Christians would not accept. He states that heaven and hell are Christian folk stories having no real basis in Scripture. *PSCF* readers who believe in the inspiration of the New Testament and in the great creeds of the church might not be all agree with the author's bias at this point.

While the book made some interesting and thoughtful points, this reviewer found much of the material to be superficial, and not very practical. His brief mention of my own denomination misses the mark badly, and he failed to grasp the essence of "Jews for Jesus" in his brief analysis of their intentions. It seemed to me that the author tried to cover too much material in a brief manner, with predictable consequences. Even though I have a keen interest in the subject discussed by the author, I must confess that reading the book was a struggle. My interest kept sagging, and it was only the need to write this review that kept me going.

Reviewed by Richard M. Bowman, Pastor, First Christian Church, 441 North Church St. Decatur, Il 62522.

GENDER AND GRACE: Love, Work and Parenting in a Changing World by Mary Stewart Van Leewun. Downers Grove, InterVarsity Press, 1990. 278 pages. Paper.

Van Leewun, a psychologist and professor of interdisciplinary studies at Calvin College, has devoted years of study to the preparation of this wide-ranging volume. It is literally loaded with results of research in theology, sociology, psychology, history and biology. It also has profuse notes and quotes which would be worth the price of the book, even without the author's well-reasoned text and challenging conclusions.

No one can doubt the importance of a substantive work on an issue as contemporary as gender identity and roles. The fact that she approaches this issue from a biblical perspective, with an emphasis on grace, and with insights from various academic disciplines, makes her book especially significant.

After raising some of the questions which she will try to answer, she devotes a major section of the book to the influences of nature and nurture on gender and sexuality. She defines *gender* as learned behavior and *sex* as factors which seem to be biological in their origin, although she demonstrates that it is not easy to separate environment and genetics as the source of human actions. She is careful not to exempt people from responsibility for their lives,

even when biology seems predominant. Yet she shows compassion for those who live with moral struggles.

Among the positions she defends are: the need for both parents to be actively involved with their children; the equality of the sexes in the home, work place and church; the need to develop new patterns to substitute for the "traditional family" in Christian teaching; and the utilization of an adequate hermeneutic for understanding the complexity of Biblical revelation.

This stimulating book has been helpful to me both by raising new issues and by giving new information. I look forward to reading some of the books Van Leewun quoted. I intend to recommend *Gender and Grace* to my friends and students.

Reviewed by Joseph M. Martin, Chairman of the Christian Ministries Department, Belhaven College, Jackson, MS 39202.

GLOBAL-TRENDS: Ten Changes Affecting Christians Everywhere by Gordon Aeschliman. Downers Grove, IL: InterVarsity Press, 1990. 115 pages; appendix and notes, 39 pages. Paperback, $9.95.

This cogent overview of major directions in our modern world is addressed to evangelical Christians to challenge them to a relevant, biblically based, globally oriented mission strategy. Since the author believes that most mission structures reflect little change in a world that has gone through enormous changes, many readers may be uncomfortable facing up to the demands of this hard-hitting book.

Issues confronted are: the shrinking globe, the Islamic revolution, reaching the world's poor, stewardship of the environment, human rights and liberation, urban problems, the Gorbachev revolution, the decline of the West, evangelism, and the internationalization of the gospel. Economics influences most of these problems so one would think that one of the concerns should be international monetary policy. However, this issue is amply treated in the appendix by "the Oxford Declaration on Christian Faith and Economics." Also included is "The Lausanne Covenant" from the International Congress on World Evangelism, giving some direction on fulfilling the unfinished task.

No doubt each reader will take exception to some of the author's bold assertions. My ire is always raised by what I consider to be unnecessary missionary bashing, e.g., "missionaries have too often sided with White views of colonization and having given their blessing to occupying governments that are 'bringing civilization to savages'." This charge has been repeated so often it is even believed within the camp. I worked in Africa from 1951-1972, during which over 40 countries found their freedom, most of whose leaders were deeply influenced by Christian missions. in general, the record will show that the Christian message and the liberating power of the Bible brought by the missionaries at great personal sacrifice was by far-and-away the greatest force in liberating Africa from slavery and colonialism. Given the little they had to work with, these pioneers did a magnificent job! I only hope the next generation of missionaries with all their advantages of technical training and equipment can do half as well.

The author predicts that the single greatest challenge to Christianity in the next decade will come from *fundamentalist* Islam (emphasis mine). However, in the recent Gulf War, Muslim fundamentalists were almost totally discredited in the Muslim world. The more serious challenge may come from a thoughtful, well-financed *centrist* Islamic position.

There are many thought-provoking statements in this well-written book: e.g. " 'Making war' has become our security, and now 'making peace' is a greater threat for us than the posture of war. Our societies have become what we were fighting" (p. 87).

Gordon Aeschliman is editor of *World Christian* magazine and author of *Apartheid: Tragedy in Black and White.*

Reviewed by Albert C. Strong, B.S., M.Div., Retired, Silverton, OR 97381

UNDERSTANDING FUNDAMENTALISM AND EVANGELICALISM by George M. Mardsen. Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1991. 201 pages, index. Paperback; $12.95.

George Marsden has written on the topic of "fundamentalism" before (*Fundamentalism and American Culture*, 1980) and is considered by many to be a leading authority on the subject. He is a professor of the history of Christianity in America at the Divinity School at Duke University. His newest book is a collection of essays edited into book form. The title may be somewhat misleading. I thought it would be a theological analysis of fundamentalism and evangelicalism, but it is more of an historical survey of these movements in America. His survey of how evangelicalism and fundamentalism have related to American culture from the second half of the 19th century until today is informative.

The author helps the reader to grasp the difference between two labels which are often difficult to distinguish from one another. He considers "evangelicalism" to be the primary and original term, with "fundamentalism" a sub-heading under it. Both groups have much in common. They both believe in the centrality of Jesus Christ as the world's Savior, and both have a high view of Scripture, using such terms as "infallible" and/or "inerrant" to describe it. "Evangelical" originally referred to the great

American revival movements of the 18th and 19th centuries. As evangelicals came into conflict with theological liberalism and the modern approach to science, some of them became very militant. In order to protect purity of doctrine, they often separated from their churches to form new churches and denominations. These militant and separatist evangelicals came to be called fundamentalists in the early 19th century. Thus, a fundamentalist is an angry evangelical, according to Mardsen, which is a simple but fairly helpful way to distinguish the two terms.

The author reminds us that there was a time when evangelical Christianity and science lived in harmony. However, primarily because of the influence of Charles Darwin, a split took place in the evangelical community. There were those who were at least willing to try to relate evolution to a high view of Scripture, believing that true science and biblical truth must be compatible. The author uses the American Scientific Affiliation as an example of a group whose members tend to accept evolutionary ideas while still holding to basic evangelical truths. The Creation Science movement is seen more in the fundamentalist camp, but here again labels are slippery, since, for example, this reviewer leans towards creation science but does not consider himself a fundamentalist. The key difference seems to be in the words "militant" and "separatist." One tends to slide into the fundamentalist camp when one not only holds to certain truths, but tends to separate from those who disagree, refusing to dialogue on the issue in question.

Although the book is made up of essays, thus giving it a certain uneven quality with the individual chapters not always closely tied together, I found it to be both interesting and helpful. I came away from the book feeling that my understanding of evangelicalism and fundamentalism was sharpened. ASA members will appreciate the changing relationships between science and religion which are documented in the book, especially chapters 5 and 6 ("The Evangelical Love Affair with Enlightenment Science" and "Why Creation Science?").Those involved in present controversies involving science and religion may benefit by stepping back from the present in order to gain some historical perspective. Mardsen's book helped me to do just that.

Reviewed by Richard M. Bowman, Pastor, First Christian Church, 441 No. Church St., Decatur, IL 62522.

THE SCATTERED VOICE: Christians at Odds in the Public Square by James W. Skillen. Grand Rapids: Zondervan Books, 1990. 252 pages. Paperback: $7.95.

Skillen, director of the Association for Public Justice and the Center for Public Justice in Washington, D.C., challenges American Christians "to develop a principled framework that can distinguish the task of government and the role of citizenship from the responsibilities of other institutions and communities." This theoretical challenge stems from certain conceptual, historical, and theological confusions, common to all currents of opinion, which constrain our imagination and prevent us from meeting the opportunities of the present.

A Christian perspective will be distinguished, the author concludes, by four conditions. First, it will recognize, in light of Trinitarian theology, the cultural mandate of politics and the importance of political science to political order. What is political order? What is the purpose and scope of the political? Neglect of these questions admits a fundamental conceptual confusion that precludes a constructive and critical Christian contribution. Second, it will come to grips with the real history of American politics. Political order cannot be grasped outside of history, but there is a dangerous tendency to look to history for the norms of justice and polity; a misinformed or uncritical perspective on one's historical context binds one to an unconvincing moralism and to a piecemeal approach to reforms. Third, it will draw on its biblical roots and Christian tradition to recognize the good of political order; a Christian perspective that ignores the full authority and scope of the Bible and the wisdom of the church is bound to place an inordinate emphasis on, for instance, sin to the neglect of justice, and vice versa. Finally, it will recognize both our highly differentiated society and our rapidly shrinking world. Indeed, contrary to liberal prejudice, confessional and structural pluralism is an important implication of a Christian perspective on politics.

In the middle chapters, Skillen leads the reader on a tour of the present landscape of American Christianity. We meet, in the author's terms, pro-American conservatives, cautious and critical conservatives, sophisticated neo-conservatives, traditional and reflective liberals, civil-rights reformers, projustice activists, and theonomic reconstructionists. Under these labels he gathers a familiar list of voices, including Jerry Falwell, Chuck Colson, Richard John Neuhaus, Michael Novak, the Catholic Bishops, the oldline Protestant denominations, Jim Wallis, Ron Sider, and Gary North. Their insights and errors endue the author's own perspective with catholicity, conceptual clarity, and theoretical and historical depth.

The value of this book is, in short, that it draws the reader into the current debate by providing some basic conceptual tools, some fundamental questions, and the benefit of the author's knowledge of American Christianity, Reformed theology, and democratic theory. Skillen, who holds advanced degrees in both theology and political science, renders the reader who is familiar with the leading lights of the current debate but who is dissatisfied with their conclusions. Those who look here for a slate of policy recommendations or for approbation of their own moral prejudices will be disappointed and unsettled. But those who seek a Christian political perspective informed by political science will be greatly enriched.

Reviewed by Gregory A. Bezilla, Dept. of Political Science, Columbia University, New York, NY 1027.

ECONOMICS TODAY: A Christian Critique by Donald A. Hay. Grand Rapids, MI: Eerdmans Publishing Company, 1989. 313 pages, endnotes, index. Paperback; $17.95.

The author of this book, which seeks to relate Christian truth to the field of economics, is a Fellow and Tutor in Economics at Jesus College, Oxford. This background would seem to qualify him to write in this area, but in the Preface the author suggests that "my reading is insufficient and my understanding inadequate for what I am trying to do" (p. 9). In spite of this disclaimer, it is a thoughtful book. Economics is a difficult field with many conflicting theories regarding its nature and essence. Chapters four through eight were revisions of previously written materials published in Great Britain.

The eight chapters of the book can be divided into two main sections. The first two chapters grapple with biblical/theological issues which impact on economic issues. Armed with a Christian understanding of truth, the author then proceeds to relate that understanding to various secular economic theories, with a chapter on both capitalism and socialism.

One of the main points of the book is the question of how to relate the high economic ideals, which can be identified in Scripture to economic realties which are taking place in a fallen world, where unredeemed persons often are influential. The author comes up with eight principles which he believes "incorporate the essential features of biblical teaching concerning economic life" (p. 77). These principles cover the areas of man and his dominion, work, and the distribution of goods. As is frequently the case when dealing with complex material, principles can be stated rather clearly, but the difficulty lies in their application to day to day situations. For example, his eighth principle has to do with the obligation of the rich to help the poor. Few Christians would argue with that, but then the author says that men have "no right to consume any more of the product than is essential to provide for their own basic needs" (p. 76). This statement is fraught with ambiguity and does not necessarily follow from the eighth principle. It certainly leans in the direction of socialism rather than capitalism.

The author suggests that Christians must always strive for the biblical ideal in economics. He recognizes that full implementation of biblical economic truth is out of the question in a fallen world. Christians cannot really promote economic principles which presuppose a relationship to God in society where many do not enjoy such a relationship. Christians must often pursue that which is "second best" or "possible" in a sinful world, while never losing sight of God's ideal.

I thought the author's material relating to biblical/theological issues was very helpful. I must confess that I bogged down in those sections where he analyzed various secular economic theories. This reviewer has had very little formal training in economics (one undergraduate course many years ago) and found some of this material difficult to grasp. This is not a defect in the book but rather in the reviewer.

I wondered if the author was not familiar with the Christian Reconstruction (or "Theonomy") movement in the United States. This group has much to say about how biblical economic theory should be applied today. They would not agree that Christians should settle for "second best." The author never mentions this movement or any of its many books and authors. I would think that any book on Christian economics would have to interact with this position, and was disappointed to find that it did not.

I believe this is a book worth reading and owning. I plan to do some more work with the book to sharpen my own understanding of the field. The first two chapters are a good beginning point for Christians who are weak in the subject. We live in a society where much that happens economically is unrelated to divine truth, and sometimes even Christians support economic practices which cannot be justified biblically. Hay's eight principles are a good beginning point.

Reviewed By Richard M. Bowman, Pastor, First Christian Church, and editor of Disciple Renewal *magazine, Decatur, IL 62522.*

PREPARE TO ANSWER: A Defense of the Christian Faith by Rubel Shelley. Grand Rapids, MI: Baker Book House, 1990. 236 pages, no index, endnotes. Paperback.

Rubel Shelley is a name well known in the Christian Churches and Churches of Christ, but probably not well know in other circles. He has written several previous books, my favorite being *I Just Want to be a Christian*. He is an able defender of the Christian faith.

This latest book might be described as an introduction to apologetics. He attempts to argue that Christian believers can also be persons of intelligence. He speaks to the basic problems that have troubled both believers and unbelievers over the centuries. First, he argues that the evidence for the existence of God in nature and science is very compelling. Then he tackles the difficult problem of evil, with man's freedom being the basic explanation for the existence of evil. His approach will not be very satisfactory for Calvinists, who will find that the author's approach on this issue leaves too many unanswered questions. Wesylians and Arminians will probably feel more comfortable with the author's handling of suffering and evil in the world.

In the middle part of the book Shelly argues for the authority of Scripture. He seeks to convince the reader of the divine presence which seems to permeate the text. The book ends with the author's statement that Jesus is the Christ, the only Savior of the world, and with a brief review of why so many reject Him. He points out that often those who reject Christ do so for reasons which are unrelated to intellectual concerns.

While I found myself in agreement with almost everything written in the book, I did not find much new in its pages. I expected it to be more intellectually stimulating than it was. This is probably not a book which will interest those who are well grounded in apologetics, but it might be useful as an introduction.

Reviewed by R. M. Bowman, Pastor, First Christian Church, Decatur, IL 62522.

EUPRAXOPHY: Living Without Religion by Paul Kurtz. Buffalo: Prometheus Books, 1989. 159 pages, no index. Hardcover; $15.95.

As professor of philosophy at the State University of New York at Buffalo, Kurtz edits *Free Inquiry* magazine. He is also the founding chairman of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) and co-president of the International Humanist and Ethical Union. A few selected titles from his pen include: *Decision and the Condition of Man; In Defense of Secular Humanism;* and *Transcendental Temptation: A Critique of Religion and the Paranormal* — all of which are more or less devoted to his evangel for humanism.

His impressive writing list also includes co-authorship with colleagues who seek to explain humanism, as well as to propagate its message to vulnerable students in limbo. Other writings are directed at those whom Kurtz sees still in a benighted state with dependence upon the supernatural, whether it is primitivism with superstition or sophistication among those whose esoterica mark elite theologies, "Christian" or others of the so-called "great" religions.

Thus the reader is not surprised to find him quite familiar with such scholars as Sidney Hook, a leading spokesman for naturalistic humanism, and George Lundberg, who raises the whole issue of science as mankind's mean's of salvation in the contemporary world. To read this sophisticated analysis of humanism, one can easily recall the fundamental argument of Auguste Comte, the founder of sociology, who proposed a three-stage history of humanity (anticipated by Turgot): the theological (personal gods); the metaphysical (impersonal forces); and the positive (laws derived from observation and experiment).

Kurtz claims that his probe goes beyond Comte, Hook, and others to the point where he rejects the use of the term "religion." Such a "concept" of religion is to be replaced by his coined term "eupraxophy." This label is derived from Greek roots: *eu*—good, well; *praxis*—conduct, practice; and *sophi*—scientific and philosophic wisdom. Hence, *eupraxophy* to Kurtz is "a set of convictions and practices offering a cosmic outlook and an ethical guide to life."

To Kurtz, eupraxophy draws upon sciences (particularly behavioral sciences), philosophy, and ethics. He argues that from these, he means more than merely the sum of parts, that is, of discreet scholarly fields. Not simply an intellectual exercise, eupraxophy expresses convictions—an emotional state, or ethos—about the nature of the universe and how to live one's life with commitment and dedication. It thus combines a world view with a dynamic lifestyle.

The author maintains that the eupraxopher can lead a meaningful life and create a just society (shades of Comte and those committed to social Darwinianism!). And he offers concrete recommendations for the development toward ultimate utopianism by eupraxophetic reality in the process.

To achieve this end, Kurtz builds upon previous efforts with chapters entitled: (I) What Is Eupraxophy?; (II) What Is Humanism?; (III) The Definition of Religion; (IV) Conviction and Commitment; and (V) Building Humanism in the Future.

The reader will discover that Kurtz has indeed done his homework for a "reasonable" analysis. This, of course, does not mean that I, as reviewer, swallow this tempting bait hook, line and sinker; that is, I question his stated viewpoint, basic assumption, and conclusion.

Yet, as a professional anthropologist with evangelical Christian assumptions, I admire Kurtz' grasp of religion as defined by such anthropologists as: E.E. Taylor ("the belief in spiritual beings"); Sir James Frazer (in the *Golden Bough,* religion as "a propitiation or conciliation of powers of nature and human life"); and Anthony F.C. Wallace ("It is the premise of every religion—and this religion's *defining characteristic* — that souls, supernatural beings and supernatural forces exist").

In order to reject religious dimensions, Kurtz must reveal their common "fallacy" by defending his optimism in human energy and wisdom that can correct inherent flows in religion. His closely-reasoned argument will indeed threaten readers who are not firmly committed to transcendent assumptions. These include immature Christians who do not buttress their faith by serious reflection on biblical doctrine about meaning and purpose in life. This arena of conflict is not for those who depend upon, say, facile answers of the electronic church or similar expositions of Christianity. Therefore, Kurtz' ambitious evangel does hone previous tools of humanistic thought, but the basic scalpel of naturalistic humanism remains. By that I mean the so-called 1933 "Humanist Manifesto" stemming from such humanists as Curtis Reese, A.E. Haydon, Charles F. Potter, R.W. Sellars, J.C.F. Auer, and of course, Syndey Hook. As they define it: "Humanism asserts that the nature of the universe depicted by modern science makes unacceptable any supernatural or cosmic guarantees of human values ... Religion [which must also be discarded, says Kurtz] must formulate its hopes and plans in the light of the scientific spirit and method."

I await the humanistic response from Kurtz and others in the light of recent world events; the emergence of Fundamentalism in particular, which I am presently preparing a paper on. This is not a Christian exclusive (e.g., the Moral Majority, and "born again" confessors in America) but is also evident in Islam (e.g., the Iranian Revolution and the Muslim Brotherhood) and among the Hindus and Sikhs of the Indian subcontinent.

And how about the collapse of Soviet intolerance for religion, which after eight decades of repression, finds the masses eagerly searching for Christianity, and, in some areas, Islam, as a demonstration of the profound need for the supernatural?

And while I find Kurtz most stimulating with a genre of writing that I covet, along with his seminal probes, I cannot escape the axiom that "the proof of the pudding is in the eating." The fare served up by humanism seems much like the "cotton candy" that I used to savor at county fairs: sweet indeed, but hardly to be prescribed for holistic health to those who ponder the reality of overwhelming social and cultural ills. These require therapy beyond the limits of science, especially the scientism posited in naturalistic humanism.

My assumption remains intrinsically and *ex*trinsically religious; it is akin to the Apostle Paul's interpretation of Jesus' provision:

> For the message about Christ's death on the cross is nonsense to those who are being lost; but for us who are being saved it is God's power. The scripture says, 'I will destroy the wisdom of the wise and set aside the understanding of the scholars.' So then, where does that leave the wise, or the skillful debaters of this world? God has shown that this world's wisdom is foolishness! (I Corinthians 1:18-20 TEV).

Who, then, should read this effort by Kurtz? I recommend it to all who are serious about the exchange at the market place of ideas, and especially for those of us who have been entrusted with advising the future generation as they confront horrendous, unsolved problems theoretically minimized by Kurtz' proclamation of salvation in humanism.

Obviously, Kurtz has never faced the world of, say, Tolstoi, Dostoevski, Sorokin, Solzhenitsen, Bonhoeffer and others who have experienced the reality of conditions exceedingly remote from ivory towers. One should read Ellul's *Living Faith* for a brilliant response to Kurtz' eupraxophy as a refined form of secular humanism.

Reviewed by George Jennings, Professor Emeritus of Anthropology, Geneva College, P.O. Box 632, Le Mars, IA 51031.

NEW 20TH-CENTURY ENCYCLOPEDIA OF RELIGIOUS KNOWLEDGE by J. D. Douglas, (ed.). Grand Rapids, MI: Baker, 1991. 896 pages. Hardcover; $39.95.

Readers will recognize some academic heavyweights among the authors who wrote the articles in this volume including F. F. Bruce, Carl Henry, Bruce Metzger, Cornelius Van Til, and Robert Webber. Its editor, J. D. Douglas, seems to have built a literary career on producing such tomes. With such talented writers assembled, purchasers of this expensive collaboration might justifiably have high expectations. They will not be disappointed.

New 20th Century Encyclopedia of Religious Knowledge (NTCERK), is a descendant of the 1886 publication *Schaff-Herzog Encyclopedia of Religious Knowledge* (SHERK), and the 1955 first edition *Twentieth-Century Encyclopedia of Religious Knowledge* (TCERK). The preface indicates that this is more of an original work than a revision, however. Its 2100 articles describe religious developments and trends in the twentieth century. Evangelical Christianity is presented as a phenomenon which impacts theologies, churches, philosophies, religions and peoples worldwide.

Two-thirds of the articles are new with the other third updated and supplemented. Thus, that this is not a supplement to the previous edition, but can be used independently of it. (The 1886 SHERK contained 13 volumes.) While this volume is more broadly evangelical than TCERK, many of its contributors are not evangelical. Its authors are less American in their orientation, also. The publisher's goal for this volumes is to "present a retrospective view of one period in church and world history that we have been privileged to share."

Articles of special interest to ASA members and readers of this journal are "Christian Education," "Psychology of Religion," "Science and Religion," and the "Scopes Trial." Strangely absent are articles on creationism, evolution, and humanism, to mention a few.

Reviewed by Richard Ruble, John Brown University, Siloam Spring, AR 72761.

DARWIN AND THE GENERAL READER: The Reception of Darwin's Theory of Evolution in the British Periodical Press, 1859-1872 by Alvar Ellegard, Chicago and London: The University of Chicago Press, 1990. 394 pages, index. Paperback.

The author, professor emeritus of English at the University of Goteborg, Sweden, has written numerous articles on the public reception of Darwinism. This book was first published in 1958, two decades before a general recognition that historical analysis needs to be based on extensive statistical data. Ellegard's stated purpose is to "describe and analyze the impact of Darwin's theory of Evolution on the British public during the first dozen years after the publication of the *Origin of Species*." To do so he scoured 115 British newspapers, magazines and journals for articles and reviews of Darwin's theory.

Ellegard discusses four main influences on its reception — politics, religion, philosophy of science, and scientific issues. Although many authors have attempted to minimize the conflict between Darwin's theory and religion, he sees it as a significant factor in the acceptance of evolution. Even though the theory, properly construed, did not oppose major theological tenets, in point of fact it threatened the belief of millions. To the general public Darwinism was at least as much a religious as a scientific question.

The most important contributions to the debate came from biologists. However, "the scientists were not merely

scientists, they were also members of the general public, and were influenced, like everybody else, by various political, religious, and ideological beliefs." Those factors are better studied in general publications than in the purely scientific journals. Practically all of the beliefs and attitudes that prevail on this subject today can be traced in the vigorous, wide-ranging mid-Victorian debate.

The first chapter reviews the scientific and religious background of the debate over Darwin's theory. Its revolutionary and radically new element was not the concept of development itself but the proposed mechanism of natural selection. His main objective was to establish a solution to the species problem that rendered superfluous any reference to supernatural causes in their production. During the 1860s the Darwinian theory became the central point in the debate over the philosophical basis of scientific inquiry — its presuppositions, method and implications.

The next three chapters present the climate of general opinion, presentations in the press and reactions of the British Association for the Advancement of Science and several major universities.

The second 100 pages consist of five chapters dealing with religious and philosophical issues: *Science and Religion: A Mid-Victorian Conflict, The Argument of Design, Miracles, The Bible, Mid-Victorian Philosophy of Science.* A third section, equally long, considers *The Immutable Essence of Species, Missing Links, The Battle against Natural Selection, The Case for Darwin, The Descent of Man.*

The last chapter *Summary and Conclusion*, based on a wide range of evidence, concludes that

> The general public's interest in the Darwinian theory was almost wholly due to two factors which were closely bound up with each other, namely, the religious and ideological implications of the theory as such, and its bearing on traditional views concerning the history of mankind and the nature of man."

Only at the scholarly level did debate center on the fundamental problems of the teleological interpretation of nature, the structure of scientific explanation, and the relation of facts to values in the moral and aesthetic spheres of human activity.

Ellegard dispenses with the pervading myth that scientists are value-free agents pursuing objective truth:

> Though the actual arguments used in the Darwinian controversy ostensibly concerned scientific points, it is quite clear that the stand taken by the disputants was ultimately determined by ideological or religious considerations. One did not, on the whole, disagree about the facts; one disagreed about the interpretation of the facts, and preferred the interpretation which supported the ideological position one wished to maintain.

Appendices provide 30 pages of statistical data, charts and graphs; 15 pages of periodical references; and six pages of names with biographical notes.

The wealth of information in this unique book enables the author to achieve his purpose. Ellegard combines a readable style with extensive documentation. His book will prove invaluable to anyone who wants an understanding of the actual issues in the debate stirred by Darwin's theory during the two decades immediately following its publication.

Reviewed by Charles E. Hummel, author of The Galileo Connection, *Grafton, MA 01519.*

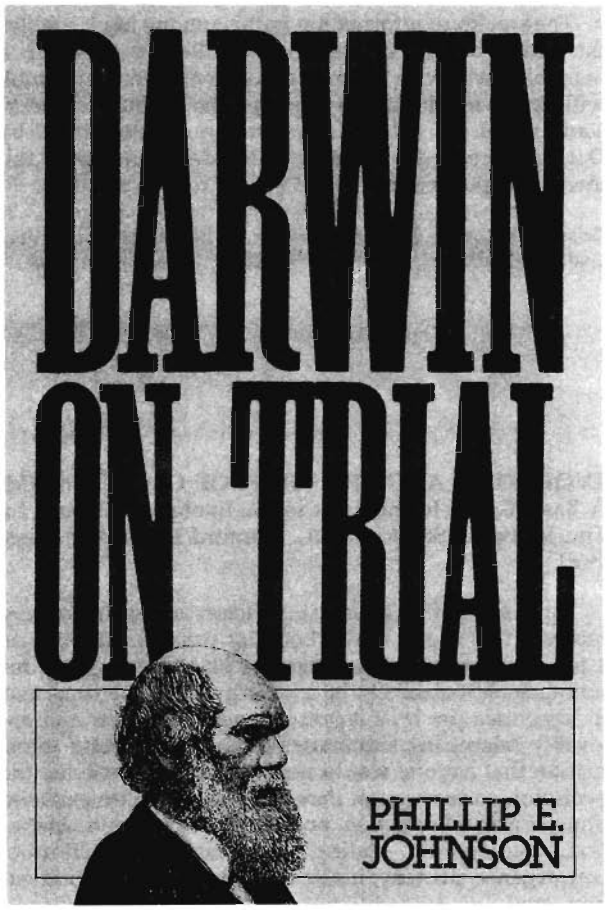
EVOLUTION AND THE MYTH OF CREATIONISM: A Basic Guide to the Facts in the Evolution Debate. by Tim M. Berra, Stanford, CA., Stanford University Press, 1990.

I and many other biology instructors across the country received free copies of this book for possible adoption as a textbook, presumably either for biology majors or for non-majors. It claims to be a basic guide to the facts, and in large measure it is: it presents generally clear and enjoyably interesting summaries of the background information that anyone would need in order to evaluate the evolution controversies. Berra provides concise explanations of natural selection, nonadaptive evolution, speciation, radiometric dating, punctuated equilibrium, convergence, neoteny, molecular clocks, DNA hybridization, etc.

Evidence is summarized for the Cretaceous extinction, vestigial organs, fossil forms intermediate between all the major vertebrate groups, and describes microevolution caught in the act. An extensive section summarizes what is known about the hominid fossil record. And Berra does a good job of showing that many lines of evidence converge together on an evolutionary conclusion: he cites the correlation among genetic, anatomical, and embryological evidences for the common origin of vertebrates (p. 20).

In addition to providing background information about evolution, Berra addresses the young-earth, global-flood creationist challenge. He emphasizes that the vast geologic ages, and the general outline of those ages, were accepted by scientists long before evolution was proposed, and that these ages are based on the overwhelming majority of over 100,000 measurements in published literature, and thus is not something that scientists have accepted merely to accommodate Darwinism. He also presents brief (sometimes inadequately brief) refutations of the more common creationist arguments, especially in Chapter 5. He concludes, I am afraid with some truth, that the young-earth creationist arguments are "scientifically inaccurate, willful, or devious" (p. 132). He also summarizes recent court cases.

However, while this book deals mostly with providing background information, it is not exactly unbiased in its



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"Unquestionably the best critique of Darwinism I have ever read."
Dr. Michael Denton, molecular biologist and author of *Evolution: A Theory in Crisis*

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approach. Much good information is presented, but in several cases important issues are passed off with brief nonfactual statements because of the author's open and clear anti-creationist crusade. For instance, like most textbooks, this book hides the immense problems that still remain for the materialistic scenario of the origin of life from prebiotic chemicals. (None of the problems cited in Thaxton et al.'s *The Mystery of Life's Origin* are even mentioned, much less refuted.) Berra brushes aside the still-embarrassing discontinuity commonly called the Cambrian Explosion with the old adage that soft-bodied animals do not leave fossils (p. 128). (The very existence of microfossils disproves this.) At one point the author hints, without saying it since — it is known to be untrue — that viruses may have been transitional in the origin of cells. He also makes a big deal about microspheres and coacervate droplets as if they really were cells, which they are not. And for a few pages he slips into *ad hominem* arguments against creationists, ridiculing them for some religious beliefs that have nothing to do with scientific controversies. He correctly takes most of the creationists to task for their poor publication records in science journals. But I happen to know that one of the creationists whom he criticizes does, in fact, have a legitimate publication record, and Berra conveniently ignores this. He insists that the whole phenomenon of the natural world can be explained by nothing more supernatural than "water seeking its own level" (p. 66). Thus the author is correct in stating *"This lavish fossil record speaks loudly and clearly to the fact that evolution has occurred"* (italics his) but cannot conclude that creation did not also occur.

But why is the author carrying out his anti-creationist crusade? Some anti-creationist writers seem to be offended primarily at the idea of God, and for them it is a religious crusade. Not for Berra, who takes pains to point out that many people are studiously religious and yet also accept evolution. For Berra, the crusade is one of basic education. He believes that to "teach students that the foundations of biology, most of geology and astronomy, and a good deal of physics are flawed is to cheat them, shackle their intellectual growth, erode their ability to compete for jobs, and stifle their prospects for a rewarding life" (p. viii). He cites that statistics about how American students are at the bottom of the heap in terms of mathematics and science achievement.

I share Berra's alarm at the dismal achievements of American college students, and agree that much of creationism's popularity arises from the inability of these students to recognize even the most basic errors. But likewise, the situation is not helped by evolutionary indoctrination. Thankfully, this book should go a long way towards helping this situation: the very *existence* of this book invites the student to inquire and evaluate rather than simply accept either a creationist or evolutionist party line. Furthermore, it should help students to appreciate that science is a way of knowing that can be applied to everyday life.

Reviewed by Stanley Rice, Department of Biology, Huntington College, Huntington, IN 46750

CREATION AND THE PERSISTENCE OF EVIL: The Jewish Drama of Divine Omnipotence by Jon D. Levenson. San Francisco: Harper & Row, Publishers, 1988. xvi & 182 pages., indexes. Hardcover, $18.95.

Contrary to Qoheleth, there is something "new under the sun;" we have here a fresh approach to an old idea and a fresh look at data that have been known and endlessly discussed. Levenson sees three glaring deficiencies in past and current scholarship: (1) *creatio ex nihilo* is "not an adequate characterization of creation in the Hebrew Bible" (p. xiii), (2) the connection of Gen. 1:1-2:3 with the Priestly theology of the cultus has not been adequately explored, and (3) the "vast amount of overlap between the idea of God as Creator and the idea of God as Lord in covenant needs to be exposed and explored" (p. xiv).

Levenson is well qualified to address these concerns. He is an associate professor of Hebrew Bible at the Divinity School of the University of Chicago and has authored *An Entry into the Jewish Bible* and *Sinai and Zion* as well as serving as associate editor of *Harper's Bible Commentary*. His writing style is lively and he has produced a well argued text. While he has largely succeeded in his goal of producing a book free of the normal jargon of the philologist and theologian, he has by no means given us a popularization.

Although the lack of chronologic certainty precludes writing a history of the idea of creation, Levenson gives primary consideration to its historical Near Eastern antecedents and its subsequent antecedents in Rabbinic Judaism. He makes very extensive use of the pagan Near Eastern creation myths to elucidate the original meaning of the creation passages in the Old Testament. There is much that can be said for this approach. Language, unfortunately, is often very imprecise and what is obvious in one culture and era may be erroneously understood in a radically different milieu. Levenson's work is a valuable corrective to the tendency of modern scholarship and religious interpreters to read modern approaches and ideas back into Scripture.

However, at times Levenson's connections between pagan myths and "myths" of the Bible get a little fanciful. We are never forthrightly told whether Levenson considers the Hebrew Creation account to be a theological statement which uses familiar ideas and phraseologies from the surrounding pagan mythologies as vehicles to express the inexpressible truths of God's activity, or whether he simply sees the Creation account as a mythology that the Hebrews borrowed and adapted, albeit with some ethical and conceptual improvements, from their pagan contemporaries.

Nevertheless, there are many very provocative points made that will give the thoughtful reader a fresh start in seeking out the true meaning of the Scriptures. Not only does he provide fresh insights on the nature of Creation and the problem of evil, but his whole work can and should be carefully considered as a stimulus to a deeper understanding of the Scripture passages used by Jesus and the New Testament writers, either directly or as an assumed common knowledge, for their teaching on Creation. It gives us some theses to test in a fresh study of the Scriptures.

Reviewed by Eugene O. Bowser, Reference Librarian, James A. Michener Library, The University of Northern Colorado, Greeley, CO 80639.

SUSTAINING THE EARTH by John Young. Cambridge, MA: Harvard University Press, 1990. 225 pages, bibliography and references, index. Hardcover; $19.95

In an erudite and comprehensive way, John Young, Professor of History and Director of the Center of Environmental Studies at the University of Adelaide, Australia, delineates the main facets of environmentalism, from its beginnings as a single issue thirty years ago, to the present, in which the environmental crisis influences everything. Young sees green politics finding common ground to emerge as a major force in making a peaceful and invigorating transition from a post-industrial society to a world that is sustainable.

Young begins by uncovering greed as the basis for environmental degradation. "We ... accelerate the degradation of the environment to make the world safe for inequality" (p. 20); but a return to a "Garden of Eden" by those disillusioned with modern life is a dead end. Three comments on chapter 2: (1) On page 27, the word *not* is missing. Read: "the Aborigines of Australia, however, did *not* acquire firearms..." (2) Missionaries did *not* preach "that disease was God's punishment for sin and that conversion would entitle the victim to Western medicine," but they healed following the Lord's example and as part of the mandated Great Commission, providing physical evidence of the Good News (p. 39). (3) I doubt that regrowth of bush on Maori lands can be attributed to "environmental management" by them (p. 45).

Chapter 3, "The Parable of the Talents", starts with a discussion of biblical and Christian ideas. As the outset, the author informs us of his humanistic, non-revelational bias: "Society produces the religion it needs to authorize functioning in customary ways" (p. 54). The unique life of ancient Israel among its neighbors cannot be explained in this manner. "In Genesis, man *justifies* (italics his) his action... the stories justified the state of society retrospectively and provided authority for the generations of the future" (p. 55). Ultimately this means that, in the environmental crisis, man is left to his own self-justifying actions; God has no revealed plan for his planet toward which his creatures can live in hope.

Young then asserts, "The New Testament ... places man at the center of the universe" (p. 56). Whatever happened to John 1:1-3; Col. 1:15-18; Heb. 1:1-3? Again, Christ's statement (Lk. 12:17) that the Father values persons much more than many sparrows does not mean un-

concern for nature (p. 56). Evidently this author does not know that the *paliggenesia*, literally *new genesis* or *new creation* (Mt. 19.28), is an essential part of Christ's kingdom. The I Cor. 9:9-10 passage (p. 56) is misinterpreted. Paul is arguing for the *right* of support in his apostolic labors, not for "extra-terrestrial immortality."

Young completely ignores the great biblical passages about the new order of justice, equity, peace, joy and renewal of the whole creation as Isa. 11:1-9; 65:17-25; Rom 8:18-25; Rev. 21:1-5, 24-27;22,1-5. On the credit side, the author does recognize that the concept of stewardship in Christian thought offers most to those in search of an ideology for a sustainable society (p. 54).

In chapter 4, "Science to the Rescue," the author concludes "that technological remedies were only capable of dealing with symptoms. Cures would be found only as a result of asking the political and moral questions of diagnosis" (p. 92). Science, however, cannot be so easily dismissed. It has a vital role to play in a sustainable world. Some so-called environmental problems are falsely perceived, as an objective review of the hard facts will reveal. In some instances there have been too much politics involved, preventing safe and workable scientific solutions, such as disposal of nuclear wastes. A good book on the scientific side of the question is "Trashing the Planet" by former AEC chairman and Washington governor Dixy Lee Ray (Regnery Gateway, Washington, DC, 1990).

Chapter 5, "Small is Beautiful, But Can We Afford It?," works through the harmful effects of present kinds of industrial growth in both rich and poor countries. The point is now reached where environmental issues shift from the periphery of the political agenda to the center (chapter 6). Young advises that in a post-environmental society, single-issue organizations (e.g., animal rights, Greenpeace, wilderness protection) need to seek a common ethical denominator as an essential ingredient to a sustainable society. Only by "green groups" finding common ground (chapter 7) can they be effective in persuading people to democratically to accept the "relationship between the deterioration of society and that of the natural environment" — and to change.

In the final chapter, "The Politics of a Sustainable Society," it seems to me that the author steps out of the role as historical chronicler and analyst into that of a political strategist advising the green movement on individual ideology and action; the function of the community pressure group; and finally activity in the political society, which includes local, state and national government (p. 174). He does not disapprove of such tactics as confronting bulldozers or clinging to bows of nuclear ships.

This important book includes some features that enhance its use as a textbook. At the end of each chapter suggestions are given for further reading. Following this is a concise transitional statement summarizing the argument so far and leading into the issues of the next chapter. The extensive bibliography (16 pages) alone is worth the price of the book. While deficient in biblical perspective, this book is a must for the serious student of environmentalism.

Reviewed by Albert C. Strong, B. S., M.Div., Retired, Silverton, OR 97381.

CREATION OR EVOLUTION: Correspondence on the Current Controversy by Edward O. Dodson and George F. Howe. Ottawa, Ontario: University of Ottawa Press, 1990. xv + 177 pages. Paper; $17.95.

In 1980, a letter by Edward Dodson of the University of Ottawa appeared in *BioScience*, criticizing the special creationists for failing to produce a creditable body of research. This letter caught the eye of the then president of the Creation Research Society and editor of their *Quarterly*, George Howe, a botanist now at the Master's College in California. He wrote a response, intended for publication in *BioScience*, but the response was not published. He also wrote personally to Dodson. Some of the contents of this letter surprised and interested Dodson, who was not familiar with the Creation Research Society, and thus began five years of correspondence between these two men. The letters that they exchanged constitute the body of this book.

Publishing a series of letters is a really interesting and creative approach to dealing with an issue that has been previously addressed through one-sided books and chaotic debates. Not only are the topics discussed in a debate-like exchange, but there is a personal dimension, as a relationship develops between the correspondents. While there is debate, the circus-like flavor of the typical creation-evolution debate is gone, since neither man anticipated having an audience to impress other than his correspondent; and each seems to genuinely care what the other thinks. In this sense even the small-talk that is in these letters enhances the book.

Unfortunately, while this approach could have resulted in an excellent survey of the subject, this did not occur. The discussion meanders everywhere and many issues are left dangling. I suppose that this is because it was never planned as a book, and one could not expect better from a series of personal letters. As a result, this book is not recommended for anyone who wants an overview or introduction to the subject. If you already know something about the subject, however, you will enjoy the book, which is quick reading.

At the outset, Howe advised Dodson to take a look at the *Creation Research Society Quarterly (CRSQ)*. And as far as I can tell, he never had a chance to do this. As a result, all of Dodson's impressions about creation science were based solely upon those examples that Howe provided to him. Thus, Dodson got the correct impression that the young-earth creationists are capable of and have done a fair amount of competent ordinary research. But

if Dodson had actually paged through the *CRSQ* he would have found, in addition to a little bit of good science, a vast amount of wild speculation and of truly bungled science. I believe Dodson would have concluded, as I did (see *Creation/Evolution* XXIV:25-36 (1988) and XXV: 8-14 (1989) that young-earth creationists are capable of doing good science but their zeal seems to have blinded their ability to discern good science from sloppy speculations.

Dodson is a devout Catholic. The reader will be pleased that, as a result, in this book, issues of evolutionary theory are not sidetracked by theist/atheist battles. Many creationist books imply that there are only two choices — atheistic evolution vs. young-earth creationism — and if theistic evolution is even mentioned, it is relegated to the appendix (as in the case of *What is Creation Science?* by Morris and Parker). And many evolutionists dismiss all believers in God as anti-intellectual. Because both Howe and Dodson believe in the continual working of an all-powerful Creator, this book simply cannot follow this usual dichotomous approach.

The shared beliefs of the correspondents allowed an interesting issue to be debated. Dodson the Catholic repeatedly asked Howe the Baptist, "If you take Genesis 1 literally, why don't you take Christ's own words literally when he said 'This is my body' and 'This is my blood' in reference to the Eucharist? (p. 99) And if you accept Genesis 1 as literal scientific statements, why not Leviticus 11? (p. 93)." A satisfactory resolution is never reached. Young-earth creationists claim to be defending a straightforward Biblical literalism, but there are many verses that they choose to take figuratively, and these are just two examples.

On the other hand, the correspondents identified a real problem: Dodson said that if special creationists are to be taken seriously, they must go through the long discipline of publishing small ordinary pieces of research, research that neither praises nor attacks macroevolution, in order to build up scientific credibility. Dodson repeatedly cites the example of the eminent Russian ichthyologist Vadim Vladykov, who rejected evolution but who was given a respectful hearing by his colleagues because of his long publication record involving everyday sorts of ichthyological studies. Howe's response is that creationist articles are never published because reviewers and editors reject out of hand any articles written by creationists. This is untrue, because editors and reviewers do not necessarily know who is and who is not a creationist when considering an article for publication, so long as the article does not address macroevolution.

Howe also maintained that Dodson's book *Evolution: Process and Product* contained much very good evidence for microevolution, but was unsuccessful at defending macroevolution: and that creationists readily accept microevolution. Howe neglected to mention to Dodson that Howe himself had published an article (*CRSQ* 10: 208-228 (1974)) in which even microevolution was scoffed at. Again, how was Dodson to know about this unless he could have perused *CRSQ* for himself?

Despite the title of the book, a significant amount of text is given to long discussions of Protestantism vs. Catholicism and whether Teilhard de Chardin was involved in the Piltdown hoax or not, which I found interesting but which would turn off a reader looking for guidance on creation vs. evolution issues.

Dodson maintained that scientific controversies cannot be resolved in public debates in front of non-specialists, simply due to the immensity of the background information required (p. 8). Howe's response is that if evolution has anything going for it, it should stand up to public scrutiny. Howe rejects the idea that you need to know biology in order to understand issues involving evolution. "If a plumber or a bricklayer can pick up books on origins and see flaws in the use of data, they deserve a hearing" (p. 22). But I, for one, would not criticize plumbers until I knew something about plumbing. Should plumbing techniques be evaluated by public debate? Because Dodson said that biologists are the ones competent to pass judgment on evolution (p. 28), Howe transmogrified this statement to mean that only those people who had been indoctrinated to chant the evolution party line should be permitted to speak (p. 137). I agree with Dodson. I know that the non-majors in my general biology course are not competent to judge these issues, even after a semester of biology. Modern college students are often incapable of even carrying out the simplest mathematical calculations, so how can they possibly judge radiometric dating, much less population genetics, much less evolutionary theory. My current crusade is to help produce a generation of citizens who are capable of survival-level math and science skills. So much for the value of open public debate.

While these letters are generally cordial, they do reveal an underlying difference in attitude between the theistic evolutionist and the young-earth creationist. From beginning to end, Dodson is respectful and open to suggestions, while Howe continues to make polite jabs, such as "Why don't you spend more time doing real science instead of spending your waking hours on speculation", "I forgive you for dodging facts", and "Well, you tried, but what do you expect of an evolutionist anyway?" This graciousness on one side and pseudogracious thrusts on the other in this book match up with most of my own experiences with colleagues in the two camps.

Reviewed by Stanley Rice, Department of Biology, Huntington College, Huntington, IN 46750.

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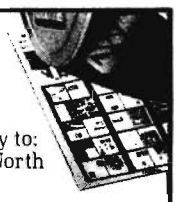

EDITOR'S NOTE: We are including in the following pages a number of older book reviews which were "electronically mislaid" during a change of editors and the transition to desktop publishing of *Perspectives on Science and Christian Faith.* We apologize to our reviewers for this delay.

ADAM, EVE, AND THE SERPENT by Elaine Pagels. New York: Random House, 1988. 189 pages, index. Hardcover; $17.95 ($25.25 Can.).

Amid modern complexity of religious expression, it is tempting to treat the first few centuries in church history as a simple, pristine period. Elaine Pagels, Harrington Spear Paine Professor of Religion at Princeton University, explored the time from New Testament to Augustine, finding even less consensus than today. Creation and Fall readings (Genesis 1–3) typified the changing pattern, yielding diverse, contradictory implications as the church developed. These chapters appealed to disenfranchised subjects of the Roman Empire—including slaves and women, together comprising seventy-five percent of the population—as a "charter of freedom." Insisting that everyone was created in the divine image, the church threatened emperor worship and seemed to undermine the whole structure of the society. Many believers maintained celibacy in order to assert freedom from the ties with pagan culture. Harsh but sporadic persecution backfired as citizens witnessed brave martyrdom contrasted with government cruelty, so that conversions multiplied. When the empire became at least nominally Christian, after Constantine's conversion, the situation reversed. A new emphasis upon consequences of the Fall aligned with the need to be governed by combined church and state authorities. Baptismal regeneration concepts reflected earlier accent upon liberty, until Augustine's more pessimistic views prevailed and politics were recognized to be less changed by Christian dominance than idealists had expected. Monastic asceticism drew "spiritual athletes" to deny the flesh. Church fathers vied for influence, excommunicating each other; applying the heretical label, often with political or military enforcement, to much that had been considered orthodox.

The book, derived from eight years' research, is thoroughly documented by footnotes, yet written in a style accessible to everyone. Those turbulent centuries are vividly evoked, together with characters of saints too often presented elsewhere as heroes or villains.

Evangelicals will balk at some assumptions, particularly of comparatively recent compilation of Genesis, and deutero-Pauline epistles instead of completely apostolic authorship. Such quibbles may be limited to the introduction and first chapter, without interfering with appreciation for many insights. Rabbinic and early Christian interpretations of Genesis are compared, recognizing diversity in both traditions. Ideas and ideals appear in context of events, enriching any reader's understanding. Implications from early interpretations are shown to have been realized much later, in modern campaigns against slavery, phrasing of the American Declaration of Independence, and various political/religious causes currently in conflict.

The author's three previous books dealt with gnosticism, a mystical movement in the second and third centuries which employed radical exegesis and was already splintering when most church leaders denounced it as heresy. Gnostics had been criticized for denying moral freedom, yet Augustine later prevailed with a similarly truncated sense of human potential to make moral choices; this irony led Pagels into the study. Orthodox versus gnostic interpretations occupy the third chapter. Another irony emerges: most Christians read Genesis as "history with a moral" while the gnostics perceived "myth with a message," but the more literalist interpreters perceived history as an evolution from the beginnings in Eden.

Church leaders tended to read in a great deal of sexism and a correlation between the Fall and sexual urges. Jovinian objected (citing the texts from both Testaments) very properly by our current standards, and promptly found himself rejected as heretical. Augustine's theory of original sin, still influencing Western civilization with a great sense of guilt, equated the Fall with sex and declared that sin was passed to all generations through semen. Julian's response to the bizarre statements, again quickly suppressed, is remarkably close to our conservative, contemporary understanding.

Adam, Eve, and the Serpent brings together sparkling exchanges on Genesis applied to human experience—moral choice, rights and obligations, suffering, death, sin and guilt, sexuality and spirituality, nature and the supernatural. Alleged and actual heretics enhance our understanding no less than those whose orthodoxy has rarely been questioned, in this warm, witty, balanced Christian parallel to a Talmud. The author refrained from choosing sides, presenting an engaging picture, deeply relevant to our own time as well as to the patristic period. Her epilogue is especially wonderful and inspiring in its discussion of grief psychology—guilt being more readily accepted than helplessness, even in innocence, because guilt asserts the self. That profound expression, derived from personal tragedy, enhances a splendid study's impact with compassion.

Reviewed by John R. Armstrong, Deacon, St. Philip the Evangelist Anglican Church, 628-49th Avenue S.W., Calgary, Alberta, Canada, T2S 1G6.

MODELS OF GOD: Theology for an Ecological, Nuclear Age by Sallie McFague. Philadelphia: Fortress Press, 1987. 224 pages.

Theology, like all intellectual activities, is a thoroughly contextual enterprise. Our theological reflection occurs in the context of the intellectual categories that we use in other disciplines and in the overall historico-cultural context that we find ourselves in. When those intellectual categories have shifted from the atomism of a mechanistic world view to the holism of an interdependent, organic and fundamentally relational perspective, and when the historico-cultural context has shifted from a self-confident faith in technological and economic progress to a situation of profound ecological and nuclear insecurity, then what kind of theology appropriately addresses this context? Sallie McFague answers this question with a metaphorical theology which proposes new models for understanding God and the God/creation relationship.

Theology is metaphoric, says McFague, because it takes seriously both the interpretive character of human existence and the realization that all language about God is constructive and therefore "misses the mark." Consequently, theological or confessional language uses metaphors. Language appropriate to one context is metaphorically applied to another. So we speak of God as the rock, liberator, or father, using language from the geological, political, or familial realms to apply to a relationship that is not univocally geological, political or familial. The central question becomes then, what metaphors are most appropriately used of God in the context of our changed intellectual and cultural situation?

McFague's first response to this question is to say that the classical metaphors of God as father, king and lord are not appropriate because they foster a dualistic and monarchical world view that cannot address with creativity our nuclear and ecological situation and is not reflective of our changed holistic and relational perspective.

Recognizing that any metaphorical theology is necessarily tentative and non-absolute (no longer presuming that theology deals with "timeless truths"), McFague proposes four new metaphors that give expression to the heart of the gospel. The first is that the world is God's body. Opposed to the monarchical model of God as king and the world as the realm of his rule, the model of the world as God's body insists that the relation of God to the world is closer, more interdependent, more intimate, and less disinterested than is the case with the monarchical model. This new metaphor replaces the dualistic theism of the classical position with a monistic panentheism "in which all things have their origins in God and nothing exists outside of God, though this does not mean that God is reduced to these things" (p.72).

Concomitant to this new metaphor of the world, McFague proposes three new metaphors for God. Beginning with the central Christian assumption that God is love, these three metaphors parallel the three kinds of love common to Greek literature (viz., *agape*, *eros* and *philia*). The God who loves with *agapic* love is our mother. Her love is a creative love given with no thought of return. This is a love that is the giver of life, that wants the creation, as her child, to be. The accompanying ethic of such a metaphor is the justice a mother insists upon. All of her children, all creatures, must be nurtured and led to fruition and fulfillment.

Yet God's love is also the love of *eros*. Hence, God is also a lover who finds the beloved creation lovely, lovable, and therefore inherently valuable. The erotic love of the divine lover is salvific in character. Therefore, God participates in the pain of the beloved as only a lover can. "God as lover takes the suffering into her own being; God feels pain in his own body in an immediate and total way" (p. 142). Consequently, the ethic engendered by this metaphor is one of healing. And healing in ecological perspective is the complex reunification of our disordered world.

Finally, God is a friend who loves with the love of *philia*. God's love is not only the parental love of a mother or the erotic passion of a lover, but also the joyful and free attraction of a friend. God likes the creation! The love of God our friend is a sustaining love, a love that shares and works for the vision of the good of the befriended. As such it is a love which bears the weight of the world, working for its fulfillment. Its ethic is the ethic of companionship, a "companionable sensibility" in relation not only to all other human beings (even the stranger and enemy) but to all other creatures (who have often been seen as strange or alien and the enemy!).

This book is creative, imaginatively written and compelling. Theology books are seldom exciting—this one is. McFague challenges us to begin to live inside a new model of the world and of God and to allow that model to become the lens through which we look at the world and ourselves. It is a challenge worth taking up.

This is not to say that the book is without problems. In closing I will mention what I consider to be its major flaw; viz., the relation between McFague's new model and the classical tradition from which it purports to distance itself. When reading McFague's presentation of the classical, monarchical view, I often felt that we were dealing with something of a caricature. Specifically, she seldom (if ever) relates her understanding of the classical view to what might be a scriptural view of the matter. Is the monarchically conceived, omnipotent, omniscient, and immutable God of dualistic theism the same as the covenantal, historically active creator and redeemer of the scriptures? And if the classical language of God as father, king, and lord was interpreted (or reinterpreted) in light of the scriptures, would this God be that far from the laudable characteristics of God as mother, lover, and friend? I think not. McFague's omission of such a comparison of classical and biblical traditions leads her, I think, into various false dichotomies. And, just as important, one often feels, in the midst of her critique of the classical tradition, as if one is cut off from that tradition and not deepened in one's understanding. This is regrettable not only because we live in a time when we need the moorings of standing in a tradition, but also because McFague's proposals do, in fact, deepen our Christian understanding of God. And this, I am sure, was her intention.

Reviewed by Brian J. Walsh, Senior Member in Worldview Studies, Institute for Christian Studies, Toronto, Canada.

A SCHOLAR'S GUIDE TO ACADEMIC JOURNALS IN RELIGION by James Dawsey. Metuchen, NJ: Scarecrow Press, 1988. 290 pages. Hardcover; $32.50.

Authors who do not know where to submit their manuscripts for publication may find help in this compendium. This book provides writers the names, addresses, and guidelines of journals which publish academic articles in the area of religion.

Helpful details about each journal are given including appropriate topics, manuscript requirements (style, length, language), names of editors, whether submissions are refereed, usual time it takes for an editorial response, and proportion of submissions accepted for publication. In addition, information about subscriptions and advertisements are included.

The bulk of the book contains information on 500 journals that publish academic articles on religion listed in 33 categories. The first entry in category 11, "Science and Religion," is *American Scientific Affiliation Journal*. Three essays precede the journal listings and include one on writing book reviews. A helpful bibliography on style manuals and an index conclude the book. The book's compiler is an associate professor of religion at Auburn University and a published writer of books and articles.

Reviewed by Richard Ruble, John Brown University, Siloam Springs, AR 72761.

RESURRECTION AND MORAL ORDER: An Outline for Evangelical Ethics by Oliver O'Donovan. Grand Rapids: Eerdmans, 1986. 284 pages. $18.95

The author's thesis is that Christian ethics depend upon the resurrection of Jesus Christ from the dead, and on this he builds a description of the shape of "Christian moral thought theologically." He ties moral thought and action to "being mankind in God's world." The resurrection of Jesus looks back to what has been lost, and recovers it, and also looks forward because Jesus has been transformed. It is this that is the basis of morality, which is "man's glad response to the deed of God...." Jesus is the one in whom the moral order is restored. The principle on which the moral life is lived is love; the commands to love God and one's neighbor logically imply all other commands. Further, when we contemplate God's affirmation of Christ, and stand under it, our acts of love are also affirmed by God, which gives meaning to our lives in the present even though we now only anticipate the reality of that affirmation.

The thesis of the book seems sound, and the first two parts are challenging and stimulating. The third part, on the form of the moral life, which is love, seemed less crisp and convincing.

Reviewed by David T. Barnard, Queen's University, Kingston, Ontario, Canada K7L 3N6.

CREATION VERSUS CHAOS: The Reinterpretation of Mythical Symbolism in the Bible by Bernhard W. Anderson. Philadelphia: Fortress Press, 1987. 210 pages, index, bibliography. Paperback.

When debates in various sciences go deeper than the classification and interpretation of data, they tend to be forced to address the very nature of the data. For Christians engaged in scientific research that question inevitably raises the issue of creation. While the nature of reality as creation has received most press, as of late, in the so-called creation/evolution debate, it is an issue that is foundational to any Christian perspective in science. One of the tragedies of the creation/evolution controversy is that so little light has been shed by the debate on the biblical view of creation.

In this context, the re-publication of Bernhard Anderson's 1967 book *Creation Versus Chaos* is a welcome contribution. Indeed, I would go so far as to say that no one who would presume to speak intelligently about creation can do so without being conversant in the issues that Anderson addresses in this book.

A unique representative of the "biblical theology" school of Old Testament scholarship, Anderson addresses the relation of Israel's creation-faith to the dominant creation mythologies contemporary to Israel in the ancient Near East. Where other scholars see similarity and borrowing, Anderson discerns creative distinctiveness. Rather than borrow the mythical symbolism of her neighbors, Israel radically reinterprets it. Articulating her creation-faith in the light of God's saving acts in history (most notably the Exodus), Israel historicizes the symbols of watery chaos common among her neighbors. In other words, Israel differs from other ancient Near Eastern peoples by insisting that creation is not the result of a war between the gods or a battle with a dangerous primordial watery chaos. Rather, Israel's creation story is a confessional or liturgical expression of faith in the one God who rules over all creatures. The story functions as a prelude to the historical drama of the God/Creation relation. Consequently, when Israel employs Babylonian or Canaanite images of God doing battle with monsters of the deep or the chaotic sea, she self-consciously historicizes those images so that they have metaphoric reference not to a primordial theogonic struggle but to Yahweh's historical battles with peoples who oppose the Creator's rightful rule.

Anderson's analysis is, then, contextual. He analyzes Israel's creation-faith in the contexts of redemptive history, the mythologies of the time, the socio-political realities of Israel, and Israel's worship. In the estimation of this reviewer, such a contextual study, even twenty years after its original publication, is timely. In the context of a debilitating creation/evolution debate within the Christian scientific community we need to begin by hearing anew the biblical view of creation in the context of the questions that the biblical writers were responding to. Only then can we begin to reflect upon the significance of the biblical view for our work. Anderson provides us with the tools for such reflection.

Further, Anderson takes us beyond the literalism of the creation/evolution debate not by blithely saying that the text is mythical but by creatively unpacking the deep meaning of

the symbolism. Insofar as all science is rooted in symbols and metaphors that are themselves pre-scientific, any self-reflective Christian scientist will benefit from Anderson's exposition.

But there is another contemporary context that Anderson's book continues to address. I refer to the combined horror of the environmental crisis and the nuclear threat. Not unlike the world views of the ancient Near East, we still experience life on this planet on the edge of the precipice, threatened by an overwhelming chaos. And while we may view the Babylonians and Canaanites as hopelessly primitive in their mythical fear of the watery chaos, it is ironic that our chaos is not accounted for in our modern myths. Indeed, our chaos is the paradoxical result of the scientific and technological myth that has dominated Western culture. The chaos is still a threat in our post-modern reality. We still need a Creator-Redeemer to rescue us from its deathly grip. Anderson tells us that as image-bearers of that God we are called to "help sustain the creation in face of the menacing powers of chaos." A high calling for people who have, in fact, conjured up the chaos that threatens us.

Creation Versus Chaos is a classic. What makes it a classic is its wise, contextual and biblical exposition of the Judeo-Christian understanding of creation. And, as a classic, it is a book that will continue to speak to new historical contexts long after its original publication. This reviewer is grateful that it is in print again.

Reviewed by Brian J. Walsh, Senior Member in Worldview Studies, Institute for Christian Studies, Toronto, Canada.

THE DEATH OF ETHICS IN AMERICA by Cal Thomas. Waco, TX: Word Books, 1988. 180 pages, index. Hardcover; $9.00.

The message of Thomas' book is that America must return to values that will unite her and make her ethically strong again. According to Thomas, the United States was built upon a belief in strong moral values.

The book is divided into three parts. The chapters are titled with provocative phrases such as "Pinkie Rings and Heavenly Things," "Down Come Baby and All," and "Fools and Their Money." *The Death of Ethics in America* includes quotes from such celebrities as James Dobson, Alan Bloom, Michael Novak, and former Secretary of Education William Bennett.

Thomas uses the real-life examples of former Senator Gary Hart, Democratic presidential candidate Joseph Biden, and former PTL leader Jim Bakker as support for his statement that we have lost the vision of what America can be. Thomas names numerous individuals who have admitted that they lied, stole, and cheated their way to the top.

The author likens the country's lack of moral fortitude and belief in absolutes to the deadly disease known as Acquired Immune Deficiency Syndrome. Thomas terms America's disease: "acquired integrity deficiency syndrome."

Thomas supports his statements with carefully documented facts. It is obvious to the reader that he has done his homework. The book is no fevered hell-and-damnation sermon. On the contrary, it is a mixture of interesting facts and startling statistics.

This book will appeal to those concerned with the moral decline of our society and who believe that Christians must take action in a world where staunch belief in biblical principles is an unpopular position. It will appeal to those who believe drastic changes need to be made in the nation's school system and that a candidate for public office needs integrity as well as political prowess.

Thomas writes a twice-weekly, nationally syndicated newspaper column distributed to over 60 newspapers. He occasionally guest hosts Cable News Network's "Crossfire." He has appeared on talk shows such as "The Phil Donahoue Show," ABC's "Nightline" and "Good Morning America," "The CBS Morning News," and NBC's "Today Show."

The author is a graduate of American University in Washington, D.C., and has lectured and debated on over 60 college campuses. He is the author of seven books, including *Occupied Territory, Liberals for Lunch*, and the best-selling *Book Burning*.

Reviewed by Maryam E. Kubasek, John Brown University, Box 2244, Siloam Springs, AR 72761.

WATER INTO WINE: An Investigation of the Concept of Miracle by Robert A.H. Larmer. Kingston & Montreal, Canada: McGill-Queen's University Press, 1988. 155 pages, index. Hardcover; $22.50 (Can.).

"I think it is possible to retain the traditional view that miracles come about through God overriding nature, yet not define miracles as violations of the laws of nature," writes Robert A.J. Larmer of the Department of Philosophy, University of New Brunswick. He limits himself to the philosophical issues and reserves the term miracle for "events which strongly and clearly suggest the activity of a transcendent agent and which have religious significance," after evaluating other definitions. His ideas are illustrated by obvious occurrences such as tossing a billiard ball into a table of balls, so new mass and energy is created but the law of conservation of energy is not violated. The Virgin Birth resulted by God's creation of a spermatozoon in the body of Mary, and the resurrection of Jesus was by reversing the damage done to the body. Lengthy evaluations are made of contrary views by David Hume, Alastair McKinnon, Patrick Howell-Smith,

George Chryssides, Guy Robinson, David Basigner and Grace Jantzen, showing that the idea "we must always postulate a natural explanation of an event . . . is at best false, at worst meaningless."

Answering Christine Overall's view that, "If God is conceived as a God of Order and harmony, miracles do not consititute evidence for His existence, but rather His nonexistence," this author claims that miracles are "events which especially reveal the character and purposes of God." To challenge the physicalist who claims no agent exists outside of the material, the theist must develop the idea of an immaterial agency, show the body of evidence for it, and have a larger system of thought which explains the data which physicalism cannot explain.

Evidences for miracles are of three types: personal observation, relevant physical traces, and testimony of others. Finally, Larmer discusses Miracles and Apologetics, claiming that Stephen Wykstra's article in an issue of the *Journal of the American Scientific Affiliation* (Dec. 1978) "seems to imply that miracles are an apologetic liability." Miracles and moral evil are discussed in replying to why God does not accomplish more and more good miraculously. Theism is compared to alternate world views such an pantheism and panentheism. To the degree that a miracle "is a part of a large and meaningful whole, it is significant and consequently has a good deal of apologetic value."

This is a valuable book dealing with a problem many of us consider.

Reviewed by Russell L. Mixter, Professor Emeritus of Zoology, Wheaton College, Wheaton, IL 60187.

AUTHORITY TO HEAL by Ken Blue. Downers Grove, IL: InterVarsity Press, 1987. 168 pages. Paperback; $6.95.

This is a popularly written book arising out of the struggles of a pastor and evangelist to understand and apply the biblical healing accounts and commands to heal. It is a re-edited version of the dissertation for Blue's D.Min. degree from Fuller Theological Seminary, where he studied under John Wimber and was heavily influenced by Wimber's teaching and practice in evangelism and healing. Blue is a pastor of the Vineyard Christian Fellowship in Vancouver and directs Kingdom Ministries, which conducts training seminars all over North America. He has also co-authored with John White *Healing the Wounded*, as a reworking of his master's thesis.

John White notes in the foreword that there are two kinds of authors: those who "accumulate data, sort them and draw conclusions," and those who incorporate data into their own lives and are "compelled to write by the urgency of a vital experience." As White observes, Blue belongs to the second category. Consistent with this orientation, one will look in vain for a rigorous analysis of Scripture, followed by a rigid deduction toward necessary conclusions. Rather, we find here a personal report of the theology, practice, and insights that Blue found to be true as he carried the "full Gospel" into a spiritually and physically hurting world. Scripture is employed by allusion and by limited quotation, but much of the argument is carried by reference to personal experience, testimony of acquaintances, and secondary literature. There are no indexes, reading lists, or bibliography as such; however, there are end notes.

The book is organized into three parts. Part I draws inspiration from Jesus' Parable of the Sower in discussing four major "weeds" which have long been destroying the work of the Church: the idea that God inflicts sickness on us for our own good, the philosophy of determinism, the "faith formula," and the secular scientific world view. Readers of this journal will be particularly interested in the last two. The "faith formula" deals with practices and ideas from within the healing movement that have brought disrepute to it. The "secular world view" provides great food for thought for anyone immersed in the science-worshipping (*not* understanding!) and secular society by which we are all strongly influenced.

The second part presents the idea that God wants to heal the sick, but the earth was lost to Satan through Adam and Eve's fall. The Kingdom of Heaven is engaged in a very real and deadly serious struggle with the "pseudokingdom of Satan." God has won the victory, but it will not be fully realized until the future. This is used to explain at least much of such problems as the difficulty often faced in receiving healing and the fact that we all die in the end. Perhaps its unfair to ask the author to change his approach at this point, but this is one of the places where a careful exposition of the author's position, supported by a rigorous examination of Scripture, would be extremely valuable. If Blue's argument can be supported by such an appeal to Scripture, then he provides the most satisfying resolution of the problem of evil that this reviewer has seen, although Blue does not use the term "problem of evil."

Part 3 is the "how to" section and is full of quite sensible pointers and advice. While Blue is commendably careful to avoid insisting on one method, his five-step "model" presented in chapter 11 should be studied thoughtfully and thoroughly by everyone in the charismatic movement today.

Authority to heal is a well-written, lively narrative that will be of real help to those who are already basically convinced that the Church has an important healing ministry today. Those who are confused by the wide variety of "theologies" and practices advocated today, and who desire to get started on a ministry of healing without delving too deeply into theology, will find much of value here. Those of us who desire to construct a solid foundation of scriptural evidence for a healing ministry will find a very attractive position to which we may apply Acts 17:11, "examining the Scripture daily to see whether these things were so." Finally, many non-charismatics will discover a more sober approach to the healing ministry that has not attracted the media attention enjoyed by the more flamboyant "faith healers."

Reviewed by Eugene O. Bowser, Technical Services Librarian, James A. Michener Library, The University of Northern Colorado, Greeley, CO 80639.

THE STEEPLE'S SHADOW: On the Myths and Realities of Secularization by David Lyon. Grand Rapids, MI: William B. Eerdmans Publishing Co., 1987. 165 pages, index. Paperback.

Secularization, defined as an uncoupling between religion and society, has been associated with industrial, technological, scientific, philosophical, and political developments. David Lyon's title applies the analogy of a shortened shadow from the steeple, because waning church influence is commonly attributed to this uncoupling. The Senior Lecturer in Sociology at Bradford and Ilkley College, Yorkshire, Lyon began his analysis twenty years before 1985 publication in Britain's *Third Way* evangelical magazine. He wrote several books during those decades, while distilling the secularization study into a compact volume with jargon avoided so that a general readership could understand it.

Although the author declares an anti-evolutionary bias, he does not take issue with natural scientific interpretation but only objects to an extrapolation into sociology. He argues against a deterministic, irreversible progression toward the obsolescence of organized religion, and a passive role for those who are affected by secularization pressures. Secularization theories assume a previous "age of belief," followed by erosion or displacement of religion. He counters that the Middle Ages in Europe or the colonial period in the New World were not characterized by greater or more widespread faith than subsequent times; that official religion typified a ruling minority. Moreover, the predicted obsolescence of religion has not been fulfilled, even in officially Marxist regimes, where churches are growing rather than dwindling. New religious movements have also arisen, including both cults and branches of the major religions. Secularization itself is multi-faceted, not the monolithic threat or promise perceived by polarized minorities. There is also a "sacralization" process involving concepts such as the family, individual rights, and various ideologies in our modern pluralistic societies.

Eight chapters explore historical, economic, ideological, and cultural factors in 152 pages. Lyon recognizes complex choices rather than only polarities aligned with compromising assimilation or defensive reaction. He traces fragmentation and marginalization of organized religion, considering that evangelical tradition has advantageous flexibility for renewal amid the diverse pressures. Liberalism and fundamentalism are, in his opinion, more vulnerable to idolatrous identification with left or right wing causes, linked to secularization or modern humanism on one hand, excessive reaction on the other.

Indeed, Lyon's analogy to the shadow conveys the problem, in that light rather than shadow is to come from the Church. Having exploded the over-simplified myths, he does not urge a return to supposed religious dominance of prior centuries, but reminds us to be faithful, responsible, light-giving. His timely, balanced examination is followed by a ten-page bibliography and four-page index, enhancing the book's usefulness.

Reviewed by John R. Armstrong, Honorary Assistant in Deacon's Orders, St. Philip the Evangelist Anglican Church, 629-49 Avenue S.W., Calgary, Alberta, Canada T2S 1G6.

SUFFERING AND HOPE: The Biblical Vision and the Human Predicament by J. Christiaan Beker. Philadelphia: Fortress Press, 1987. 94 pages. Paperback.

Few of us will not experience some form of suffering during our lifetime. Even if we are not directly affected, we need not look far to see others suffering from disease, hunger, pain, loss of loved ones, or the ravages of war.

The presence of suffering in the world may be of greater significance to those who profess a Christian faith. Christians view humans as created in God's image and part of his creation. Human suffering may, therefore, seem incongruous with a powerful and loving God.

Various writers have struggled with this problem over the centuries. J. Christiaan Beker, Professor of Biblical Theology at Princeton Theological Seminary, has written a small book in an attempt to answer some of the questions which arise regarding human suffering and the nature of God.

Suffering has been with us since the Fall. And, as the author points out, there is no greater degree of suffering today than any other time in history. We are, however, probably more aware of suffering in the world today. In the privacy of our living room we can view in living color the ravages of disease, hunger, and warfare from Ethiopia to Afghanistan by watching 30 minutes of network news. Anyone with any degree of sensitivity cannot but be disturbed by such events.

Beker himself has some personal experience with suffering. He was placed, as a young man, in a Nazi work camp. he explains that this book is in part a result of his attempt to come to grips with his experiences.

In seeking to understand this seeming dilemma of profound human suffering and an all-powerful and loving God, Beker has gone to the Scriptures. He first discusses the biblical responses to human suffering in the Old Testament. Four primary areas are explored by the author: Deuteronomic theology (or retributive justice), Job, Ecclesiastes, and Daniel. In later chapters the author also discusses New Testament passages on suffering, especially those found in Paul's letters, I Peter, and Revelation. These passages are probably familiar to most readers. However, Beker's analysis adds new insights and calls for further study and reflection on the biblical response.

In another chapter the author provides a critical evaluation of two other recent books on this subject. These are *When Bad Things Happen to Good People* by Harold Kushner, and *Suffering* by Dorothee Soelle. Beker concludes that both of these books " . . . are ultimately deficient and unsatisfactory to a Christian. . . . "

For Beker, the problem of human suffering can only be understood in light of the hope revealed in Scripture. That hope, of course, lies in the resurrection of Jesus Christ and the promise that we also as Christians shall share in that resurrection.

The book was thought provoking, and the author presented some new insights to this old problem. Although I did not

agree with everything in the book, I did find it to be beneficial to me personally and would recommend it to others interested in examining the biblical response to human suffering.

Reviewed by Philip Eichman, Muncie, IN 47302.

FAITH AND KNOWLEDGE: A Critical Inquiry by Paul Giurlanda. Lanham, MD: University Press of America, 1987. 312 pages. Paperback; $14.75.

The main thesis of this book is that faith and knowledge are two sides of a coin; the coin itself being a community. They are inseparable, interconnected, and can be distinguished from each other only for theoretical purposes. Personal faith and knowledge lose any meaning if separated from the communal life. Man is a social animal and he, along with his faith and knowledge, can be fully characterized through the community he lives in. He is born into a certain social situation and his convictions, ideas, etc. are molded by his social environment.

The author's arguments may sometimes seem surprising as he uses every opportunity to support his thesis concerning the triad faith-knowledge-community. For instance, the doctrine on papal infallibility is interpreted as saying, "that there is no better place to look for truth than here, in the community." It would be probably hard not to agree with the author's remark that "this may seem a perverse reading" (p. 242).

In the first chapter, Giurlanda analyzes the ideas of philosophers and scientists who are opposed to objectives defended by Frege or later by the Vienna Circle. These philosophers are Stephen Toulmin, who writes about evolving rationality and an impact thereupon of historical rationality; Michael Polanyi, with his analysis of apprenticeship, implicit assumptions, and general/specific authority; Hubert Dreyfus, with his excellent critique of too-far ranging claims of A.I.; and Alasdair MacIntyre, who tries to restore the concept of virtue as a clue to understanding of morality.

The second chapter discusses Gadamer and his debt to Aristotle, who discussed the problem of prudence that "involves knowledge of the ultimate particular thing, which cannot be attained by science" (p. 87). Chapter three discusses both Gadamer—who supplies theoretical and conceptual background to the author's research—and Habermas, and is probably the best part of the book.

Chapter four on Scripture is called pivotal to the book in Robert N. Bellah's preface. It is, however, a bit disappointing. What seems to matter to Giurlanda is his main thesis, and the Scripture is treated as any other supportive source with no regard to its distinct position.

Chapter five extracts these points from writings of (mostly) Christian writers that are germane to the main problem of the book: "whether there can be knowledge without preconditions and without faith" (p. 188). Augustine answers no, when saying, for instance: "accept . . . and then understand." Anselm says simply, "I believe so that I may understand" (p. 250). Thomas' intricate theology is more or less in keeping with what Giurlanda wants to prove. As to Luther, it goes almost without saying that faith occupies a prominent position in his theology. And now, in the chapter on faith in the Christian tradition, the author inserts a discussion on Kant who, in a rather unsophisticated fashion of the Enlightenment, reduces religion to reason. After him comes Schleiermacher, for whom faith was necessary even for seeing miracles and prophecies as such.

In the closing chapter the ideas of David Tracy and writings of Stanley Hauerwas are investigated. The line at this point is always present in the Christian tradition, especially since Schleiermacher is perspicuous, namely putting more and more emphasis on the communal character of faith. But whereas Tracy and Hauerwas can be seen as scholars for whom the maxim "theology as doxology" is dear, the latter element is somewhat missing in *Faith and Knowledge*. Giurlanda seems to overstress community in the context of faith, steering sometimes toward Kant rather than Augustine or Tracy. His book, nevertheless, is inspiring and worth attention.

Reviewed by Adam Drozdek, Duquesne University, Pittsburgh, PA 15282.

THE INTERNATIONAL STANDARD BIBLE ENCYCLOPEDIA (vol. 4) by Geoffrey W. Bromiley (ed.). Grand Rapids: Eerdmans, 1988. 1211 pages. Hardcover; $39.95.

The International Standard Bible Encyclopedia (affectionately known by seminarians as ISBE) was first published in 1915. In 1929, under the editorship of James Orr, a revised edition was issued. Over the years, ISBE became a classic as it was used and treasured by countless numbers of students, teachers, scholars, and pastors. However, the publishers realized that because of new textual and archeological discoveries, ISBE needed revision. Despite several delays due to changes in associate editors, in 1979 the first volume of the completely revised edition was published. Now nine years later, the project is complete with the publication of this, the fourth and final volume (there were five volumes in the first revision).

The purpose of this second revision remains the same as that of its predecessors: to define, identify, and explain biblical topics. It does this via a dictionary-encyclopedia format, and it also directs the readers to other sources for further exploration. ISBE includes articles on every person, place, and term mentioned in the Bible. They are arranged alphabetically, cross-referenced, and illustrated with photo-

graphs and maps some of which are in color. Although the Revised Standard Version of the Bible is used in the articles as the biblical text, the King James and New English Versions are also sometimes cross-referenced.

The new revised ISBE is the result of years of work by hundreds of contributors (most from the United States) from many fields of knowledge and religious affiliations. Although some of the articles are retained from the earlier editions, they have been brought up to date. Geoffrey W. Bromiley, the general editor, was assisted by capable associate editors such as Everett F. Harrison and William Sanford LaSor. Although ISBE is written from a conservative viewpoint (called "reasonable conservatism" in the first edition), this new revision has received high praise from both liberal and conservative scholars.

In volume four, the article which will be of most interest to readers of *PSCF* is the six-page one entitled "Science and Christianity." It was written by Richard Bube, Stanford University Professor and Fellow of the American Scientific Affiliation. This article considers the nature, limitations, importance, and correlations of science, and also discusses creation, evolution, determinism, free will, and Christian responsibility.

The general editor states that ISBE is intended to contribute to a better understanding of and love for the Bible thereby glorifying God and edifying the church. It has succeeded admirably in the past and promises to be even more successful in the future. It is a joy to recommend not only volume four but the entire set. Anyone who wants to understand the Bible better will find ISBE extremely useful.

Reviewed by Richard Ruble, John Brown University, Siloam Springs, AR 72761.

DEMON POSSESSION AND THE CHRISTIAN: A New Perspective by C. Fred Dickason. Chicago: Moody Press, 1987. 355 pages. Paperback.

If Dickason is right, every Christian leader should read this book. He not only believes that Christians can be demonized (a term he prefers to demon possession) but is convinced that they are quite frequently. What this means in practice is that many Christians are struggling to overcome problems which can be solved by recognizing and rejecting demonic influence in Jesus' name.

Dickason calls this a new perspective because it has limited acceptance. But it is not altogether new, and he draws on the work of others to enrich and strengthen the development of his thesis. He gives several pages of bibliography at the end of the book.

A major portion of the book is given to evidences for and against the possibility that Christians can be demonized. Beginning with the presupposition that the Bible is inspired and authoritative, the author examines the principal biblical texts used to prove either that Christians can be demonized, or that they cannot be. Then he examines theological arguments for and against the demonization of Christians. His conclusion, after these lengthy expositions, is that neither exegesis nor theology can give proof of one position or the other. The case must be decided by other means.

The other means he uses are case studies—his own and those of others. He does not mean by this to place experience on a level with the Bible. But he holds that all truth is God's truth, and that evidence from correct experience is valid in determining the point in question, and in offering guidelines for ministry to the demonized. He does not claim to give infallible proof, but he is insistent that Christians admit and act upon the possibility that they and other believers are subject to demonization.

In addition to the discussion of whether Christians can be demonized, Dickason gives advice on how to resist demons and how to counsel the demonized. He gives excerpts of some of the 400 sessions he has had with demonized Christians, and he quotes other writers in the same field.

The author does not believe that all moral, spiritual and psychological problems originate in demons. He repeatedly refers to multiple sources of such disorders. But in his own counseling, only 10 out of 400 counselees did not have problems due to demonization. While it is true that many were brought to him because of the suspicion of demonization, that is still an extremely large percentage. As a matter of fact, he quotes, with approval, Ensign and Howe, who say that "compulsive and/or irrational behavior which is immoral or which constantly defeats the witness and integrity of the children of God is *almost always* evidence of either demonic harassment (external) or demonic control (internal)" (p. 237, emphasis added).

Dickason adopts an anti-charismatic position, and even cites cases in which his counselees were demonized because they had opened themselves up to receive a gift of tongues. He believes that supernatural gifts to the church have ceased. Although he repeatedly states this belief, he does not defend or prove it, except by citing the writings of others.

When one reads a book with positions as revolutionary and controversial as this one, the question is naturally raised as to the author's basis for his claims, especially when the strongest evidence he produces is his own counseling sessions. Is he correct, or is he a charlatan? The fact that Dickason has a doctorate from Dallas Seminary, that he has been teaching at Moody Bible Institute since 1974, and that he is presently chairman of the theological department there, keep me from dismissing him lightly.

Dickason did not give conclusive proof of his thesis, but he did present it clearly, in an organized if didactic form. The subject is so important that it merits more research and study. This book is a valuable contribution to the process. I doubt anyone can read it without wanting to know more. Don't miss it!

Reviewed by Joseph M. Martin, Missions Professor, Edward Lane Bible Institute, Patrocinio, MG, Brazil.

LETTERS

On Bullock's "The Origin of Species and the Origins of Disease" ...

I appreciate Dr. Wilbur Bullock's valiant attempt, in "The Origin of Species and the Origins of Disease" (March 1992), to address atheists' strongest argument against the existence of God. Only after I became acquainted with David Hume's works did I finally appreciate the difficulties of biologists have in believing in God. "If God is so powerful and so good, why does disease exist?"

I was led to believe that Dr. Bullock was going to propose a new solution to the dilemma that did not compromise the goodness of God. But alas! my expectations were unfounded. Dr. Bullock's solution is merely that "We need to reaffirm that our Creator and Sustainer controls the disease processes, whether personal or community." But if God is good, why does God permit disease to cause such suffering among His children? Or, what is the relationship between God's creative and sustaining role and our responsibility?

The New Testament only hints at why disease exists, from God's viewpoint. Jesus healed the sick, which testifies both to a) the role of disease in pointing to the saving power of God, and b) the fact that disease is not part of God's original world of goodness, but part of the sinful world that is to be purified.

But we are also personally responsible to maintain healthy bodies. When God created humanity, he told the first man and woman, "Be fruitful, and multiply, and have dominion" (Gen. 1:28). When we treat our bodies with the love and respect they deserve (as the image of God), by eating properly and not engaging in unhealthy behavior (such as promiscuity), we are more likely to maintain "the intricate balances (homeostasis)" that Dr. Bullock mentions.

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... And a Response

James Osborn raises an important issue. "Why does disease exist?" However, a discussion of the theological problems of disease was not the aim of my paper. Rather, I was primarily concerned with comparing two theories (natural selection and germ theory) in regard to their development, their acceptance, and their over-enthusiastic application to problem solving that was often beyond scientific justification.

Discussion of the religious implications of disease is a subject on which many books have been written, but might I, in reply to Dr. Osborn, offer my own tentative evaluation of the problem?

First, as a biologist/parasitologist I have been much involved with the reality of predation and parasitism/disease in the regulation of natural populations. This is an undeniable feature in the biological world.

Second, as a Christian I accept this world as God created it and He declared His creation to be "good." I see no evidence, scientifically or biblically, to cop out of the problem with the highly dubious hypothesis of recent creationism that predation, disease, and biological death originated with the sin of Adam in the garden of Eden.

Third, although these natural phenomena are mysteriously "good" in God's eyes, much to our consternation "the lions roar for their prey and seek their food from God" (Psalm 104:21). There will come a time, in the "new earth," when "the wolf and the lamb will together, and the lion will eat straw like the ox." This obviously describes a drastically different natural order than we see today. Certainly, if we have anatomy and physiology courses in that day we will need different texts from the ones we use today! These will be marvelous events, but we are incapable of understanding them at the present time.

Fourth, there is the effect of human sin on all this. Dr. Osborn rightly points out our responsibilities "to maintain healthy bodies." Human sin, whether greed, gluttony, or adultery, is a major factor in human disease. Furthermore, as in the cases of sexually transmitted diseases and second-hand tobacco smoke, our personal sin often results in harm to others. Certainly Christians should have no problem recognizing these far-reaching effects of sin. However, even though we can legitimately think of these sicknesses as, at least partly, "punishment" we need to always remember the biblical principle to "hate the sin but love the sinner." This means that Christians need to avoid greed, gluttony, and adultery in their personal lives, and we should be encouraging our society to do the same because we love our neighbors. We need to be concerned about just and adequate health care for all even though individuals and the society around us continue to smoke, abuse drugs and alcohol, and are promiscuous in their sexual relations. We need to do these things, firm in our commitment to biblical ethics, but in a gentle, educational manner rather than to harshly criticize all who think or do differently.

Finally, it is important to recognize that human sin harms, not only individuals and society but even the biological world around us. How well the words of Hosea (4:2,3) describe this aspect of our world today:

> There is only cursing, lying and murder, stealing and adultery; they break all bounds and bloodshed follows blood-

shed. Because of this the land mourns, all who live in it waste away; the beasts of the field and the birds of the air and the fish of the sea are dying.

There are no easy answers to Dr. Osborn's question. It is so much tied in with the — to us — unfathomable relationships of a Holy God and sinful human beings. Meanwhile, for me, I will continue to trust in God's goodness and marvel at the intricate balances between host and parasite, balances that result (most of the time) in beautiful commensal or symbiotic relationships.

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More on *Darwin on Trial*

A response to reviews of *Darwin on Trial* (by Phillip E. Johnson) written by Duane Thurman and Owen Gingerich. Washington, DC: Regnery Gateway, 1991. (Reviews published in the June 1992 issue of *PCSF*.)

Johnson's *Darwin on Trial* is perhaps the finest piece of original scholarship analyzing the agenda of the Darwin industry this century. I found the work insightful, well researched and reasoned, and lucidly presented. Not only that, but it was a sheer joy to read. Seldom has a work of technical analysis given me such pleasure while I learned.

Professor Thurman's is a good descriptive summary of the contents of Johnson's book, informing a would-be reader that *Darwin on Trial* is a worthwhile book to read. His assessment, however, suggests little of the richness and depth of insight within its pages. I agree with Thurman that a more apt title would have been *Darwin**ism** on Trial*, for that surely is the subject of the book. According to Johnson, Darwinism is a euphemism for scientific naturalism, a grand materialistic philosophy of world view.

Professor Gingerich thinks *Darwin on Trial* is a "good read," and his review includes more of the flavor of Johnson's book. Both he and Thurman mention Johnson's impressive credentials as a legal scholar and that he is expert at analyzing arguments. Johnson takes arguments apart and exposes faulty logic with care and apparent ease, the way a good mechanic takes apart a malfunctioning machine looking for a broken part. According to Gingerich, Johnson is "a thoughtful and intelligent author," the possessor of "an enviably logical gift of mind, and a covetably sharp pen," who has presented a "brilliantly argued critique of Darwinian evolution" that is "deftly organized, articulate, even witty."

Yet after noting all that brilliance and ability to analyze how words are used in arguments, neither reviewer considers whether Johnson's analysis might also be correct. Instead Thurman issues a cautionary warning to the reader that Johnson the lawyer has more than objective analysis on his mind. He has considerable skills and is trying to persuade the reader to accept his point of view. And Gingerich records that, after reading *Darwin on Trial*, he was left with "a highly uneasy feeling. " He suspects Johnson of having made an egregious error that undermines his case, though he does not tell us clearly or precisely what it is.

To see how incisive Johnson's analysis is, consider the question whether it is possible to embrace Darwinian mechanisms as a scientific description of the way moths, trees and people made their initial appearance on this ear, without also embracing naturalistic philosophy that goes along with it. Here Johnson is careful to protect himself from being caught in a logical trap, by saying, "I believe that a God exists who could create out of nothing if He wanted to do so, but who might have chosen to work thorough a natural evolutionary process instead" (p. 14). What God *could* have done is one thing. What the empirical evidence supports is quite another. It is clear that Johnson does not think there is *any* empirical evidence for such a natural process having produced life, or transformed bacteria into humans. Thus Johnson's analysis should provide little encouragement to those who espouse guided or theistic or non-naturalistic evolution. However, he is equally critical of the young earth creation view, and Johnson does not make clear what view he personally holds.

What if Johnson's analysis of Darwinism is correct? Then it means that many fine minds, including the minds of many Christians, have been seduced by a naturalistic metaphysics insidiously masquerading as science. In other words, modern empirical science didn't blast Christianity at its root as Jacques Monod and many others have claimed. Philosophical naturalism merely and brilliantly used the prestige of science to intrude into traditional Western culture, and by an incredibly clever smoke and mirror routine, so well orchestrated it looked conspiratorial, managed to replace theism as the intellectual vanguard shaping the development of the "global village."

But *is* Johnson's analysis correct? Gingerich has doubts, but has not identified any substantive errors. Someone should come forward to expose the flaw in Johnson's analysis if it is there, for there are signs in many quarters that educated people outside the hallowed halls of science are taking his arguments and ideas seriously, and are prepared to act on them. "A highly uneasy feeling" may give us sufficient cause to look for an error, but it is no basis to decide there is one. Our regard for truth and reason demands more. It is an important matter, for unless a fatal flaw is identified, who can say that this admittedly brilliant analysis of Darwinism is not also correct? And if it is correct, or if very many think it is, who can doubt that as a consequence much of our social fabric based upon Darwinism will begin to unravel? These are very uncertain times.

There is room for improvement in *Darwin on Trial*. Gingerich is quite right to note that Johnson does not point out what we ought to have done with respect to the Creationists. Nor did he point us in the direction of what we should do about the way evolution is currently being taught in the schools. However, unlike Gingerich, I do believe Johnson understands how science functions,

and I would prefer to give him the benefit of the doubt, and suggest that his prescription may be coming an a sequel. In case Johnson has not thought of this, perhaps the suggestion will prompt one.

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On Bernard Ramm and Spradley ...

The article by Joseph Spradley on Bernard Ramm and the ASA (March 1992) was fascinating.

There is an aspect of Ramm's progressive creationism that as far as I know has never been addressed. While not denying theistic evolution as a viable option, Ramm claimed that progressive creationism was a strictly creationist system because it did not involve vertical radiation (evolution) but only horizontal radiation (*The Christian View of Science and Scripture*, 1954, p. 215 & 272). The vertical events he called creation events. While Ramm was quite stingy with details of his system, he seemed to suggest that creation took place at the Phyla and/or Family level (p. 215).

There is an inverse relationship between the number of creation events one has in his system and the amount of vertical evolution one must invoke to explain the variety and complexity of our present world. The fewer creation events one has, the more he must depend upon evolution to make up the difference. Hence, Ramm's system is unworkable. There is no way that one can explain the complexity of our present world by having creation at the Family level (or higher) and depend only on horizontal radiation. Ramm's progressive creationism is thus an evolutionary system, partially, even though he sincerely believed it was not.

The fact that Ramm has moved even further from an historical view of Genesis suggests that at gut level he realized that his progressive creationism emperor had no clothes. Spradley admits that " ... it perhaps conceded too much to science." However, the basic suppositions that allow such concessions are the gift that keeps on giving. Ramm's newer view concedes even more of Genesis. To remove Genesis from history is certainly one way to solve the problems. But has anyone bothered to calculate the Biblical cost?

Ramm's statement, "If scientists do their work in theory construction within the limits of the data themselves, scientists will never say anything contrary to the Word of God" (Spradley, p. 8), is absurd. Does Ramm seriously believe that atheistic evolutionists feel they have gone beyond the data in constructing their atheistic world view? Romans 8:7 would suggest that the natural person (scientist) is not neutral and objective but instead would prefer a non-theistic world view.

Please do not interpret my words as a lack of appreciation for Bernard Ramm. While I am in basic disagreement with his position, I am not ignorant of the problems he sought to address. Anyone who addresses these problems with such gusto can't be *all* bad!

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... And a Response

Marvin Lubenow's letter is an interesting and thoughtful response to my article on "Changing Views of Science and Scripture: Bernard Ramm and the ASA" (March 1992). Having none of Ramm's writings here in Cairo, I can only answer with personal reflections based on my best recollections of his thinking.

Ramm's 1954 version of "progressive creation" was an attempt to fit the fossil evidence of changing life forms over long periods of time into a creationist system. Lubenow objects that progressive creation at only the "phyla and/or family level" is insufficient to disallow "vertical radiation" (evolution), and therefore "Ramm's system is unworkable."

At least two possibilities would seem to obviate this objection to a system of progressive creation. One possibility is to allow for progressive creation at a lower level, perhaps even at the species level to avoid any question of evolution. However, I don't think Ramm was opposed to evolutionary mechanisms as such, so long as they were not extended beyond the data to "evolutionism." So another possibility is to allow for limited evolution between progressive creation events at higher levels. Both seem consistent with Ramm's 1954 intentions.

From Ramm's later perspective, progressive creation "conceded too much to science," not in the sense of accepting some evolutionary processes, but in viewing Genesis 1 as a scientific treatise to be evaluated and judged by science. Treating it as a scientific account of origins is to "remove Genesis from history," rather than interpreting it in its historical and cultural context. Viewed in contextual terms, Genesis 1 is seen as primarily a polemic against the idolatrous worship of nature and a call to recognize the one God who created all things.

Lubenow asks if "Ramm seriously believe[s] that atheistic evolutionists feel they have gone beyond the data in constructing their atheistic world view." Whether they "feel" such or not, they clearly have! Our task is to separate their atheistic assumptions and conclusions from their valid contributions.

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Visiting Professor
The American University in Cairo

WHAT EXACTLY IS THE AMERICAN SCIENTIFIC AFFILIATION?

The American Scientific Affiliation (ASA) is a fellowship of men and women of science who share a common fidelity to the Word of God and to the Christian Faith. It has grown from a handful in 1941 to a membership of over 2,500 in 1990. The stated purposes of the ASA are "to investigate any area relating Christian faith and science" and "to make known the results of such investigations for comment and criticism by the Christian community and by the scientific community."

HOW DO I JOIN THE ASA?

Anyone interested in the objectives of the Affiliation may have a part in the ASA. Full, voting membership is open to all persons with at least a bachelor's degree in science who can give assent to our statement of faith. Science is interpreted broadly to include mathematics, engineering, medicine, psychology, sociology, economics, history, etc., as well as physics, astronomy, geology, etc. Full member dues are $45/year.

Associate membership is available to anyone who can give assent to our statement of faith. Associates receive all member benefits and publications and take part in all the affairs of the ASA except voting and holding office. Associate member dues are $40/year.

Full-time students may join as Student Members (science majors) or Student Associates (non-science majors) for discounted dues of $20/year. Retired individuals, parachurch staff, and spouses may also qualify for a reduced rate. Full-time missionaries are entitled to a complimentary Associate membership..

An individual wishing to participate in the ASA without joining as a member or giving assent to our statement of faith, may become a Friend of the ASA. Payment of a yearly fee of $45 entitles "Friends" to receive all ASA publications and to be informed about ASA activities.

Subscriptions to *Perspectives on Science & Christian Faith* only are available at $25/year (individuals), $35/year (institutions) and $20/year (students).

MEMBERSHIP/FRIEND OF ASA APPLICATION/SUBSCRIPTION FORM

(Subscribers complete items 1-3 only)

American Scientific Affiliation, P.O. Box 668, Ipswich, MA 01938

1) Name (please print) _____ Date _____

2) Home address _____

_____ Zip _____ Phone _____

Office address _____

_____ Zip _____ Phone _____

3) I would prefer ASA mailings sent to: ❑ home ❑ office

4) Place of birth _____ Date of birth _____

Marital status _____ Sex ____ Citizenship _____

Is spouse a member of ASA? _____ Eligible? _____

5) ACADEMIC PREPARATION

Institution	Degree	Year	Major

Field of study (major concentration) _____

Area of interest (20 character limit) _____

Recent publications _____

Please complete back of this form ☞

WHAT DOES THE ASA BELIEVE?

As an organization, the ASA does not take a position when there is honest disagreement between Christians on an issue. We are committed to providing an open forum where controversies can be discussed without fear of unjust condemnation. Legitimate differences of opinion among Christians who have studied both the Bible and science are freely expressed within the Affiliation in a context of Christian love and concern for truth.

Our platform of faith has four important planks, listed on the back of this membership application.

These four statements of faith spell out the distinctive character of the ASA, and we uphold them in every activity and publication of the Affiliation.

WHY MUST THERE BE AN ASA?

Science has brought about enormous changes in our world. Christians have often reacted as though science threatened the very foundations of Christian faith. ASA's unique membership is committed to a proper integration of scientific and Christian views of the world.

ASA members have confidence that such integration is not only possible but necessary to an adequate understanding of God and His creation. Our total allegiance is to our Creator. We acknowledge our debt to Him for the whole natural order and for the development of science as a way of knowing that order in detail. We also acknowledge our debt to Him for the Scriptures, which give us "the wisdom that leads to salvation through faith in Jesus Christ."

Church Affiliation _____

What was your initial contact with the ASA? _____

If you are an active missionary on the field or on furlough or a parachurch staff member, please give the name and address of your mission board or organization.

Name _____

Street _____

City _____ State _____ Zip _____

I am interested in the aims of the American Scientific Affiliation. Upon the basis of the data herewith submitted and my signature affixed to the ASA Statement below, please process my application for membership.

STATEMENT OF FAITH

I hereby subscribe to the Doctrinal Statement as required by the Constitution:

1. We accept the divine inspiration, trustworthiness and authority of the Bible in matters of faith and conduct.
2. We confess the Triune God affirmed in the Nicene and Apostle's creeds which we accept as brief, faithful statements of Christian doctrine based upon Scripture.
3. We believe that in creating and preserving the universe God has endowed it with contingent order and intelligibility, the basis of scientific investigation.
4. We recognize our responsibility, as stewards of God's creation, to use science and technology for the good of humanity and the whole world.

Signature _____ Date _____
(required for Member, Associate Member, Student member status)

Amount enclosed _____ Category _____

Please mail to: American Scientific Affiliation, P.O. Box 668, Ipswich, MA 01938

OTHER RESOURCES AVAILABLE FROM ASA

"Teaching Science in a Climate of Controversy"is a 48-page booklet that guides science teachers in presenting origins with accuracy and openess. It is available from the Ipswich office for: $6.00/single copy; $5.00/2-9 copies (sent to same address); $4.00/10 or more copies (sent to same address).

Gift subscriptions to *Perspectives on Science & Christian Faith* are also available. Give the gift of challenging reading for $20/year.

Please enter gift subscriptions for:

Name _____

Address _____

City _____ State _____ Zip _____

Name _____

Address _____

City _____ State _____ Zip _____

We believe that honest and open study of God's dual revelation, in nature and in the Bible, must eventually lead to understanding of its inherent harmony.

The ASA is also committed to the equally important task of providing advice and direction to the Church and society in how best to use the results of science and technology while preserving the integrity of God's creation.

AS A MEMBER YOU RECEIVE:

- ASA's bimonthly Newsletter.
- ASA's science journal, *Perspectives on Science & Christian Faith*, the outstanding forum for discussion of key issues at the interface of science and Christian thought.
- Discount on *Contemporary Issues in Science & Christian Faith: An Annotated Bibllgraphy*, the ASA Resource Book — a catalog of science books and tapes on current issues of concern.
- ASA's Membership Directory.
- Opportunities for personal growth and fellowship, through meetings, conferences, field trips, and commissions.
- *Search: Scientists Who Serve God*, an occasional publication relating current trends in science and the people involved in them.

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THE CANADIAN SCIENTIFIC & CHRISTIAN AFFILIATION was incorporated in 1973 as a direct affiliate of the ASA, with a distinctly Canadian orientation. For more information contact:

Canadian Scientific Affiliation
P.O. Box 386
Fergus, Ontario N1M 3E2 CANADA

The American Scientific Affiliation

Founded in 1941 out of a concern for the relationship between science and Christian faith, the American Scientific Affiliation is an association of men and women who have made a personal commitment of themselves and their lives to Jesus Christ as Lord and Savior, and who have made a personal commitment of themselves and their lives to a scientific description of the world. The purpose of the Affiliation is to explore any and every area relating Christian faith and science. *Perspectives* is one of the means by which the results of such exploration are made known for the benefit and criticism of the Christian community and of the scientific community.

EXECUTIVE DIRECTOR, ASA:
Robert L. Herrmann, P.O. Box 668, Ipswich, MA 01938
EDITOR, ASA/CSCA NEWSLETTER:
Walter R. Hearn, 762 Arlington Ave., Berkeley, CA 94707
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Raymond H. Brand (Biology), Wheaton College, Wheaton, IL 60187

Canadian Scientific & Christian Affiliation

A closely affiliated organization, the Canadian Scientific and Christian Affiliation, was formed in 1973 with a distinctively Canadian orientation. The CSCA and the ASA share publications (*Perspectives on Science & Christian Faith* and the *ASA/CSCA Newsletter*). The CSCA subscribes to the same statement of faith as the ASA, and has the same general structure; however, it has its own governing body with a separate annual meeting in Canada.

EXECUTIVE DIRECTOR, CSCA:
W. Douglas Morrison, P.O. Box 386, Fergus, Ontario N1M 3E2
EXECUTIVE COUNCIL, CSCA:
Norman MacLeod (Mathematics), Toronto, Ontario —President
Dan Osmond (Physiology), Toronto, Ontario — Past President
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Paul LaRocque (Physics), Toronto, Ontario
Esther Martin (Chemistry), Waterloo, Ontario
Don McNally (History of Science), Hamilton, Ontario
Eric Moore (Chemistry), Toronto, Ontario
Robert E. Vander Vennen (Chemistry), Toronto, Ontario
Lawrence J. Walker (Psychology), Vancouver, British Columbia

LOCAL SECTIONS

of the ASA and the CSCA have been organized to hold meetings and provide an interchange of ideas at the regional level. Membership application forms, publications, and other information may be obtained by writing to: American Scientific Affiliation, P.O. Box 668, Ipswich, MA 01938, USA or Canadian Scientific & Christian Affiliation, P.O. Box 386, Fergus, ONT N1M 3E2, CANADA.

Central California	Chicago-Wheaton	Delaware Valley	Eastern Tennessee	Guelph, ONT
Indiana-Ohio	New England	NY-New Jersey	North Central	Oregon-Washington
Ottawa, ONT	Rocky Mountain	St. Louis	San Diego	San Francisco Bay
South Central	So. California	Southwest	Toronto, ONT	Vancouver, BC
Virginia-Kentucky	D.C.-Baltimore	Western Michigan	Western New York	

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Vol. 39-41	(1987-1989),	Perspectives	42,	65-72	(1990).

A keyword-based on-line **subject index** is available on 5 1/4" computer disks for most IBM compatible computers with a hard disk or two floppy disk drives. It includes all software and instructions, and can be ordered from the ASA Ipswich office for $20.

Articles appearing in *Perspectives on Science and Christian Faith* are abstracted and indexed in the CHRISTIAN PERIODICAL INDEX; RELIGION INDEX ONE: PERIODICALS; RELIGIOUS & THEOLOGICAL ABSTRACTS, and GUIDE TO SOCIAL SCIENCE AND RELIGION IN PERIODICAL LITERATURE. Book Reviews are indexed in INDEX TO BOOK REVIEWS IN RELIGION. Present and past issues of *Perspectives* are available in microfilm form at a nominal cost. For information write: University Microfilm Inc., 300 North Zeeb Rd., Ann Arbor, MI 48106.

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