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# Pro Rege

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Volume 15 | Number 1

Article 4

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September 1986

## Origins Debate: Part III - A Suggested Answer

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### Recommended Citation

Maatman, Russell W. (1986) "Origins Debate: Part III - A Suggested Answer," *Pro Rege*: Vol. 15: No. 1, 22 - 30.

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# The Origins Debate

## Part 3

### A Suggested Answer

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All aspects of the universe and life itself have ultimately become part of the debate over origins which began with Darwin in the nineteenth century. The first article of this series was a brief history of the debate. The second article described the present situation and also demonstrated that certain elements of the debate are peripheral and need not remain part of the debate. Elimination of those elements would make it possible for Christians to work together better and oppose atheistic ideas on origins more effectively. Three elements of the debate could be dropped: (1) Neither the age of the universe nor the age of the earth should be linked to evolution. (2) The second law of thermodynamics should not be used to disprove the ordering process postulated by those who propose evolution from one species to another. (3)

Gaps in the presently-known fossil record may exist because evolution across the gaps did not occur; but it is dangerous to be dogmatic about which fossils will be found in the future. Such dogmatism could amount to linking a part of the Christian faith to the absence of evidence.

But there are elements of the debate which Christians cannot disregard. Even if the elements listed above are dropped, the debate still includes ideas which lie at the heart of any philosophy. The Christian position on these ideas is non-negotiable. The purpose of this final article of the series is to discuss those non-negotiable ideas.

Any discussion of origins is complicated. The discussion can become hopelessly complicated if terms are not clearly defined. In this series of articles I use Hayward's terms for the main

positions taken in the debate.<sup>1</sup> *Atheistic Darwinism* is the belief that natural forces brought about evolution by natural selection; the essence of *theistic Darwinism* is that God used natural selection to achieve evolution; those who hold to *ancient creationism* believe that although living forms succeeded each other, God created various kinds of life at different times; *recent creationism* is the belief that there has been no succession and that God created all living forms recently.

### The Non-Negotiable Matters

Christians ought to agree on four parts of the origins question.

First, they should agree that the Bible is infallible and without error. But what do Christians actually say about the Bible in the context of the origins debate? Some of them limit biblical infallibility by claiming that the Bible gives us what we need for our salvation; beyond that, they seem to say, be careful. Or they might claim that we can use human sciences to determine the meaning of Genesis 1 and that a similar approach for Genesis 2 and 3 is not feasible; therefore, we are to use those chapters for their theological content.<sup>2</sup> Similarly, they say the point which Genesis makes is "true"; but Genesis is not "accurate" for scientific use.<sup>3</sup> Again, some Christians maintain that a high regard for the Bible does not mean that one should consider the mechanism of creation important. Some persons who take this position consider that human evolution could have occurred.<sup>4</sup>

But often Christians do emphasize that we must take the Bible into account in the discussion of mechanism.<sup>5</sup> For some, taking the Bible into account means that one could correctly conclude that human beings have evolved.<sup>6</sup> In leaning toward the evolution of human beings, certain Christians insist that scientific results can teach us how to interpret Genesis.<sup>7</sup>

People who discuss the origins question often *characterize* the Bible, which means in this case that they declare a specific purpose for part or all of the Bible. As a result, what a reader can receive from the Bible is limited. Thus, some suggest that God's purpose in the first chapters

of Genesis is to show that he brought order out of chaos,<sup>8</sup> or that those chapters present us with cosmogony, not biology or history.<sup>9</sup>

These are some of the many different positions among Christians on how the Bible relates to the origins question. But it seems to me that only one position is the correct one: the Bible should be allowed to speak for itself.<sup>10</sup> If we take that position, we discover that no part of the Bible even hints that any other part is in error. We discover that the Bible does indeed speak about origins. The Bible does not suggest a separation between the fact that God created and the means he used in creating. The Bible teaches that we can see the works of God in the world around us; God does indeed speak to us through what he has created. Therefore, it is wrong not to use both the Bible and what we can learn from creation to answer questions about origins.

The second point upon which all Christians must agree is that God did indeed create. Here, too, Christians have expressed themselves in various ways. But it is easy to forget, whenever one becomes involved in analyzing creation that, after all, *creation is grand*. Tappeiner cautions us: there is an "inexhaustible richness and elusive mystery" in creation, putting analysis forever beyond the ability of the finite mind to order it.<sup>11</sup>

In agreeing that God did create, Christians must insist, however, that a deistic understanding of creation is wrong. God did not create and then leave creation to itself. Surprisingly, some Christians fear that believing in separate creative acts (of various groups of plants and animals and of human beings) is close to accepting deism. This suggestion was made as early as the nineteenth century debate among Christians over Darwin's ideas.<sup>12</sup> The reason for this fear is that sometimes those who advance separate creation (both recent and ancient creationists) leave the impression that God is more active at one time—when he creates—than at other times, when there is "normal" development.

Deists seem to separate "creation" and "time." But God's creative acts included the creation of time.<sup>13</sup> If time is not a created entity,

then time is co-eternal with God, an impossibility. God, who was not created, exists outside of time. Everything which has happened has taken place during created time; the unfolding of events in time is the unfolding of creation itself. Deism is an impossible position for Christians, who believe that God is not part of creation. The creature and the Creator are distinct. The nineteenth century argument over whether God created with a purpose missed the mark: creation includes purpose; separation of "creation" and "purpose" is not possible.

How do we know that God created? Does the world around us—perhaps scientific data included—prove that he created? Some have suggested the data do prove that he created.<sup>14</sup> Surely this is not enough. God is not the God revealed by scientific data; he is the God of the covenant.<sup>15</sup> The hand of God is visible in the world around us in the way it is taught in Job 38-41, Psalm 19, Psalm 104, Psalm 119:89-91, Isaiah 45:18-19, Acts 14:17, Romans 1:20, and similar biblical passages.

The third non-negotiable part of the origins debate is that the human race is unique. But certain Christians are confident that human beings descended from animals. The idea is expressed in many ways: (1) Adam is figurative and so Genesis 2 and 3 cannot be taken literally.<sup>16</sup> (2) Analysis of the "protein clock" indicates that the first human beings descended from animals and lived about five million years ago.<sup>17</sup> (3) "Pre-Adamic" people are sometimes discussed.<sup>18</sup> Occasionally the idea of pre-Adamic people is fitted into the idea of "biblical evolutionism."<sup>19</sup> (4) The biblical account of Adam is said to refer not to a single person, but to "every man."<sup>20</sup> In this theory, Adam's sin is every person's sin. Adam is the human race.

These claims have not gone uncontested. In addition to the objections given in Part 2, the following points are made: (1) McCune debates the interpretation of Genesis used to arrive at Darwinistic ideas concerning human beings.<sup>21</sup> (2) Edinger described a difficulty:

If man has passed through a Pithecanthropus phase, the evolution of his brain has been unique, not only in its

result but also in its tempo...Enlargement of the cerebral hemispheres by 50 per cent seems to have taken place, speaking geologically, within an instant, and without having been accompanied by any major increase in body size.<sup>22</sup>

(3) Others, including Pun, conclude from the makeup of the human body that it is indeed similar to animal bodies, but that God separately created each kind of animal using similar blueprints; in this view, the creation of the human body was distinct from the creation of any kind of animal.<sup>23</sup> (4) Still others base their argument not on the nature of the human body as much as on the nature of the whole human being. Thus, they often claim that rationality, "soul," and the image of God could not have evolved gradually; to claim that they did removes the dignity of the human being.<sup>24</sup> (5) Hartzler pointed out a qualitative difference between human beings and animals in still another way: human beings are not improving, although evolutionary theory says they should be improving. In fact, human beings, unlike animals, are corrupt and need a savior.<sup>25</sup>

The Christian teaching that human beings bear the image of God is non-negotiable. What bearing this image means is deep and complicated and need not be taken up here. But the infallible Bible does teach that human beings were created in the image of God. It does not teach that animals were created in his image. Surely one must conclude from the first chapters of Genesis that the distinguishing characteristic of the human race is that each person bears the image of God. Those who claim that the important matter is that God created—but that the means used is not important—miss the point. Anyone who analyzes the origins question must pay attention to *what* God created. Being created in the image of God is qualitatively different from not being created in the image of God. To hold that God brought about a series of changes in animals to create human beings adds to—and, it seems to me—contradicts the Genesis text. Such an interpretation of Genesis suggests that human

beings are body-plus-soul, rather than whole beings, body-souls. To deny the uniqueness of human beings by making them related to animals rather than those who bear the image of God is to reduce human beings to something less than they are.

The fourth point in the origins debate which Christians should accept is that the probability of the simplest life evolving from non-life by presently-understood mechanisms is vanishingly small. This point is, as we shall see, only an intermediate conclusion. I limit the discussion in the following paragraphs to a description of some of the ideas advanced concerning the origin of the simplest life. The intermediate

jections to this "life exists" argument have been raised.<sup>27</sup>

Some Christians accept chemical evolution.<sup>28</sup> They make their conclusions on the basis of scientific evidence; they do not, however, deny providence or the creative hand of God. According to the definitions I have been using, they are theistic Darwinists.<sup>29</sup>

Scientific opposition to chemical evolution is usually based on the vanishingly small probability that small molecules aggregated to form the large, complex molecules found in living matter. It is difficult to explain (without introducing scientific ideas beyond the scope of the present article) what is meant by the

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conclusion is given in the present section; for reasons which will become apparent, I defer to the next section further discussion of what is non-negotiable concerning the origin of the simplest life.

Belief in the idea that the simplest life evolved from non-living matter, "chemical evolution," is widespread.<sup>26</sup> The reactions postulated to have occurred are some of the reactions which were possible in the environment of the early earth. Thus, the environment "selected" reactions. Chemical evolution was therefore one kind of natural selection, the same natural selection which is an essential part of Darwinism. Although the chemical process from simple molecules to complicated proteins and even cells is realized by all to be extremely complicated and therefore an improbable path for "unguided" molecules to follow, many chemists and other natural scientists claim that this path was indeed followed; after all, they reason, proteins and cells exist. For them the improbable nature of the non-life-to-life process is therefore irrelevant. As one would expect, ob-

"vanishingly small probability" of chemical evolution. But consider one response to the argument advanced by Julian Huxley, who maintained that given enough time, the improbable will occur. Huxley claimed that one hundred monkeys, typing randomly, would eventually produce all of Shakespeare and *The Encyclopedia Britannica*. Charles Townes, a Nobel Prize winner in physics, pointed out that Huxley's remark is not truly relevant. According to Townes, a simple calculation shows that *one billion* monkeys typing randomly and as fast as possible for the entire lifetime of the universe—perhaps 15 billion years—would probably not yet have produced even the correct sequence of letters in the title of *The Encyclopedia Britannica*.<sup>30</sup> Gordon Mills, a biochemist, is among those who maintain that the formation of biologically important molecules could not have occurred by chance.<sup>31</sup> Mills maintains that the situation is so complicated that we ought to agree with Bernard Ramm when he claimed that we would require an omnipotent wisdom to understand the

process of non-life to life.<sup>32</sup>

Many people hold that the probability of evolution across the gaps in the fossil record was also vanishingly small. Accordingly, they say, a creative intelligence was needed for both evolution across the gaps and chemical evolution. Darwinists give considerable attention to those who claim that chemical and across-the-gap evolution is mathematically improbable. For example, in a 1967 conference organized for the purpose of examining these questions, extremely great problems for evolutionists were acknowledged.<sup>33</sup>

This article is about non-negotiable matters; but, as I stated above, an intermediate conclusion concerning chemical evolution is necessary. This is that conclusion: according to present scientific understanding, the probability of chemical evolution is vanishingly small. I describe how this conclusion fits into the Christian answer to the chemical evolution problem, and how this answer in turn fits into the other questions raised in the origins debate in the next section.

### **An Analysis of the Origins Debate**

These are the four conclusions for the non-negotiable parts of the origins question: (1) the Bible is infallible and without error; (2) God created; (3) humanity is unique, not part of the animal world; and (4) the probability that life evolved from non-life by presently understood chemical reactions is vanishingly small. The fourth conclusion is, however, only an intermediate conclusion.

I suggest that Christians have the answer to the origins question. Their answer is not simply a set of platitudes. But if they put together ideas which they have always accepted and apply those ideas to the origins question, Christians who think that they have different views on origins may be able to see that they indeed think alike.

In accepting inerrancy and infallibility, Christians accept biblical ideas which would otherwise be incomprehensible. They believe that a donkey spoke because the Bible says so. For the same reason they believe that food fell

from heaven to feed the Israelites, that a stick turned into a snake, that a metal axehead floated, that several people arose from the grave, that water became wine, that sea water parted to enable the Israelites to pass over, that fire descended from heaven to burn a water-soaked offering on an altar, that certain persons received and others were healed of leprosy instantaneously, that certain persons accurately predicted the details of events several centuries in the future, that a man lived inside of a great fish, that a bush burned without being consumed, that a few loaves and fish turned into many bushels of bread and fish, that a man passed through a closed door, and that another man left a locked jail.

These are examples of incomprehensible acts of God which Christians accept because an inerrant, infallible Bible states that God did these things. Some of these acts seem to be creation-by-transformation; the stick turned into a snake and the appearance of a large amount of fish and bread are examples. Yet it does not seem to be important to know if creation from nothing or creation by transformation is involved. In fact, in the above list, the "creation" miracles are actually no more sensational than the other miracles, such as the speaking donkey or passage through a closed door.

Both recent and ancient creationists have been accused of believing a fairy tale because they believe that life was created.<sup>34</sup> The biblical descriptions of the miracles in the above list, none of which are in the first chapters of Genesis, would by the same criteria also be called fairy tales. But all the biblical miracles, whether from Genesis or any other part of the Bible, whether or not creation is involved, stand or fall together.

What, then, of the question of the evolution of life from non-life? God may have used previously-existing matter to fashion the first life.<sup>35</sup> But is it important to know if God used that method? Is it important to know whether he used previously-existing matter to create manna? Must we worry about whether the right conditions existed high above the earth to make the synthesis of a rain of manna "feasible"? A person might speak of the

vanishingly-small probability that chemical reactions occurred to transform inorganic matter into the first proteins; an equally correct approach is to speak of the miracle of synthesis of the first proteins from inorganic matter.<sup>36</sup>

In the same way, the mechanism whereby gaps in the fossil record were crossed (excluding the origin of human beings) is not important. I believe that the Bible teaches that there were separate creations; if that conclusion is correct, then the question is settled. There is, however, some legitimate question about that interpretation. Perhaps the Bible does allow for the possibility that God used some living things to create others. But just as the gap between inorganic matter and living cells is immense, so are the gaps in the fossil record.

The immensity of both kinds of gaps is something we learn using *present* scientific knowledge. Thus, it is *present* scientific knowledge which reveals to us that nothing less than a miracle was required for the creation of the simplest life and all created groups referred to in Genesis 1.

But what if new scientific results show that the transformation of inorganic matter to protein or the jumps across the gaps in the fossil record are not as difficult as presently thought? Nothing would change. To claim that our view should then change is to misunderstand the relation of the Creator to his creation. God's power makes possible all events, miraculous and non-miraculous alike. The miracles of the Bible are not magic, as if a god intrudes into creation. In fact, the Bible does not single out miracles; it presents every event as that which God controls. The miracles of the list given above could be part of a longer list, where the longer list would include statements such as, "God caused it to rain," "God caused the king to harden his heart," "God causes the sun to move across the sky," and "God takes care of the leviathan of the ocean."

The "intermediate conclusion" concerning the origin of life was this: there is a vanishingly small probability for the occurrence of any sequence of chemical reactions which natural scientists can presently formulate to account for chemical evolution. This conclusion now leads

us to the non-negotiable conclusion that God worked in a miraculous or mysterious way to create life.

I suggest that Christians have been divided over questions concerning the origin of life and the problem of crossing gaps in the fossil record because of a belief that "natural" phenomena are inherently different from "supernatural" phenomena. Those who postulate such an inherent difference seem to say—for example—that transformation of inorganic matter into proteins by chemical reactions is "natural," while creation of proteins using inorganic matter is "supernatural." I prefer to put it this way: (1) understanding transformation of inorganic matter into proteins in the primitive earth environment is so far beyond our present capability that, if we believed that it occurred, we would be forced to say that it was miraculous; (2) if eventually chemists are able to use known reactions to explain this transformation, the process was just as marvelous; (3) if there was no transformation and God created proteins *ex nihilo*, the process was just as marvelous. It does not help to identify any of these three possibilities as "natural" if it is thereby implied that the infinite power of God is less involved than it would be were the creation of proteins "supernatural."

Perhaps recent and ancient creationists can unite on this analysis of some of the questions concerning origins. The age of the universe is not relevant; both groups ought to agree that what happened was, according to our present knowledge, miraculous. Can recent and ancient creationists agree that their differences do not lie at the heart of the origins question? If they can, they can take the next step, that is, they can attempt to work with theistic Darwinists.

Theistic Darwinists usually believe the following: (1) proteins and other components of the simplest living things evolved by chemical reactions from inorganic matter; (2) starting with the simplest living things, all plants and animals evolved by natural selection; (3) human life evolved from animal life; and (4) God guided the entire process.

If the third belief (concerning human life) is omitted, are there not points of contact

between the position which recent and ancient creationists take and the position which theistic Darwinists accept? Do not all three groups actually take the same non-negotiable positions? The miraculous transformation from inorganic matter to proteins and other living matter along with the miraculous jump across the gaps in the fossil record (the position of recent and ancient creationists) and the guidance of God in processes far beyond our present comprehension (the position of theistic Darwinists) are identical. That is, they are identical if we do not attempt to claim God is more active in miracles than in processes he "merely" guides. Finally, if theistic Darwinists realize that regardless of what happened—either *creatio ex nihilo* or vanishingly improbable evolution across a gap—the important consideration is that God acted in a mysterious way.

When Christians unite on these matters, the next step is to confront unbelievers. In this case, atheistic Darwinists are the unbelievers. Unbelievers are to be confronted here in the same way they are to be confronted whenever the Christian message is presented. That is, Christians must help unbelievers realize that God is in control and that with him miracles are "natural." He removes human sin miraculously just as he creates miraculously. If the first chapters of Genesis are a stumbling block, so is the rest of the Bible. Working with unbelievers in love means that the grandeur of all that God did will be put before them. Anyone who refuses to acknowledge a God who acts in ways beyond human comprehension cannot know salvation. But such a person could have a change of heart when confronted with the magnificence of creation.

Can Christians also unite on the question of the origin of human life? I concluded above that human beings were created to bear the image of God; they are qualitatively different from animals. A human being is not an animal with an added-on soul; a human being is a body-soul. By no series of small changes can the body of an animal be transformed into a human being.

The Christian belief in the wholeness of the human person accounts for the Christian belief

that all of a person's life—that person's work, recreation, attitude toward others, attitude toward aesthetic matters, and attitude toward the institutions of society—must be focused on God. Most theistic Darwinists refuse to accept evolutionism because they reject the idea that evolution should be applied to everything pertaining to human beings—their work, recreation, and so forth. Theistic Darwinists generally admit that human beings are qualitatively different from animals. Therefore, they are very close to accepting the recent creationist-ancient creationist position I have outlined above.

I conclude for the four important parts of the origins debate that recent creationists, ancient creationists, and theistic Darwinists have a common position and that they can present a united front against atheistic Darwinism. The common position which I suggest is not a common-denominator position. But it is a position based on their undoubted Christian faith.

### The Consequence of Inaction

Where the origins debate goes should be of great concern to Christians. Three trends illustrate this point.

First, the acceptance of Darwinism as the basis of one's philosophy of life leads to certain peculiar ideas. The strange ideas of Pierre Teilhard de Chardin are an example.<sup>37</sup> According to Teilhard, a Roman Catholic priest who died in 1955, the human race continues to evolve; individuals merge to form a super-consciousness. His Christology is closely linked to his ideas on the evolution of the human race. Quite often followers of Teilhard seem to be pantheists. They provide an example of a wrong way to unify knowledge. According to the Teilhard school, nothing in the universe is exempt from radical transformation; and no longer is human evolution a drift. It is rather a conscious destiny.

Teilhard affected some Roman Catholics who seek to transform society by Marxist methods. Thus, J.L. Segundo, a Latin American Marxist, sees Christianity from a Teilhardian perspective. According to Segundo, Christ,



saves society through an evolutionary mechanism. Evidently Segundo de-emphasizes the salvation of individuals.<sup>38</sup>

Opposition to Teilhard has not been limited to Christians. Thus, in opposing Teilhard, H. James Bix maintains that theology cannot be incorporated into a world view.<sup>39</sup> According to Bix, Teilhard's attempts to synthesize science, philosophy, and theology is not possible; only materialistic naturalism can provide the basis for such a synthesis.

A second trend related to Darwinism should also be of concern to Christians. The denial of creation by God—a denial fostered by the acceptance of Darwinism—makes it possible for strange ideas to be considered seriously. Thus, some persons, in denying the Christian doctrine of creation, claim that certain modern physical concepts resemble ideas taken from Eastern religions. Not without reason has this linking of modern physics to Eastern religions been called "the new Baalism."<sup>40</sup> Others maintain that neither creation nor evolution provides the answer; rather, they say, the answer lies in a strange application of psychology to matter. Thus, W.R. Fix suggests the ancient idea that everything, from the most humble plants to stars, possesses some kind of spirit or intelligence.<sup>41</sup> Similar proposals have recently been made by many theologians and scientists.

These sad results would still be sad if the Christian community had done its work. But is it possible that the way Christians have handled the origins debate is partly responsible for the vacuum which is being filled by these devastating pantheistic ideas?

The third trend related to Darwinistic thinking which should be of concern to Christians is the growing acceptance of positivism. Melvin Calvin, who won the Nobel Prize in chemistry and who worked out biochemical processes supposed to be associated with chemical evolution, expresses his positivistic ideas clearly. He says that there is no longer a god to guide human beings; people are looking in different directions and have no guide; there is no ultimate right or final solution for the problems of humanity, for, after all, change is inherent in molecules.<sup>42</sup> Calvin is but one of many who

maintain that the idea of a god is useless and that problems can be solved through scientific activity. A report by the president of the Society for the Study of Evolution stated that evolutionary biology has (1) helped control pests, (2) improved our food supply, (3) improved public health, (4) curbed over-population, (5) preserved rare and endangered species, and (6) dispelled myths about the origin of the human race.<sup>43</sup> Michael Ruse gives no quarter to creationists in his positivistic defense of biological evolution. Isaac Asimov contrasts scientifically-based wonder with religiously-based superstition.<sup>44</sup> Much of the current discussion on the teaching of origins in public schools has been at fault. Thus, one reviewer pointed out that a book discussing the Arkansas case fosters an unrealistic separation of science and religion.<sup>45</sup> Similarly, Niles Eldredge emphasizes that religion and science are utterly different and that they are pursued for different reasons.<sup>46</sup> This position is dangerously close to that of the positivist.

Carl Sagan, perhaps the leading positivist of the latter part of the twentieth century, says that if we can find extra-terrestrial intelligence, we will usher in a millennium of knowledge, peace, and prosperity.<sup>46</sup> Sagan is right. A united Christian community can witness that we have already found that extra-terrestrial intelligence.

#### ENDNOTES

<sup>1</sup>Alan Hayward, *Creation and Evolution* (London: Triangle, 1985), p. 3.

<sup>2</sup>Aldert van der Ziel, "Modern Version of the Creation Account," *Journal of the American Scientific Affiliation*, 33 (1981), 171 (hereafter cited as *JASA*).

<sup>3</sup>William A. Schmeling, *Creation Versus Evolution? Not Really!* (St. Louis, MO: Clayton Publishing House, 1976).

<sup>4</sup>Richard H. Bube, "Creation (B) Understanding Creation and Evolution," *JASA*, 32 (1980), 174.

<sup>5</sup>David L. Willis, "Alternative Views of Evolution," *JASA*, 27 (1975), 2.

<sup>6</sup>Joel Block, "Origins and the Bible," *JASA*, 29 (1977), 64.

<sup>7</sup>Harold F. Roellig, rev. of *Creation and the Flood*, by David A. Young, *JASA*, 31 (1979), 122.

<sup>8</sup>Reid J. Turner, "Mythological Features and the Polemic Nature of Genesis 1:1-2:4a," *JASA*, 32 (1980), 52.

<sup>9</sup>Conrad Hyers, "The Narrative Form of Genesis 1: Cosmogenic, Yes; Scientific, No," *JASA*, 36 (1984), 208.

<sup>10</sup>Robert C. Newman, Letter, *JASA*, 37 (1985), 127; Russell W. Maatman, *The Bible, Natural Science, and Evolution* (Grand Rapids, MI: Reformed Fellowship, 1970; now published by Dordt College Press, Sioux Center, IA), p. 24.

<sup>11</sup>Daniel A. Tappeiner, "Creation: Pattern, God, and Man," *JASA*, 29 (1977), 58.

<sup>12</sup>Richard P. Aulie, "The Post-Darwinian Controversies," *JASA*, 34 (1982), 163.

<sup>13</sup>Thomas H. Leith, "Responses in Specific Fields: Uniformity of Nature," *JASA*, 31 (1979), 195; William Lane Craig, "Philosophical and Scientific Pointers to *Creatio ex Nihilo*," 32 (1980), 5. Gordon Brown, Letter, *JASA*, 32 (1980), 190; Russell W. Maatman, *The Unity in Creation* (Sioux Center, IA: Dordt College Press, 1978), p. 116.

<sup>14</sup>Owen Gingerich ("Responses in Specific Fields: Astronomy," *JASA*, 31 (1979), 193) discusses Robert Jastrow's views on this question as given in Jastrow's *God and the Astronomers*.

<sup>15</sup>Terry A. Ward, "The New Baalism: God and Physical Theories," *JASA*, 34 (1982), 34.

<sup>16</sup>Paul H. Seely, "Adam and Anthropology: A Proposed Solution," *JASA*, 22 (1970), 88.

<sup>17</sup>Hale Sparks, "The Protein Clock," *JASA*, 23 (1971), 123.

<sup>18</sup>E. K. Victor Pearce, "Proto-Neolithic Adam and Recent Anthropology," *JASA*, 23 (1971), 130; see also two other articles in the same issue discussing Pearce's views.

<sup>19</sup>Richard H. Bube, "Biblical Evolutionism?" *JASA*, 23 (1971), 140; see also three other articles in the same issue discussing Bube's views.

<sup>20</sup>Ervin Nemesszeghy and John Russell, *Theology of Evolution* (Notre Dame: Fides Publishers, 1971).

<sup>21</sup>Rolland D. McCune, Letter, *JASA*, 23 (1971), 26.

<sup>22</sup>Quoted by George J. Jennings in a rev. of *Evolution of Man*, ed. by Louise B. Young, *JASA*, 25 (1973), 117.

<sup>23</sup>Pattle P. T. Pun, "A Critical Evaluation of Evolution," *JASA*, 29 (1977), 84.

<sup>24</sup>John C. Gienapp, "Darwin and Contemporary Theological Reflection on the Nature of Man," *JASA*, 27 (1975), 12.

<sup>25</sup>H. Harold Hartzler, "The Relation Between the American Scientific Affiliation and the Creation Research Society," *JASA*, 35 (1983), 107.

<sup>26</sup>Dean H. Kenyon and Gary Steinman, *Biochemical Predestination* (New York: McGraw-Hill, 1969); Sidney W. Fox, Kaoru Harada, Gottfried Krampitz, and George Mueller, "Chemical Origin of Cells," *Chemical and Engineering News*, 48, No. 26 (1970), 80; Melvin Calvin, *Chemical Evolution* (New York: Oxford University Press, 1969); Jerry D. Albert, "A Biochemical View of Life," *JASA*, 29 (1977), 76.

<sup>27</sup>Berj M. Manoushagian, Letter, *JASA*, 28 (1976), 144; Maatman, *Natural Science*, p. 123.

<sup>28</sup>Robert L. Herrmann, "Implications of Molecular Biology for Creation and Evolution," *JASA*, 27 (1975), 156; see also van der Ziel, "Modern Version," and Albert, "Biochemical View."

<sup>29</sup>Some persons, including Christians, say that instead of

concluding that chemical evolution did not occur, we should wait for further developments. See, for example, J. W. Haas, Jr., "Biogenesis: Paradigm and Presupposition," *JASA*, 27 (1975), 152.

<sup>30</sup>Charles H. Townes, "How and Why Did It All Begin?" *JASA*, 24 (1972), 1.

<sup>31</sup>Gordon C. Mills, "Hemoglobin Structure and the Biogenesis of Proteins. Part I. Relation of Structure to Function for Mutant Hemoglobins," *JASA*, 27 (1975), 33; "Part II. Significance of Protein Structure to the Biogenesis of Life," 27 (1975), 79; "Responses in Specific Fields: Chemical Evolution," 31 (1979), 193.

<sup>32</sup>Bernard Ramm, *The Christian View of Science and Scripture* (Grand Rapids, MI: Eerdmans, 1954).

<sup>33</sup>Paul S. Moorhead and Martin W. Kaplan (eds.), *Mathematical Challenges to the Neo-Darwinian Interpretation of Evolution* (Philadelphia, PA: The Wistar Institute Press, 1967).

<sup>34</sup>Norman Macbeth, *Darwin Retried: An Appeal to Reason* (Boston, MA: Gambit, 1971).

<sup>35</sup>One who accepts biblical inerrancy and infallibility must be particularly careful not to add to the text. To insist that inorganic matter was not a precursor of life seems to be adding to the text of Genesis 1; whether there was such a precursor is probably an open question.

<sup>36</sup>Modern physical calculations show that there is a vanishingly-small probability—in fact, a ridiculously small probability—that certain events ordinarily considered impossible can in fact occur. Thus, a heavy object can "fall" up instead of down; an axehead *could* float. No sensible Christian will maintain that therefore modern scientific results prove miracles could have occurred. Modern scientists do not believe that scientific calculations indicate we will see an axehead float. A suitable position for Christian scientists is to maintain that an event of extreme improbability, whether it is the floating of an axehead or the transformation of inorganic matter into proteins, is equivalent to or the same as a miracle.

<sup>37</sup>John N. Deely and Raymond J. Nogar, *The Problem of Evolution: A Study of the Philosophical Repercussions of Evolutionary Science* (New York: Appleton-Century-Crofts, 1973); Thomas M. King and James F. Salmon, *Teilhard and the Unity of Knowledge* (Ramsey, NJ: Paulist Press, 1983); see also Nemesszeghy and Russell, *Evolution*.

<sup>38</sup>Juan Luis Segundo, *Evolution and Guilt* (Maryknoll, NY: Orbis Books, 1974).

<sup>39</sup>H. James Birx, *Pierre Teilhard De Chardin's Philosophy of Evolution* (Springfield, IL: Charles C. Thomas, 1972).

<sup>40</sup>See Ward, "New Baalism."

<sup>41</sup>William R. Fix, *The Bore Peddlers: Selling Evolution* (New York: Macmillan Publishing, 1984).

<sup>42</sup>See Calvin, *Chemical Evolution*.

<sup>43</sup>Reported by J. W. Haas, Jr., *JASA*, 25 (1973), 70.

<sup>44</sup>The ideas of Ruse, Asimov, and others are discussed by Paul Fayter, "Scientific Creationism and Its Critics," *JASA*, 37 (1985), 104.

<sup>45</sup>Stanley J. Grenz, rev. of *Science and Creationism*, ed. by Ashley Montagu, *JASA*, 37 (1985), 59.

<sup>46</sup>Fayter, "Scientific Creationism."