

SOME CONTEMPORARY PROBLEMS WITH THE DOCTRINE OF CREATION

for
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Systematic Theology Overview

by
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INTRODUCTION

What thinking person has not asked, "How did the universe originate," or "how did life arise or mankind come into existence?" A person's answers to these profound questions are the foundation from which he interprets the cosmos and his purpose in it. For as the Russian biochemist A.I. Oparin once wrote, "One can only understand the essence of things when one knows their origin and development".¹ Rather than being of mere theoretical concern, then, these answers largely shape a person's response to his own existence, which is reflected in his everyday decisions and actions.

In the West, the predominant answers to these questions exclude or ignore any reality that transcends the material world and conclude that all forms of life are the accidental product of an evolutionary process. Pertaining to the former, Carl Sagan has said, "The cosmos is all there is, there was, or ever will be."² Pertaining to the latter, Bertrand Russell said:

"That man is the product of causes which had no prevision of the end they were achieving; that his origin, his growth, his hopes and fears, his loves and beliefs are but the outcome of accidental collocations of atoms...if not quite beyond dispute, are just so nearly certain, that no philosophy which rejects them can hope to stand."³

Those within scientific professions such as myself are regularly confronted with this system of thought. During the first two years of my medical school education, practically a day did not go by without one of my instructors or colleagues alluding to the "fact of evolution". Rarely was evidence provided for these allusions; it was simply assumed that any educated man today would share these same beliefs.

When immersed in this environment, it is difficult to affirm with much enthusiasm the majesty of God or the dignity of man because one senses a disunity

1. Cited from Life, Its Nature Origin and Development (New York: Academic, 1964) p.37 by Wysong, R.L., The Creation-Evolution Controversy (Midland, MI: Inquiry Press, 1976) p.2.

2. Cited from Cosmos by Hyers, C.M., The Meaning of Creation: Genesis and Modern Science (Atlanta: John Knox Press, 1984) p.10.

3. Russell, B., Why I Am Not A Christian (New York: Simon and Schuster, 1957) p.107.

between science and Scripture. But the "God of truth is the author of both"; so that truth is to be embraced from whatever source it comes.⁴ It is imperative therefore that one who is as fortunate as I to have both scientific and theological training to circumscribe the realities revealed by both concerning the subject of origins. Scientific certainties must be separated from scientific speculation, while a faithful exegesis must be performed of the relevant biblical texts and particularly of the opening chapters of Genesis. At all times we must be willing to admit when certain knowledge has not been or even cannot be provided by either science or Scripture, for neither alone nor both together can elucidate the complete truth about the history of the cosmos. With these goals and stipulations in mind, this paper will be organized as follows: first, a cursory summary of the current scientific knowledge concerning origins, then a discussion of the various exegetical theories of the pertinent texts in Genesis 1-3 followed by an analysis of each, and finally a synthesis of the two, harmonizing the two where possible and noting any areas of disagreement.

REVIEW OF SCIENTIFIC KNOWLEDGE CONCERNING ORIGINS

Developing a completely accurate analysis of the current status of scientific thought on the question of origins requires expertise in many disciplines including geology, paleontology, astrophysics, biology, biochemistry, molecular biology, physical chemistry, and others. Obviously, to be an expert through formal training and continual review of current literature in each field is beyond the capabilities of any man. However, anyone with a general science background, and as for me undergraduate and graduate scientific training, can review the thoughts of experts and can come up with perhaps a reasonably accurate analysis of the current situation. The areas that will be discussed in this section include: the origin and

4. Green, M., World on the Run (Leicester, England: IVP, 1983) p.80.

age of the universe, the age of the earth, the origin of life from inorganic molecules, the evolutionary hypothesis, and the origin of man.

THE ORIGIN AND AGE OF THE UNIVERSE

Over the past several decades man has developed techniques that have enabled him to estimate with considerable certainty a range of time during which the universe began. Scientists have been able to estimate the distances to various stars and galaxies from the data obtained through modern telescopes. It is known, for example that the Milky Way Galaxy itself is about 100,000 light years in diameter. The nearest galaxy is over 150,000 light years from our own, and there are millions that we know of that are even thousands of millions of light years away. Furthermore, it is known by using the principles of the Doppler shift that these galaxies are moving away from us at great speeds and that the universe seems to be expanding away from a single point. These speeds are proportional to the distances of the galaxies from us. The age of the universe then is at least the time that it has taken the furthest galaxies at their current speeds to reach their current separations. Knowing both these distances and speeds, we have been able to estimate the age of the universe to be between 10 and 20 billion years old. The discovery by two employees of Bell laboratories of the ubiquity of background microwave radiation in space has provided evidence that the universe started from an intense explosion. The theory of the event or explosion that started the whole expansion has been popularly called the Big Bang Theory, although within the last several years it has been modified to the New Inflationary Theory to resolve some of its unanswered questions.

"A small impenetrable interval of time, called a 'Planck time,' separated us from mathematically seeing the true beginning. Thus, we could never hope to know how the universe came into being. We could never see back to the true beginning. But the New Inflationary Theory frees us from this limitation and gives us a picture of the universe from the moment it unfolded. Were we to condense its implications into one sentence, it would be this: The universe seems to have come into existence out of nothing."⁵

From the result of their own rigorous mathematical analyses, scientists today seem to be confronted with what might seem intuitively obvious to the layman: that the universe had a beginning and that nothing existed before it. (Granted this conclusion is subject to change with time, but we can only comment on what science is saying at present). However, there is no source yet found within the cosmos that can account for its existence. Bertrand Russell (who was not himself a scientist) saw no problem with this dilemma and felt it reasonable to attribute existence to matter itself.⁶ Yet matter, according to the First Law of Thermodynamics which is considered to be one of the citadels of science, is not a sufficient cause in and of itself to account for its existence. In fact, at present we don't know of anything resident within the cosmos that can account for the existence of either matter, energy, the natural forces (gravity, electrical, nuclear, and intranuclear), or time. Certainly, Christians have been rightly accused of invoking "God-of-the-Gaps" hypotheses whenever confronted with something that at the time defied any natural explanation. However, unless empirical evidence can be brought forth to refute the First Law, we will have to live with its implication, which is that man cannot explain the phenomenon of existence. In short, although we know the age of the universe with some certainty, we do not know (and I believe cannot know) using scientific methodology what existed before the origin of the cosmos or how the cosmos came to exist.

5. Grange, R., Origins and Destiny (Waco, TX: Word Books, 1986) p.19.

6. Ibid., Russell, p.116.

THE AGE OF THE EARTH

From the knowledge of the age of the universe, we can set at least the upper limits for the age of the earth. The discovery of radioactivity at the turn of the century has enabled us to estimate this age with some certainty. Knowing the half-life of a radioactive isotope such as uranium, one can estimate the age of rocks knowing their composition in terms of their daughter elements given the following "reasonable" assumptions: 1. that neither the isotope nor the daughter elements have been added or subtracted from the rocks and 2. that the rocks started out with none of the daughter elements. To be sure these are major assumptions and some would argue that they are unrealistic, but most scientists even after recognizing these problems will admit that reasonably good estimates nevertheless can be obtained. There have been methods to estimate the influx and efflux of various elements to improve the estimates, but these also depend on "reasonable" assumptions.

Nevertheless, there are other ways of estimating the age of the earth besides radioactive dating.

"We can now directly measure the motions of the continents. Laser satellite experiments show that North America and Europe are separating at about two centimeters per year. But the evidence is convincing that they were once in contact. To separate to the twenty-five-hundred mile breach across the Atlantic at only two centimeters per year ...has taken approximately 200 million years."⁷

According to plate tectonics, the earth is at least several hundred million years old. Assuming that the sun was originally 100 percent hydrogen and given the present ratio of hydrogen to helium and the current conversion rate of the former to the latter, it has been determined that the age of the sun is about 5 billion years old. If the earth was derived from the sun (as most scientists believe), then it is also probably close to it in age. So then it seems that nature is telling us that the earth is old indeed - much older than the figure of 4004 B.C. calculated from Scripture by Archbishop Ussher in 1650.

7. Godfrey, L.G., Scientists Confront Creationism (New York: Norton, 1983) p.36.

THE ORIGIN OF LIFE FROM INORGANIC MOLECULES

Many who subscribe to the theory of evolution would maintain that the evidences for an old earth and the existence of the fossil record (to be discussed later) is proof enough that life evolved from inorganic (non-living) matter. After all, here we are today very much alive and the earth started an almost unimaginable length of time ago. Furthermore, the earth itself has provided the evidence of the connection between the two in the fossil record. In other words, the generation of life from inorganic molecules (chemical evolution or abiogenesis) must have occurred to bridge this gap. As sound as this argument seems on the surface and as sure that scientists are that evolution is a fact, there exists little hard evidence to substantiate it. Indeed, even its theoretical underpinnings are tenuous. The evolutionist would maintain that the age of the earth as currently estimated has allowed sufficient time for random chemical mutations followed by natural selection to bring about the macromolecules and even the biological cells upon which life depends. (Actually, it should be mentioned that this is somewhat misleading since most scientists believe that conditions favorable for this process lasted not billions of years but several hundred million years). Even this time span seems so monstrous that many are tempted to believe that practically anything is bound to occur. Nobel Prize biochemist George Wald said:

"Since the origin of life belongs in the category of at-least-once phenomenon, time is on its side. However improbable we regard this event, ... given enough time it will almost certainly happen at least once ... Time is in fact the hero of the plot ... Given so much time, the 'impossible' becomes possible, the possible probable, and the probable virtually certain. One has only to wait: time itself performs the miracles."⁸

8. Cited from "The Origin of Life" in The Physics and Chemistry of Life (New York: Simon & Schuster, 1955), p.12. by Morris, R.N., Scientific Creationism (San Diego: Creation Life Publishers, 1974) p.66.

But closer investigation of the probabilities of such a process occurring given our current understanding of physical and chemical laws renders it for all practical purposes impossible.

Not until the early 1950's when Francis Crick and James Watson discovered the structure of DNA, the macromolecule carrying the hereditary information present in chromosomes, did we begin to have the tools with which to carry on the investigation of abiogenesis. At about the same time, Stanley Miller presented evidence for the formation of organic molecules from a solution of inorganic molecules with the addition of various forms of energy. It seemed then that scientists inevitably would discover the mechanisms linking these basic building blocks of life to the formation of macromolecules such as DNA. However, by the mid-60's it was becoming evident that there were some real problems in forming this link. The Wistar Institute in Philadelphia, with the aid of high-speed computers with the ability to simulate the billion-of-years' process of Darwinian evolution, "showed that the complexity of the biochemical world could not have originated by chance even within a time span of ten billion years."⁹ A few years later the Nobel Prize thermodynamicist, Ilya Prigogine, said:

"The probability that at ordinary temperatures a macroscopic number of molecules is assembled to give rise to the highly ordered structures and to the coordinated functions characterizing living organisms is vanishingly small. The idea of spontaneous genesis of life in its present form is therefore highly improbable even on the scale of the billions of years during which prebiotic evolution occurred."¹⁰

In the early 70's when it became apparent that external forces alone (i.e. chance over time) could not be responsible for the process of chemical evolution, some scientists began to look inside the molecule and to hypothesize that life was somehow the result of the properties inherent within matter itself. D. H. Kenyon coined the term "biological predestination" for this hypothesis.

9. Cited from Murray Eden, "Heresy in the Halls of Biology" (*Scientific Research*, Nov. 1967) p.59 by Thaxton, C.B. et al., *The Mystery of Life's Origins: Reassessing Current Theories* (New York: Philosophical Library, 1984) p.3.

10. Ibid., Thaxton, p.4.

"What the theory of Biochemical Predestination would tell us...is that the choices that would be made, i.e., the limits beyond which evolutionary processes could not stray, would be determined largely by properties inherent in the evolving bodies..."¹¹

However, it was soon realized that if the bonding properties themselves determined the actual structure of DNA, there would be no information contained by the molecule; instead, there would only be redundancy.

It seemed then there had to be a fundamental overhall of the Second Law of Thermodynamics if any tenable theory of chemical evolution could be developed. In the mid 70's, Prigogine provided in his theory of non-equilibrium thermodynamics what many since have embraced as being this fundamental change. In his book Self Organization in Nonequilibrium Systems¹², Prigogine theorizes that some systems exhibit two distinct types of behavior. In the area of thermodynamic equilibrium entropy is maximized: that is, the system tends to its most disordered state. However, he contends that when the same systems are driven sufficiently far from equilibrium by large gradients of temperature, pressure, or chemical concentrations, ordering may occur spontaneously. Prigogine and others have suggested that this type of self-organization may be intrinsic to organic chemicals and thus can potentially explain the development of the highly complex macromolecules (such as proteins and DNA) on which living systems depend. Many biochemists and molecular evolutionists who have investigated his very complicated mathematical analysis conclude that Prigogine's theory provides a viable, perfectly natural mechanism for self organization, perhaps even for abiogenesis. Although there has been experimental support within physical systems (e.g. heat flow by convection), there doesn't appear to be any experimental support as yet within biochemical systems.¹³

11. Wilder-Smith, A.B., The Creation of Life (San Diego: Marker Books, 1981) p.121.

12. Prigogine, I. and G. Nicolis, Self Organization in Non-Equilibrium Systems (New York: Wiley, 1977).

13. Ibid., Thaxton, pp.153,154.

In 1984, one of the most valuable (if not the most valuable) Christian contribution to date on this subject was published. The Mystery of Life's Origin: Reassessing Current Theories by Thaxton, Bradley, and Olsen claims that "modern chemical evolution theories of the origin of life are in a state of crisis."¹⁴ (It is interesting to note that the foreword of this book is written by D.H. Kenyon who introduced the biological predestination hypothesis). Using classical thermodynamics and the more recently developed information theories, it shows that the development by chance alone of even the small macromolecules characteristic of life (e.g., small proteins), taking into consideration not only the information within the sequence but also the specific bonding patterns and spatial orientation as well, is for all practical purposes nil. The probability of this happening has been calculated to be on the order of ten raised to the power of several hundred, which has no corresponding physical analogy in the universe.¹⁵ For sure many of the building blocks (technically called biomonomers) of these macromolecules have been synthesized since Stanley Miller's first experiment in 1953 (19 of the 20 essential human amino acids, all five heterocyclic bases found in nucleic acids, and several essential sugars including glucose, ribose, and deoxyribose). But the formation of these biomonomers is favored thermodynamically and informationally while the formation of the complex macromolecules on which life rides is not. Even these theoretically predicted experimental successes are called into question because the investigator has played an illegitimate role. One source is quoted as saying, "These experiments...claim abiotic synthesis for what has in fact been produced and designed by highly intelligent and very much biotic man."¹⁶

As for Prigogine's new theory, on which much of the current scientific world has its faith as the theoretical underpinnings of the mechanism for chemical

14. Ibid., p.9.

15. Ibid., pp.113-139.

16. Cited from J.Brooks and G.Shaw Origin and Development of Living Systems (New York: Academic Press, 1973) p.212 by Thaxton p.110.

evolution, the authors of this book contend that the order obtained in the physical world is not the same type of order seen in the biological world. Order as seen in crystals is not the same type of order as seen in the genetic code. The latter has complexity requiring an information source.¹⁷ They present other arguments showing the theory's inapplicability to living systems and note the lack of empirical data supporting it.¹⁸ The problem, in summary, is that nature by itself does not have the information necessary for the development of the highly complex, aperiodic biological macromolecules necessary for life, much less the infinitely more complex living cell. These kinds of organization simply cannot arise out of random interactions encountered in inanimate matter.

THE EVOLUTIONARY HYPOTHESIS

The next topic is a discussion of the evidences in the past and the present that support whether evolution has taken place subsequent to abiogenesis. The main areas of focus are the fossil record, similarities in biological macromolecules (nucleotides and proteins), and the evidences of microevolution among bacteria and viruses today. The evolutionary hypothesis postulates that since the time chemical evolution left off (i.e., when a functioning living cell came into existence), life has progressively increased in complexity because of accumulations of small mutations in the genetic code coupled with natural selection of the expressions of the favored codes. Creationists argue that the term "natural selection" is a tautology, reasoning that "those who survive the struggle for existence are the fittest because the fittest are the ones who survive."¹⁹ However, there is legitimate linear reasoning here because it is the environment that changes over time and directs adaptations in life forms. So, the mechanism proposed by Darwin is

17. Ibid., Thax

18. Ibid., p

19. Ibid.,

certainly a logical one. Furthermore, the geologic strata indeed shows the evidence of extinct organisms, both plant and animal, in the form of fossils. And by and large there is a progression in the complexity of these organisms the closer the strata is to the surface of the earth²⁰ (strata are formed from the deposition of earth over time through erosion of elevated surfaces). However, the majority of strata are either devoid of fossils or contain relatively few of them.²¹ In fact, only about a quarter of a million plant and animal species have been found thus far compared with the excess of two million that are known to exist today.²² In other words, the vast majority of species that must have existed in the past if evolution is to be true were either not fossilized (preserved) or have yet to be found. Another alternative is that they simply did not exist.

"As we have examined the major groups of invertebrates, vertebrates, and plants, we have not been able to find transitional forms between higher levels of classification. 'Nearly all categories above the level of families appear in the record suddenly and are not led up to by known, gradual, completely continuous transitional sequences.' And so we find that 'gaps among known orders, classes, and phyla are systematic and almost always large.'"²³

Two things must be recognized in this whole argument. First, the conditions favorable for fossilization are rare. Therefore, if intermediate organisms did exist at one time, it is highly unlikely that their fossils have been preserved. Second, with the dearth of fossils compared to the number of species that exist today and have been postulated to have existed, it is practically impossible to determine what is and is not a transitional species. And it is certainly impossible to distinguish morphological changes within a species itself (microevolution) from a change of one species to another (macroevolution). Therefore, because the fossil record is so incomplete, it is impossible to distinguish what represents microevolution and what constitutes macroevolution for it is ambiguous where the

20. Ibid., Grange, pp.90-91.

21. Young, D.A., Christianity and the Age of the Earth (Grand Rapids: Zondervan, 1961).

22. Ibid., Godfrey, p.150.

23. Anderson, J.K. and H.F. Coffin, Fossils in Focus (Grand Rapids: Zondervan,

former leaves off and the latter begins. It has been called an artifact of our taxonomic or classification system. "The impossibility of officially recognizing transitional forms produces an artificial dichotomy between biologic groups."²⁴

Nevertheless, this absence of fossil intermediates between major groupings of organisms has prompted some scientists such as Harvard geologist Stephen J. Gould to propose modifications of the evolutionary hypothesis. According to him, evolution has proceeded in fits and starts when there has been rapid environmental change followed by relatively long periods of stasis when the environment has been quiescent. Rapid environmental change, he contends, has forced macroevolution on the living world in such brief eplosodes~~as~~ not to be recorded in the geological strata.²⁵

When we talk of the existence of transitional species today, we encounter the same problems. There have been in fact undisputed evidences of microevolution. The change of the color of a particular moth in England in the last century in response to the change in the color of trees due to soot deposition is a classic example. The lighter moths began to be replaced with darker moths with each succeeding generation because the lighter moths, which were more prominent on the dark trees, were more apt to be picked off by birds.

Bacteria and viruses are known to change rapidly today, much to the consternation of the medical profession. The influenza virus which "outwits" our vaccination efforts to a varying extent each year has been shown to change at the genetic level. These changes account for our inability to develop vaccines that can adequately protect susceptible victims in society. Likewise, some viruses (called bacteriophages) are able to infect bacteria and by mutating confer resistance to various antibiotics. One patient of mine died because a particular bacterium became progressively resistant to more and more antibiotics until there was none left in

24. Ibid., Godfrey, p.157.

25. Ibid., pp.204-210.

the Western armamentarium to combat it. Although it was never demonstrated that the moths ever had a genetic change (in fact they could probably interbreed with the white moths), it has been shown that the differences in the bacteria and viruses in succeeding generations can be accounted for genetically.

No such change to my knowledge has been demonstrated for plants and animals. In fact, no natural transition is evident today (plants of course are being changed genetically by man) among these higher (eukaryotic) organisms. There is no evidence of such organisms being so closely related to one another they could legitimately be considered "in process." Admittedly, this might require either huge time spans to become apparent or intensive environmental change that does not seem to be present today. But for whatever reason, it has not been observed to be taking place today among these organisms. But evolutionists would say that the change in bacteria and the change seen in the moths which represent microevolution can be extrapolated over vast time spans to demonstrate macroevolution among eukaryotic organisms. Maybe so. But there is no currently available empirical evidence to support this extrapolation.

Another bit of evidence that evolutionists bring forth is that similarities in outward appearance among organisms correspond to the similarities in the structure of biological macromolecules. It has been shown that there is an orderly progression among some proteins such as hemoglobin, cytochrome c, and histones, that correspond to the supposed orderly progression of outward physical traits.²⁶ Much of what we know about DNA among various species follows this correspondence. But this is not always the case. For example, the insulin of both the rattlesnake and chicken are much closer to human insulin than that of a guinea pig, which, as a mammal, is supposedly closer to us evolutionarily than either reptiles or birds.²⁷ Furthermore, there is just not enough information at present on DNA sequencing on

26. Ibid., pp.117-139.

27. Frair, W. and P. Davis, A Case for Creation (Chicago: Moody Press, 1983) p.51

any species to make any statement with certainty (although for sure at the rate that knowledge is progressing there will be within the next few decades if not by the end of the century the decoding of the three billion molecules of the entire human genome).²⁸ The decisive data for proving an evolutionary relationship among all organisms is the record of the relationship among their genetic codes. This in all likelihood will not be available in the foreseeable future, if ever.

Because of all the problems in the definition of and lack of obvious evidences of transitional species past and present, speculation is rampant in both camps. The bridging of the gaps then becomes a matter of metaphysical presupposition. Those who a priori exclude the supernatural will instinctively see the connection between these gaps.

"As paleontologist D.M.S. Watson has stated, the theory of evolution is accepted 'not because it can be proved by logically coherent evidence to be true but because the only alternative, special creation, is clearly incredible.'"²⁹

On the other hand, the creationist's disposition is not to see any connections until a continuous progression can be clearly demonstrated. Even then he would simply attribute similar structure to similar function. The evolutionists are really in the position of a prosecuting lawyer. They are the ones who have to go to all the effort and expense of literally digging up all of the facts - facts that might have been irrevocably lost in antiquity. And the creationist is not likely to be of much help. Here the honest person will step back and say simply that we do not have the facts at present to make any definite statement one way or the other.

THE ORIGIN OF MAN

Lastly, we come to the origin of man. Again, the fossil record is incomplete in tracing his evolution from a hominoid form. Human-like groupings range from Cro-

28. McKie, R., "Scheme to Privatise Science's Holy Grail" (London Observer, October 11, 1987).

29. Cited from "Adaptation" (Nature 124, 1929) p.233 by Anderson, p.80.

Magnon (50,000 years ago) to Zinjanthropus (1,750,000). The evidence of their existence are complete skulls, skull fragments, and skeletal parts.³⁰ Error is inevitably introduced in attempts to reconstruct the original forms from their parts. Although there are variations in these from man today, there is not enough in most of these to warrant classifying them as anything other than man. Even a scientist from the evolutionary camp admits, "the differences between *Homo sapiens* and some fossil hominoids are uncomfortably small in comparison with variation among present-day human populations."³¹ The discovery that perhaps has the greatest chance of being classified as an intermediate between ape and man is the genus *Australopithecus*. The general impression is that the skull resembles more an apelike form than a manlike form. Yet the teeth bear far more resemblance to those of man than to those of apes. Tools have been discovered at the sites where the bones of this animal have been found, further suggesting that these creatures were similar to man.

One of the main problems in this whole investigation is an inconsistency in what scientists mean by human. Was it that we had an erect spinal structure, or a certain pelvic bone structure, or that we were able to make tools or draw in caves?.

"In that regard the role of investigators and their presuppositions are crucial... Much is at stake for our lifestyle and destiny. Here the relationship between the knower and knowledge is particularly intimate; an investigator's view of what is human cannot help but affect his or her conclusions about when human life began."³²

Even the experts disagree as to our evolutionary relationship with apes. Some think we are derived directly from them while others believe that ape and man are related by a common ancestor. That we have any historical relationship with the ape is not known for certain. Perhaps in the future the elucidation of each's genetic code will shed further light on it. Yet the paucity of current data and the different

30. Ibid., Godfrey, p.169.

31. Ibid., Godfrey, p.169.

32. Hummel, C.E., The Galileo Connection (Downers Grove, IL: IVP, 1986) p.249.

definitions of man has caused such disagreement among the experts that the only statement that can be made with certainty at this time about man's origin is that we don't know for certain.

REVIEW OF VARIOUS EXEGETICAL THEORIES OF ORIGINS

Unfortunately, there is almost as much disagreement among the Christians exegeting the doctrine of Creation as there is between creationists and secular evolutionists about scientific explanations of origins. These differences in exegetical theories can roughly be divided into four categories: the literal, concordant, mythical, and the historical-literary interpretations. Their differences can be accounted for primarily by the conclusion each makes about the literary form of the early chapters of Genesis.

The literalist interprets the early chapters of Genesis as pure narration.

"The events of these chapters are recorded in simple narrative form, as though the writer or writers fully intended to record a series of straightforward historical facts; there is certainly no internal or exegetical reason for taking them in any other way."³³

Exodus 20:8-11 which says, "Remember the Sabbath day, to keep it holy...For in six days the Lord made the heavens and the earth...and rested on the seventh day" is one of the primary texts used to support a literal interpretation for these early chapters of Genesis.³⁴ It is argued that the Hebrew word *yom* when referring to the six creation days is to be interpreted as a literal "day". Even though *yom* can mean a very long period of time, a literal usage is argued for in Genesis not only because it is the usual meaning but also because each day is modified by a numerical adjective and each day is bounded by the phrase "evening and morning." For each of the 200 times in the Old Testament that a numerical adjective is attached to "day", the meaning is always that of a literal day. Likewise, the words "evening and

33. Ibid., Morris, p.244.

34. All Scripture references are from the NASB unless otherwise noted.

morning" always signify the beginning and end of a literal day.³⁵ Given this quantity of evidence supporting the literal rendering of yom, therefore, one must provide very compelling reasons indeed to insist on another interpretation.

Because he sees the opening chapters as pure narrative, the literalist holds that they are to be understood as strict history. Not only are Adam and Eve historical, but the serpent, tree of life, tree of the knowledge of good and evil, as well as the creation of Eve from Adam's rib are viewed as strict history also. To demonstrate the historicity of Adam and Eve from the Old Testament, he points to Abraham being the culmination of the genealogy of Shem in Genesis 11. It would be impossible to allegorize it and still maintain that Abraham was Israel's founder and Jesus' ancestor. In the New Testament, Jesus Himself referred to the first two chapters of Genesis in expounding His doctrine of marriage (Mt 19:3-6; Mk 10:2-9; with Gn 1:27; 2:24). He even referred to Abel, Adam and Eve's second son, as the first martyr and prophet (Mt 23:35; Luke 11:51). Further, the genealogy in Luke 3 traces Jesus' ancestry back to Adam. If Adam had been only a mythical figure, then Paul was wrong in describing him as a "type of Him who is to come" (Rom 5:14). Indeed, if Adam had not been historical, then Jesus died needlessly, because sin did not historically enter the world. The literalist would claim, therefore, that one can not logically affirm the validity of Jesus' and the Apostles' teachings as recorded in the New Testament documents and deny the historicity of the opening chapters of Genesis.³⁶

Some within the literalist camp consider these chapters (and indeed many other biblical texts) to be not only historically accurate but scientifically correct as well. Probably the most representative and certainly the most renowned group holding this view is the Institute for Creation Research. Their doctrinal statement reads:

35. Ibid., Morris, p.224.

36. Ibid., pp.245,246.

"The Bible is...historically and scientifically true in the original autographs. To the student of nature this means that the account of origins of Genesis is a factual presentation of simple historical truths."³⁷

In one of its publications, director Henry Morris not only refutes many of secular theories concerning origins but establishes a whole new way of interpreting natural science from biblical revelation, which he calls "the creation model." He contends that this model fits the basic facts of science today better than the so-called evolutionary model.

"...the creation chapters of Genesis are marvelous and accurate accounts of the actual events of the primeval history of the universe. They give data and information far beyond those that science can determine, and at the same time provide an intellectually satisfying framework within which to interpret the facts which science can determine."³⁸

He further claims that the universe and the earth are not billions of years old but rather only thousands or tens of thousands of years old. When confronted with the fact that the distance of the stars and galaxies as determined by modern telescopes argue for a much older universe, Morris counters by saying that the universe was created with the "appearance of age."

"As a matter of fact, it is possible that these light-waves traversing space from the heavenly bodies to the earth were energized even before the heavenly bodies themselves in order to provide the light for the first three days."³⁹

He goes on to argue that the Second Law of Thermodynamics was introduced at the fall. Using Romans 8:21, he says that the "universal 'bondage of decay' can be nothing less than the universal principle which scientists have finally formalized as their Second Law of Thermodynamics."⁴⁰ In addition, God's rest described in Genesis 2:1-3 together with His subsequent sustaining of the universe as described in Nehemiah 9:6 "must constitute the universal principle now known as the First Law

37. Hartzler, H.H., "The Relationship Between the American Scientific Affiliation and the Creation Research Society" (*Journal of the American Scientific Affiliation*, June 1983) p.107, (italics mine).

38. Ibid., Morris, p.203, (italics his).

39. Ibid., p.210, (italics his).

40. Ibid., pp.212,213.

of Thermodynamics."⁴¹ He then lists seven places in which the First Law is supposedly alluded to and eight places where the Second Law is mentioned. He argues further that the creation of "kinds" as described in Genesis 1 precludes the possibility of an evolutionary continuity between all forms of life.⁴²

The concordist would agree with the literalist that the opening chapters of Genesis are written with a narrative style and that the events of these chapters are historical. In addition, like the literalist, the concordist believes that Scripture and science are easily harmonized. However, he would differ with him as to the interpretation of the word *yom*. The concordist would claim that despite the overwhelming instances in which *yom* means a literal day, it should be interpreted in Genesis 1 as meaning an indefinite length of time. The creation week then is interpreted as seven figurative days in chronological sequence, each representing a literal geological age during which God was working. Psalm 90:4 which says, "For a thousand years in Thy sight / Are like yesterday when it passes by," is one of the texts used as evidence that *yom* can sometimes mean a considerable amount of time. More compelling is that the colophon in Genesis 2:4 which reads, "This is the account of the heavens and the earth when they were created, in the day that the LORD God made earth and heaven," *yom* is most often translated as "at the time" or "when". In the RSV, "account" is rendered "generations", which precludes a literal understanding of *yom* when used later in the verse.

As further support, D.A. Young, a geologist and the son of the renowned Old Testament scholar E.J. Young, notes several scriptural passages which indicate that the seventh day of creation continues until the present. If this is true, he concludes, then the other days of creation must be of indeterminate length as well. Unlike the first six days, the seventh is not accompanied by the statement "and there was evening and there was morning". This implies that the seventh day has not

41. Ibid.

42. Ibid., p.247.

yet ended. Further evidence is provided by Jesus Himself. When He is accused of breaking the Sabbath by performing an act of healing on that day, he responds, "My Father is working until now, and I Myself am working" (Jn 5:17). It is obvious, then, that God's definition of resting involves creative activity including healing, acts of mercy, and indeed sustaining the universe itself. Hebrews 4:1-10 demonstrates even more clearly that God's seventh day continues until now. Concerning this passage, F.F. Bruce says, "The fact that He is never said to have completed His rest and resume His work of creation implies that His rest continues still..."⁴³

Young concludes that since the seventh day is interpreted figuratively by Scripture itself, then in order to be consistent the other six days must be interpreted similarly. Nevertheless, since Genesis 1 portrays real historical events, then it must correspond with the sequence of events of natural history.⁴⁴ So according to the concordist, the days represent geological ages in chronological order.

There are two groups within the concordist camp who agree roughly with this figurative interpretation of the creation days: they are the progressive creationists and the theistic evolutionists. The progressive creationist postulates that God has punctuated the vast time of earth's history with forms of life that the evolutionary process could not accomplish unaided. He contends that all life involved special creation, i.e. that the natural laws are not sufficient either for the origin of life from inanimate matter nor for the development of separate plant and animal species from one another. Pattle P.T Pun, a professor of biology at Wheaton college, and a self-proclaimed progressive creationist, resembles theistic evolutionists in believing that God shaped the variation of the biological world through mechanisms such as natural selection. However, he differs from them in

43. Ibid., Young, Creation and the Flood, p.86.

44. Ibid., p.89.

maintaining that man was uniquely created. Since the installation of His image was an "extraordinary act of God", Adam and Eve came into existence through special creation.⁴⁵

Like Pun, theistic evolutionists believe God is dynamically involved in creation at all levels of history. However, they don't believe that God interrupted evolution with a special creation of man's physical form. To them, the process of evolution has been and continues to be the method God chooses to create all life, including human beings. There is no dichotomy between the way other forms of life and man came into being, except that man was at some time given God's image, thus distinguishing him from the rest of creation. God's providential hand has been and continues to be behind the process of mutations as well as environmental change to produce the diversity of life as we see today in the fossil record.

Pun disagrees with this perspective scientifically and theologically. He states that "if one wants to be completely consistent with the evolutionary paradigm, one has to postulate that a population of pre-existing hominids acquired reflective consciousness and the image of God; for populations evolve, not individuals."⁴⁶ Pun cannot bring himself to believe that God selected two individuals from an evolving population of hominids to bear His image, citing Gen 2:7 as proof that man was a separate creation, made in a unique way from the dust of the earth.

The purely mythical interpretation sees Genesis devoid of either historical or scientific validity. For most liberal theologians and non-Christians, Genesis is nothing more than a primitive creation story much like those of other Semitic religions. As such, it has no relevance for today except for those who have a particular interest in the origin of this ancient semitic race. Nevertheless, there

45. Pun, P.P.T., "A Theology of Progressive Creationism" (Perspectives on Science and Christian Faith, March 1987) pp.9-19.

46. Ibid., p.16, (italics mine).

are some who take the early chapters of Genesis as "myth yet also as being uniquely true. As the Old Testament scholar Conrad Hyers says:

"To dwell on the historicity of the accounts, even on the historical core, is to stray from the primary purposes of the writings. They were not aimed at providing a 'truer' descriptive account of human history, let alone the only true picture, in the modern, historical sense of truth. They were aimed at providing a truer theological and moral picture of human history, using materials ready to hand and time hallowed."⁴⁷

The language of the account, he maintains, is not scientific, nor is the logic historical or chronological. The language is that of religious myth and the logic is cosmological. Myth enables the human mind to comprehend beyond what simple narrative can allow, for it is better at capturing the mysteries of existence. By mystery he does not mean a convenient escape into irrationality or incoherence because a particular theological position holds too many contradictions. Rather he means that the unfathomable and ineffable depths of mystery cannot be adequately conveyed without the words and images of myth because such expressions of language are "centers of symbolic richness and power".⁴⁸

"Limited and finite as they are, they tap the infinite: word unto Word and mind unto Mind. Without such words and the dimensions they open up, our existence becomes a flatland of the human spirit."⁴⁹

In sum, mythical language is the best vehicle to convey the most profound truths of human existence, and by so doing help people to interpret their lives and find worth and purpose in their existence.

Unlike others who interpret the early part of Genesis mythically, Hyers asserts that there are profound differences between it and the creation accounts of other nations such as Babylon and Egypt. The crucial difference, he maintains, is that Genesis affirms a radical monotheism over pagan polytheism. While pagan myths picture gods using pre-existing material in their supernatural feats, Genesis shows

47. Ibid., Hyers, p.102, (*italics his*).

48. Ibid., p.112.

49. Ibid.

Jehovah creating the cosmos *ex nihilo*. In contrast to pagan accounts, it de-divinizes nature.

"On the first day the gods of light and darkness are dismissed; on the second day, the the gods of sky and sea; on the third day, earth gods and gods of vegetation; on the fourth day, sun, moon and star gods. The fifth and sixth days remove from the animal kingdom any associations with divinity. Finally human existence, too, is emptied of any intrinsic divinity... on each day of creation another set of idols is smashed... Creation is good, it is very good, but it is not divine."⁵⁰

He notes that Genesis 1 and 2 don't even mention the sun and moon by name, because these names had come to represent pagan deities. While removing Pharaohs and kings from the position of worship, these chapters at the same time affirm the dignity of all human beings, from the greatest to the least, by granting them a divine likeness.

These chapters are theologically unique in many other ways. They set time on a linear schedule in contrast to the Canaanite myth which pictured time as occurring in cycles in which Baal annually dies, is dismembered, and then resurrected.⁵¹ They show God separating the created world into distinct categories, creating order out of the initial chaos. They demonstrate God's love for and grace toward men in that He puts man not in a hostile world but in one abundant with good things. And finally, they introduce man's cultural mandate (i.e., his stewardship of creation), the sanctity of marriage and the intended intimacy within this institution, the prototype of man's pattern of work and rest, and man's original innocence prior to the fall. Despite its mythical qualities, these chapters are unique among ancient cosmogonies because they identify the true and only God and describe the intended harmony of man with Him, with himself, with his spouse, and with the rest of creation.

Henri Blocher, who also sees the opening chapters of Genesis as something other than mere narrative, points out many of these same theological differences

50. Ibid., pp.44,45.

51. Ibid., p.48.

between the early chapters of Genesis and other ancient cosmogonies. But he goes further than Hyers in demonstrating the non-literal use of language. Although he admits that these opening chapters lack the typical synonymous parallelism and rhythm of Hebrew poetry, he contends that they contain too many poetical features to be considered plain narration.

They have several word plays, especially in passages in which a figurative meaning is suspected, such as the one describing the forming of Eve from Adam's rib. In this case, the author plays on the double meaning for *ti* (rib), which in Hebrew also means 'side' and therefore 'alter ego'. In Sumerian, *ti* means both 'rib' and 'life'.⁵² Blocher contends that other biblical texts do not necessarily take this account literally. In 1 Corinthians 11:8,12, "Paul's *ek* does not require a literal interpretation of Genesis at this point."⁵³ Considering this evidence, "if the word for rib/side is rich in symbolism, we have the right to consider the hypothesis of figurative language."⁵⁴ In Genesis 3, several word plays are made on the word "snake" - *nāḥās* (snake) versus *nāsā* (to deceive) and *nāḥas* (magic and divination) in a passage where a figurative meaning is suspected from its metaphorical quality.⁵⁵ That snakes also represented magic in folk legends of that day further argues for a non-literal interpretation. Most importantly, Scripture itself and especially Revelation treat the snake "as extended symbolism".⁵⁶

Blocher notes other poetical devices:

"...the powerful symmetry between the two triads of days: Day 1 corresponds to Day 4, Day 2 to Day 5, Day 3 to Day 6. Corresponding to the light (1) are the luminaries (4); to the creation of the expanse of the sky and the separation of the waters (2) correspond the birds and the fish (5); and to the appearance of the dry land and of vegetation (3) correspond the land animals including mankind together with the gift of food (6)."⁵⁷

52. Blocher, H., *In the Beginning* tran. by D.G. Preston (Downers Grove, IL: IVP, 1984) p.98.

53. *Ibid.*, p.99.

54. *Ibid.*

55. *Ibid.*, p.150.

56. *Ibid.*, p.152.

57. *Ibid.*, p.51.

Rather than being chronological, this organization suggests an artistic interpretation that demonstrates "geometrical mastery." 58

With the seemingly figurative accounts concerning the tree of life and the tree of the knowledge of good and evil, he again notes the use of symmetry. The two trees correspond to the two clauses of the Edenic covenant. Obedience in refraining from eating from the tree of the knowledge of good and evil brings forth life and its continual sustaining through the tree of life. Pertaining to Genesis 2:16,17, Blocher exclaims:

"What rigorous symmetry! Twice the same grammatical procedure is used, which in Hebrew allows the greatest force: the infinitive absolute. To the phrase 'EATING you shall eat' responds the phrase 'DYING you shall die.'"59

As with the rib and the snake, the tree of life is referred to in a non-literal way in other biblical texts outside of Genesis. Three times in Proverbs is wisdom proclaimed to be the tree of life. (She [wisdom] is a tree of life to those who take hold of her... cf.11:30;13:12). Likewise, in Revelation 2:7, "To him who overcomes I will grant to eat of the tree of life" which will be for the "healing of the nations (Rev.22:2)." If the tree of life is to be interpreted figuratively, then the tree of the knowledge of good and evil must be interpreted similarly. And if the former is called Wisdom, the latter should be called Folly.⁶⁰

Other poetical devices include refrains, such as "and God saw that it was good", and rhythm such as that infused by periodic reiteration of "and God said ... and it was so", "there was evening and there was morning", and "and God called". Besides all this, there is liberal use of alliteration and symbolic numbers such as 10, 3, and particularly 7.⁶¹

58. Ibid.

59. Ibid., p.121.

60. Ibid., p.133.

61. Ibid., p.32.

"The word 'hymn' comes to many writers. Whether it is a strophic hymn in prose or a hymn which is a unique blend of poetry and prose, Paul Beauchamp, the most sensitive of analysts, wisely concludes: 'By the importance of repetition and of its corollary, silence, our text is indeed close to poetry...'"⁶²

And so Blocher demonstrates through repeated examples the use of carefully crafted poetic devices and structure within these opening chapters. However, he asserts that it is more than just a strophic hymn. Quoting Beauchamp again, "'its movement towards a solution places it in the order of prose.'"⁶³ In other words, the account is a mixed genre. This is not unique in Scripture, Blocher contends.

"Jesus himself summarizes centuries of history in the parable of the wicked tenants ... Ezekiel 16 says figuratively what Ezekiel 22 says literally, and Ezekiel 23 does likewise for the historical events of chapter 20. And what else is the book of Revelation? ... not only ideas but 'what must soon take place.'... The acknowledgement of symbolic elements hardly weighs at all in favour of a symbolic interpretation of the whole."⁶⁴

The figurative language and style argues against both a chronological order to the days of creation and a scientific understanding God's methods in creating. Nevertheless, it was in space-time history that Elohim/Yaweh brought everything into existence, imposed order on chaos, bestowed on man His image and gave him the responsibility of caretaker of the earth with a command to be fruitful and multiply. Using many of the literalist's arguments, Blocher demonstrates that Adam had to be the historical first man. According to Blocher, then, one can have it both ways. The account is literal in essential content and theme and figurative in places where poetical language and structure can clearly be identified.

62. Ibid.

63. Ibid.

64. Ibid., pp.37,38.

ANALYSIS OF THE EXEGETICAL THEORIES CONCERNING CREATION

Clearly then there are many ways that these opening chapters of Genesis have been exegeted. Which of the ones described above is the most reasonable? It must be said that if Christ's work on the cross is to have any significance, then there would have had to have been a literal fall experienced by literal persons. That both the Apostles and Jesus treat Adam and Eve as such persons gives no option to those who affirm the reliability of the New Testament documents but to affirm their historicity as well. In light of this, a purely mythical interpretation of the first part of Genesis can not be defended. Although Hyers provides useful insights into the unique themes of the Jewish creation account that help to distinguish it from other ancient cosmogonies, and although he is right to point out as well the richness of its language in conveying the profound mysteries of creation, he fails to attach it to history. As has been shown in previous paragraphs, both the Old and New Testament most certainly root Adam in history. Thus, to interpret the early parts of Genesis as being myth is tantamount to claiming fallibility of Scripture (which forces one down another path of thought that cannot be followed here).

And it is precisely in the area of infallibility that the literalists make their most vehement appeal in the defense of their arguments. To the literalists, infallibility of Scripture is equated with a purely narrative understanding of Genesis 1-3. This preserves not only the strict historicity of the account but also its supposed scientific reliability as well. But Scripture was not intended to be a science book. One of the worst exegetical blunders that one can make is to read into Scripture that which could not logically have been intended originally. Although there is a clear analogy that can be drawn between God's creating *ex nihilo* and the First Law of Thermodynamics, there is no possible way that the author knew that he was doing this. This law wasn't discovered until several thousand years

later. If Scripture had been meant to be understood in this way, then it would have been completely unintelligible not only to its original audience but also to everyone who has remained ignorant of this special knowledge to this day. It is certainly presumptuous to think that God hid scientific laws in Scripture for several millenia just so that a select group of scientists in the 20th century could tease them out.

Working from such a faulty exegetical foundation, the literalists cannot help but tie themselves into logical knots. According to them, the Second Law of Thermodynamics (which says that the entropy of the universe is always maximized) was introduced at the fall. If this is so, then there would have had to have been a fundamental change in the way that matter interacted with itself prior to and after the fall, since entropy is defined scientifically as the energy useful for work that is lost in chemical reactions. Just because everything was subjected to the "bondage of decay" (Rom 8:21) with the curse does not mean that entropy did not exist prior to it. Entropy has its strict application in the inanimate chemical world; one cannot therefore equate it with animal or even human death and suffering.

Although these people have posed many legitimate questions to the secular scientific world, their exegetical presuppositions have caused them to make many serious scientific mistakes. For example, they have been forced to ignore the wealth of evidence that supports that the universe and the earth are billions of years old. With reproducible observations in various fields, one can affirm this with about as much certainty as any knowledge in the natural sciences can be affirmed. But Henry Morris contests this by saying:

"The only way we can determine the true age of the earth is for God to tell us what it is. And since He has told us, very plainly, in the Holy Scriptures that it is several thousand years in age, and no more, that ought to settle all basic questions of terrestrial chronology."⁶⁵

65. Morris, H.M., The Remarkable Birth of Planet Earth (San Diego: Creation-Life Publishers, 1972).

For one thing, God has not told us very plainly at all in Scripture the age of the earth. He has told us much more about this particular subject in the book of nature (general revelation) which He has also authored. But there are many other areas in which the literalists, in order to make science agree with their exegesis of Scripture, have defied scientific evidence. By so doing, they have unfortunately created "straw man" theories for the secular scientific world to pick apart. As a result, even some of their very challenging arguments have lost their credibility.

The underlying reason that a narrative reading of the early chapters of Genesis is held to so tenaciously by the literalists becomes evident in Morris' book Scientific Creationism. Any interpretation that allows for animal death prior to the fall or for non-substantive evil is unworthy of God.

"God's evaluation of 'all that He had made' as 'very good' (Genesis 1:31) is strange and grotesque if the sedimentary rocks under the feet of Adam and Eve were at the same time filled with the fossilized remains of billions of years of suffering and death, so that almost everywhere man would look on the earth he would encounter this vast graveyard. It could hardly look 'very good' to men; how could it be pronounced 'very good' by God?...The existence of evil, suffering and death in the world prior to the six days of creation week and even prior to Satan's rebellion ... seems explicitly precluded by the nature of God as a God of order, purpose, efficiency, and love, as well as such Scriptures as Genesis 1:31...and Romans 5:12."⁶⁶

Furthermore, they cannot understand why God would wait billions of years to create personalities with whom He could have fellowship.⁶⁷ So one can see that both their exegesis and their science are determined not so much by objective facts as by their preconception of God's character. God cannot be who they think He is if He allows animals to suffer and die seemingly without reason and if evil existed or had the potentiality of existing before Satan's fall. In response to the former, no where in the Bible is evil equated with animal death. Although the carnage and waste implicit in the fossil record prior to the creation of man might be unpalatable to

66. Ibid., Young, Christianity and the Age of the Earth, pp.149-151.

60. Ibid., Morris, Scientific Creationism, pp.238-243.

67. Ibid., p.219.

most of us, it is nowhere precluded in God's revelation to man. "The most that can be said with certainty about the effect of the fall on geological phenomena is that it introduced death and suffering into the human race for the first time."⁶⁸ In response to the latter, suffice it to say that evil is not a substance created by God that permeated the universe prior to Satan's fall. Rather, "evil has come, not from this first act of creation, but by a second act, an act of the creatures."⁶⁹ Evil's origin is a mystery by everyone who tries to analyze it. It, like many other spiritual and physical realities, exceeds man's grasp. Although we ought to seek to understand as much as revelation will allow on this subject, we will never be successful in pinning it down. Therefore, we should not presume to base our exegesis or science on our limited comprehension of mysteries concerning the character of God, but rather on the observable facts within the texts of both special and general revelation. And so the infallibility that the literalists boast of in relation to the question of origins is not that of Scripture but rather that of their own understanding of God's character.

Whereas the literalist draws his theories of natural science supposedly out of the Bible, the concordist does just the opposite: he imposes his theories of natural science on Scripture. But again, the Bible is not to be understood scientifically for the reasons elaborated above. Concordism has a further unique problem when not constrained by a literal translation. It is always being modified to play catch-up in an effort to harmonize the ultimate truths of the Bible with the ever-changing theories of modern science. "No wonder that when those theories go out of date, in the minds of many people the Bible joins them in gathering dust on the shelf."⁷⁰ For "a theology that weds the science of one generation is likely to find itself a widow in the next."⁷¹ Furthermore, the chronology set forth in Genesis 1 is

68. Ibid., Young, Christianity and the Age of the Earth, p.168.

69. Carnell, E.J., An Introduction to Christian Apologetics (Grand Rapids: Berdmans, 1948) p.302.

70. Ibid., Hummel, p.213.

71. Ibid., p.260.

difficult if not impossible to harmonize with that of modern science. For example, fish are supposed to have appeared before birds, but both are assigned to day five. And 'creeping things' (presumably invertebrates) appear after birds in Genesis but much before them according to the stratigraphic evidence. Like the literalist, the concordist who holds to a figurative interpretation of yom but a literal interpretation of everything else in the opening chapters of Genesis spins a web from which he cannot logically extricate himself.

After considering Blocher's cogent presentation, it is difficult to maintain that there is no figurative language in these chapters. The hymnic structure of Genesis one, the word plays with "rib" and "snake", the symbolism of the tree of life and the tree of knowledge of good and evil, not to mention the alliteration and liberal use of symbolic numbers, are all examples of non-literal language. Those who think that Blocher is conveniently imposing his own interpretation on this part of Scripture only have to look at other parts of Scripture to see that some of these same subjects are interpreted figuratively as well. The language is such that it could have easily been understood by the author's audience; indeed, this manner of thought resembles that of other ancient cosmogonies, even though profoundly different in theological content. The emphasis, then, is not to be put on "how" God created as the literalists and concordists have done, but rather on the religious themes that are introduced by His creating. A literary interpretation, then, is not constrained by contemporary scientific theory but rather is universally applicable to all persons in all generations. While Blocher denounces the imposition of natural science on the exegesis of the opening chapters of Genesis, he nevertheless insists that Adam and Eve were our historical first parents. The rest of the redemptive story simply does not make sense if this is not true.

Some complain that it is not clear where one draws the line between the literary and the historical in Blocher's exegesis. Surely the subjects mentioned in

the previous paragraph for which figurative language is obviously being applied do not constitute straight reportage. In other words, an observer at that time probably would not have seen the events involving the rib, the snake, and the trees transpire in the exact way that Genesis describes. If the reader is not satisfied by this then he will complain more about how the historical-literary theory approaches the problem of Eden. How much of Eden is to be taken figuratively and how much is to be taken literally? Surely the Tigris and Euphrates rivers place it in history, but there are metaphorical qualities to descriptions the descriptions about it. Even Blocher admits that the problems with the interpretation of Eden are difficult to resolve. Thus the historical-literary theory is far from air-tight. Nevertheless, it seems to be the most reasonable exegesis presented thus far.

SYNTHESIS OF SCIENCE AND SCRIPTURE CONCERNING ORIGINS

How does this historical-literary exegesis square with current scientific theories concerning origins? The answer is that for the most part they do not need to be reconciled nor in fact should they be. As mentioned before, the text itself precludes the extraction of science from or the imposition of science upon Scripture. In this respect, secular scientists have made the same mistake that the literalists and the concordists have. One might object that it is not honest for one's exegesis to avoid confronting secular science; however, the exegesis was not derived out of convenience but from the text itself. Besides, as has been stated, the author of Genesis did not write this book having been well versed in 20th century science nor did his original audience possess such knowledge. Therefore, although it conveys historical facts to some extent, it does not provide scientific information (except indirectly in that placing Adam in history has scientific implications as will be discussed later).

So Scripture is inherently limited. In fact, science answers with reasonable certainty questions that Scripture doesn't even address. For example, it tells us that the universe and the earth are very old - on the order of several billion years. In addition, the geologic strata reveal the existence of life forms that are not present today, and that in general, life has increased in complexity over time. Considering the physical structure of many of these extinct animals, it is almost certain that a great deal of carnage took place before man even appeared on the scene. The text of nature, thus, provides us with information about the origins of the cosmos beyond that supplied by Scripture.

But science hasn't provided all the answers either. For example, it has yet to demonstrate beyond a reasonable doubt how life has increased in complexity over time. Evolution has been postulated as the mechanism linking all life forms, but the evidence is far from conclusive. Despite the large number of fossils found thus far, an evolutionary relationship among living organisms cannot honestly be derived from them. And molecular biology has not shown conclusively the genetic mechanisms by which macroevolution can take place. Mutations are almost always deleterious resulting in the destruction of the organism rather than increasing its ability to survive. Besides this, changes in the code of a certain organism can prevent it from perpetuating the trait since there is then no corresponding gamete with which it can mate. Macroevolution has to overcome this obstacle, whereas, microevolution, by definition, is circumscribed by the ability to interbreed. One cannot simply extrapolate the former from the latter by inserting vast amounts of time. Honesty about the dearth of facts in this area forces us to realize that metaphysical biases, not science, cause us to either bridge these gaps with an evolutionary hypothesis or keep them intact with creationist presuppositions. Even within Christian circles, preconceptions about the character of God determine one's views about evolution. Henry Morris asserts that evolution is false because it is

inconsistent with his ideas about God's "omnipotence", "personality", "omniscience", "love", "purposiveness", and "grace".⁷² George Murphy, who holds an MDiv and a Ph.D. in physics, maintains "that evolution provides a more correct view of God's creative work than does creationism."⁷³ God's character is much too mysterious, much too far beyond human comprehension, to pin it down for undergirding one's beliefs about evolution. Evolution cannot be refuted or supported from theology: its merits can only be demonstrated by natural science.

Science is even more inconclusive about life arising from inorganic matter than it is about evolution. Regarding this subject, Nobel laureate Francis Crick had the integrity to admit, "Everytime I write a paper on the origin of life, I swear I will never write another one, because there is too much speculation running after too few facts..."⁷⁴ No satisfactory theory has yet been put forward to explain how cells or even just the informational molecules upon which all life depends came into being. Despite the production of many of the basic building blocks to these molecules in prebiotic soup experiments (what one would predict thermodynamically), no meaningful information has been produced. Furthermore, the human constraints on such experiments introduce such error as to make even these results of questionable value.

"One thing is certain about the elucidation of these and similar problems: Millions of intelligent man-hours are being expended every year now in merely unraveling the reduced entropy states of the living cells (i.e. the informational macromolecules and their communication with one another through the cells metabolic machinery). If the mere unraveling requires such enormous amounts of 'intellectual horsepower,' how much more 'horsepower' of the same type must have been needed to actually reduce the entropy status of matter at the first programming of biological life so as to arrive at the first man, animal, or plant."⁷⁵

72. Ibid., Morris, Scientific Creationism, pp.229-230.

73. Murphy, G.L., "A Theological Argument for Evolution" (Journal of the American Scientific Affiliation, March 1986) p.20.

74. Cited from F. Crick Life Itself (New York: Simon & Schuster, 1981) p.79 by Thaxton, p.195.

75. Ibid., Wilder-Smith, p.244, (parentheses mine).

Although at risk of invoking another God-of-the-gaps hypothesis, I maintain that even now man knows enough to conclude that natural processes alone cannot account for the tremendous complexity observed in life. The human cerebral cortex itself contains between 10^{10} and 10^{14} nerve cells, and each cell contacts more than 5,000 other nerve cells in a precise arrangement. The number of such connections rivals the number of stars in the known universe.⁷⁶ Some might have faith that some day the intelligence reflecting this level of complexity will be found within nature itself. I have faith that it won't.

"The question of the ultimate source of information is not trivial. In fact it is the basic and central philosophical and theoretical problem. The essence of the theory of Divine Creation is that the ultimate source of information has a separate, independent existence beyond and before the material system, this being the main point of the Johannine Prologue."⁷⁷

The options, then, for life's formation is that this outside intelligence must have either punctuated time de novo with new life forms (progressive creationism) or created diversity in a more continuous way from previously existing codes (theistic evolution). My guess (for whatever it's worth) is similar to that of the progressive creationists, although unlike most of them I don't use Scripture to support it, only the paucity of available scientific evidence. Neither the fossil record nor even today's evidence seem to show eukaryotic organisms "in process";

therefore, I speculate that the former ^(progressive creationism) is more likely to be true than the latter ^(theistic evolution).

There are several other areas in which science is inherently limited. It is difficult and perhaps impossible to define mechanistically such concepts as life, conscience, consciousness, or abstract cognition. Despite the exclusion of such categories from modern philosophies such as logical positivism, experience tells us

76. Hermann, R.L. and J.M. Templeton, "Scientific Contributions to Meaning and Purpose in the Universe" (Perspectives on Science and Christian Faith, June 1987) p.78.

77. Cited from P.Fong Biogenesis, Evolution, Homeostasis Ed., A.Locker (New York: Springer-Verlag, 1973) p.93 by Thaxton, p.210.

that they nevertheless constitute reality. Furthermore, it is impossible to find within nature itself that which can explain nature's existence.

In all this discussion about the intrinsic limitations of science, I don't mean to imply, as the deists, that the Creator exists simply to explain man's gaps in knowledge.

"To shrink God until he is invoked only to cover the ever-decreasing gaps in our knowledge is blasphemous. Such a God is too small to be worthy of anyone's worship."⁷⁸

I simply want to point out the deficiencies of an epistemology based purely on natural revelation. Special revelation does in fact give us knowledge that science cannot with regard to identifying the First Cause and the ultimate information source (the Logos). Yet, it also portrays the Creator dynamically involved in the creation, sustaining it, suffering with it, and redeeming it. Not only this, it provides knowledge about man's distinctiveness, his relationships, his responsibilities, and the conflicting realities of good and evil with which he is confronted. In sum, the Bible answers very different questions regarding origins than does science. Although the two together provide more than each alone, as this paper has shown, they leave a lot of questions unanswered.

Two major questions still remain for me. Although Genesis cannot be interpreted scientifically, the fact that Adam was part of history has scientific implications. Scientific evidences for the existence of man seem to date back perhaps to over one million years ago but at least to over 50,000 years ago. Yet, the genealogy of Adam, even after accounting reasonably for the skips in generations characteristic of Hebrew genealogies, seem to indicate that man first appeared much later than the evidence suggests. This apparent discrepancy raises questions about the validity of the scientific data and its definition of man and whether Adam was indeed the first creature possessing the physical traits of man (certainly he was

78. Ibid., Green, p.82.

the first to possess his spiritual traits as God's image bearer). As there is one God, there is also one history of the cosmos. I am confident then that this disagreement and any disagreement I've failed to mention are not because the Bible and nature conflict but because our interpretations of the God-given data from these two forms of revelation are at fault.

Second, what does nature prior to the appearance of Adam and his subsequent fall tell us about their Creator? "To be sure, it is hard for us to reconcile the messy, bloody, and wasteful processes (suggested by the fossil record) with the goodness of a creator God ... Could it be that our idea of God's love is too sugary?"⁷⁹ As with other mysteries such as election and the problem of evil, these questions are mind-boggling. Once again, God has defied my box; his ways are simply beyond finding out. I simply bow before Him in humble gratitude for His grace in giving me the faith to know Him as my Creator. For not by logical arguments but "by faith we understand that the worlds were prepared by the word of God..." (Heb 11:3). I praise Him each day for the ability to see His hand in the majestic and intricate world of nature and to worship Him for sustaining it "by his powerful word" (Heb 1:3 - NIV).

79. Ibid., p.86, (parenthesis mine).

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