taxonomy cannot agree about what is a species, it seems deceptive that they should imply that creationists, most of whom are not taxonomists, can discern species. Also, as the number of recognized species keeps changing, this implies that the number of original species created in the beginning changes from year to year in our day. This is obviously ridiculous. The evolutionary scientists who say this evidently do not think through their charge that creationists believe every species was separately created or else they bluff, expecting their victims to be too dull to notice the implications of what they are saying.

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SYMPOSIUM ON VARIATION—III

IS MORE THAN GENE ACTION REQUIRED TO ACCOUNT FOR VARIATION?

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Abstract

Embryo cells move about on their own while fashioning the architecture of the developing embryo. This demonstrates that the functioning of the cell may not be solely the result of gene action. The ability of embryo cells to react creatively to any unchartable impediments bolsters this conclusion. A different source of directive control of cellular activity needs to be recognized, one that exceeds the limitations of genes in terms of originative activity.

We ***find that any aggregative construction requires an intelligence input. Without it, only chaos and disintegration results. It is therefore appropriate that we assign an intelligence determinant to the cell. The cell not only constructs itself, but embryo cells working together construct the multi-celled organism. Cellular intelligence is defined as the ability to select, control and direct energy. Cellular intelligence works in a copartnering arrangement with gene action.***

With this dual factor paradigm, in order to get phenotypic changes of sufficient scope to fuel an evolutionary agenda, two sets of changes must accrue: one genetic and the other intelligence-related. The chances for phenotypic alterations of a magnitude and specificity capable of producing organic evolution is thus more difficult to visualize. Stasis becomes easier to envision, particularly in terms of fundamental changes.

Introduction

Almost any dialogue regarding the manner in which living things come to differ leads into the well-worn orthodoxy of how differences in the genome, or genetic makeup, account for variations in phenotypic expressions, or the way in which genes manifest themselves. In seeking the cause for living variations, is there any need for investigating other factors besides gene function? There is at least one other important and usually neglected factor of copartnership which observably goes along with gene action.

The Second Factor

This other agency is demonstrable in a number of different ways. One of the best is observing the way in which a vertebrate embryo falls into place embryonically. It is evident that embryonic development involves more than gene action, that is, having the right genes turning on and off in the process of synthesizing the correct array of proteins.

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There is also a vital crafting process that occurs. This structuring operation is accomplished by cellular efforts in which cells by their own effectiveness position themselves in strategic patterns in the process of which embryonic details are fashioned. The embryo manifestly does more than merely enlarge itself. Indeed it involves itself in a complex frameworking process during which the embryo resembles very little the individual-to-be. Through all of this it is clear that in the embryo's various transformations the finalized architecture is being anticipated.

The embryo in executing this construction effort presents a dynamic scene of activity. Cells move about animatedly, facilitated by the fact that all embryo cells are capable of motility. Their movements in some instances are remarkable. Cells proliferating and accruing in one location, becoming mesenchymatous, sometimes travel formidable distances to assemble at a different but predetermined location. Here they establish a focus of growth which turns out to be the primordium for a future organ.

Such a routine involving a strategic congregating of cells occurs again and again in the early history of the embryo. Without this painstaking self-positioning on the part of embryo cells a meaningful conformation of the embryo would not occur. Most of this disorganized-looking activity occurs prior to the establishment of a nerve network, favoring the assumption that cells individually possess a sense for timely endeavor. This view is strengthened by studies involving the ability of embryo cells which have been experimentally scattered to move about and reassemble themselves in a discriminate pattern (Swanson, 1969, pp. 19-20).

That all of the cellular hustle taking place within the embryo is not a blind, strictly mechanistic process is suggested by the fact that when faced with an unchartable problem, these cells can take meaningful measures to meet whatever demands stand in the way of structuring a viable embryo.

One example of this kind of tailored-to-the-situation response is seen in the case of the salamander embryo when an extra limb bud is transplanted. The nerve fibers from the nearest normal limb bud proceed to branch and grow into the transplanted limb bud. Thus the transplant acquires the same pattern of nerves as the nearest normal limb, helping the transplant to contribute in a functional way (Gerard, 1949, p. 341).

It Requires More Than Genes

Where does this purposeful deftness on the part of the embryo cells reside? It does not appear to be a function of the nucleus, and thus not of the genes. For example, in discussing cell movements during morphogenesis, embryologist Ralph E. Alston (1967, pp. 189-190) says,

> . . . movements or migrations of cells are characteristic features of development in many organisms. . . . no explanation of the regulation of cell movement can be accommodated conveniently by presently known intracellular mechanisms of information transfer.

In other words, gene action does not supply the answer.

There are many other instances in which development and other vital processes seem to be dictated by non-genie factors. A few examples of these follow: A species of moth *(Nemora arizonaria)* produces two entirely different appearing caterpillars during the course of the year. The dissimilarities are so marked that prior to the discovery that the caterpillars had a common parentage it was thought they represented two different species. Caterpillars produced in the spring when the oak trees are blooming have the coloration and hairy surface that makes them almost indistinguishable from the male flowers or catkins of the oak. A second brood of caterpillars produced during the summer, after the oaks have blossomed, display a smooth surface and markings causing them to resemble the twigs of the oak. The two kinds of caterpillars when first hatched look identical. Interestingly, the catkin morphs will move away from twigs and toward catkins when given the opportunity. The reverse is true of the twig morphs (Green, 1989, pp. 643-48). Having the same parentage, both catkin and twig morphs have the same genetic inheritance. They differ only in their immediate surroundings and in the available type of food.

It is a well known fact that whether a bee becomes a worker or a queen is not genetically determined because workers and queens posses the same genome. It depends upon a strictly external factor, that is, upon which kind of food the developing bee is fed. A queen-to-be is fed a special diet of royal jelly. As a result the queen becomes a fully functional female while the growing workers denied royal jelly are sterile and assume entirely different tasks.

In insects with a life history showing complete metamorphosis the cells at one stage in development produce a worm-like grub or caterpillar and at a later stage cells with the same genome produce a moth, butterfly or beetle. Something more prescriptive than simply furnishing proteinaceous building materials under gene action would seem to be at work in bringing about this kind of transformation.

In trees, cells which are extruded to the *outside* of the vascular cambium develop into phloem tissue while genetically identical cells released to the *interior* of the cambium proceed to serve in the role of xylem. Xylem and phloem have vastly different structural and functional characteristics. Their cells, however, have the same genetic makeup.

With the protozoan *Paramecium,* if a piece of cell membrane or cortex from one individual is grafted onto the cortex of a second individual, the grafted area is identifiable visually. Interestingly, such a marked area transfers from one generation to the next and has been identified through as many as 700 generations. Thus the cortical pattern in *Paramecium* is said to be autonomous from the genome (Trinkhause, 1969, pp. 210-11).

These and many other instances in which cellular involvement during embryonic development and other vital processes give evidence of being governed by non-genie influences lend credence to the contention of Rene Dubos (1962, p. 34) that genetic information is not of sole importance in developing and operating the organism. “The task of genes," Dubos says, “. . . appears to be far more modest than what is usually claimed. It consists of giving limited numbers of instructions to a system which is already in place," and he adds, “. . . genes are but one part of the living cell and are no more able by themselves to insure growth and reproduction than are the other parts."

As McCann (1986, p. 102) explains in a critique of Darwinism, it requires specific kinds of energy properly controlled and directed in order to bring about any kind of aggregative construction. Thus there would seem to be no way the mere availability of inanimate, gene-produced proteins can assure the carefully timed furnishing of the proper kinds of directed energy and thereby bring about a specific energy-demanding process of assembly.

From the field of genetics, we have to assume that the genes in terms of function are in the protein-supply business exclusively. They are not involved in initiating constructions. A limited role for genes is suggested by the fact that amphibian embryo cells with the nucleus excised are not only able to divide, but may give rise to a line of dividing enucleate embryo cells which are

able to organize and form the first organized stage of embryogenesis (Barth, 1964, p. 43).

A Paradigm

All of this supports a paradigm, then, in which there are at least two functional specificities of cells which serve a behind-the-scenes role during development and other cellular activities. One is the ability to turn out the right kinds of proteins, a function of genes. The other is the ability of the cells to respond adeptly in bringing about specific renditions of structure and function, such as embryonic details.

In describing this latter role, expressions such as "skill," "govern," and "exercising control" which inevitably come into play, are expressions appropriate to a discussion of intelligence. It would seem fitting therefore since cells obviously exhibit these characteristics to speak of a *cellular level of intelligence.*

The question is, does the rationale that the living cell possesses a certain kind of intelligence capable of governing its activities offer possibilities for augmenting the understanding of origins and variation? In other words, is there evidence of an existing symmetry of relationship here?

Origins

McCann (1986, p. 11) defines cellular intelligence in the phraseology of energy dynamics. The cell has the ability to select, direct and control energy. All earthly (and now lunar) experience shows a connection between living cells, or cellular systems, and the control of energy with its potential for originative action. This state of dependency between any assembly process and the presence of living intelligence gives evidence of being universal. One operates within this principle and within the parameters of science therefore in expecting the cosmic, primal wellspring of intelligence, with its potential for causative action, to be a living, preeminently intelligent source.

This kind of thinking with its conclusions is also encouraged by a different approach. If we pass over the gargantuan impossibility barriers preventing a stochastic unintentional origin for even just one of the many complex organic compounds of life, there remains the question of how the modality for the intelligent governance of living systems could have been acquired. Try to visualize the solid palpable stuff of life somehow accidentally meeting up with and receiving an infusion of the factor we call intelligence. This intelligence must arrive on the scene already furnished by happy accident with the correct blueprint for constructing energy-producing, information-storing and self-reproducing cells.

Variations

If we accept the idea of a cellular kind of intelligence, does this view translate into any meaningful insights regarding variability? For certain, it means that we must assume there are at least two factors, genes and a cellular kind of intelligence, that change in just the right way to bring about phenotypic alterations of a caliber sufficient to advance any evolutionary process. New complex proteins (and probably lipids, carbohydrates and nucleotides) would have to be furnished and new structured patterns and devices would have to be crafted.

If instead of just one kind, genetic, there are two kinds of complex changes, genetic and intelligence-centered, that must take place in order to bring about an alteration capable of facilitating evolution, it means that these kinds of changes are much less likely to occur. For all we know they may be rendered impossible.

Certainly unplanned random gene mutations alone, since they represent mistakes in the established pattern of information transference between the nucleus and cytoplasm of cells, can hardly be a source of favorable change. The experience in information theory tells us that any kind of deviant informational glitches can only result in a garbled scrambling of data specifics, creating an inevitable distortion of the message.

As to the determinant we call cellular intelligence, the question of how readily innovative such intelligence might be in breaking established patterns is open to question. If we use human intelligence as a guide, we find that ingrained ways of doing things tend to become firmly fixed. For more than one reason then, stasis in terms of fundamental traits may turn out to be the norm.

It should be emphasized that this discussion applies to the kinds of qualitative fundamental changes necessary for the production of new kinds of organic building materials and new schemes of construction. It is changes of this order that would be necessary for the production of any kind of evolutionary agenda.

Quantitative changes which involve no more than alterations in the *amount* of material already in use (e.g. pigment) or variations in already *established norms of structure (e.g.* length, girth, shape) appear to be an entirely different matter. From what we see around us, such adaptive differences are commonplace. They are apparently easy of accomplishment. On the other hand, the kinds of profound changes in structure and function required for a process of evolution are immeasurably more difficult to attain and are more likely to be impossible of achievement.

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QUOTE

Similar structure and function in living organisms is equally indicative of common design as common origin. In fact, one would expect to find such similarities with either model of origins. No matter how much evidence is accumulated regarding similarities, this can never substantiate one claim over the other.

Dudley J. Benton

BOOK REVIEWS

Creation or Evolution: Correspondence on the Current Controversy by Edward O. Dodson and George F. Howe. 1990. University of Ottawa Press. Ottawa. 175 pages. $17.95 paperback, $27.50 cloth.**

Reviewed by Wilbert H. Rusch, Sr.*

We are in the midst of a controversy (almost a war) on the subject of origins of the universe as well as of life. This controversy is still being waged in the classroom and the courts, as well as in the news media. The latter includes newspapers, journals (both scientific and popular), and television. During my own years of interest in this matter of origins, it has been my pleasure to read a number of works that were of the nature of dialogues between selected supporters of each side. These were usually in the nature of letters as part of a joint correspondence, each to the other.

The first publication of this nature that I remember encountering was *Is Evolution* A *Myth?* (1957). Douglas Dewar and L. Merson Davies represented the creationists' side, while J. B. S. Haldane presented that of the evolutionists. Usually I have found this type of presentation enjoyable as well as instructive and profitable. However, there have also appeared works dealing with the controversy that unsuccessfully claim to be objective and fair to both sides. Therefore it was with considerable pleasure that I received the volume containing the "back and forth" correspondence between Edward O. Dodson and George F. Howe. This work is a bit unique in its origin. Dr. Howe was formerly a biology instructor at Westmont College. He is also a past president of the Creation Research Society. He had adopted Dodson's editions of *Evolution* as texts for class use. Edward Dodson was professor in the department of biology at the University of Ottawa.

A letter in *Bioscience* asking "Why do the creationists win all the debates?" appeared by Earl D. Hanson, Wesley'an University (1980). It brought a reply from Dodson, which appeared in a subsequent issue of *Bioscience.* This in turn brought forth a reply from Howe to Dodson and *Bioscience.* Thus the correspondence was launched, although the journal did not see fit to publish Howe's reply. This correspondence between the two individuals extended through almost 50 personal letters over five years. It should be noted that a characteristic of the correspondence was a spirit of apparent mutual respect as well as courtesy that prevailed.

One of the unusual features of the correspondence w-as the frank inclusion of religion in the discussion. Although both men professed Christian beliefs, they came from different Christian denominations. Dodson is an avowed practicing Roman Catholic whereas Howe is a "born again" Baptist. Both stated they were faithful to their Christian beliefs, although they obviously came from different stances on such matters as the authority of the Scriptures.

The 175-page length of the book indicates that the subject was certainly not a trivial discussion, but an indepth examination of several wide-ranging topics. The discussion was continued until both correspondents felt that they had exhausted the general topic at that level. At this point the correspondence was brought to a close by mutual agreement. One of the topics discussed was Teilhard de Chardin and his involvement in the Piltdown affair. There is also a discussion of the possibility of creationists getting papers published in scientific journals. A particular point was the question "To what extent does the peer review system load the dice against acceptance of a creationist paper?"

Overall I found the book very interesting, particularly with the unabashed inclusion of the various religious discussions. These were earnest and sincere expressions of the Christian faith as each saw it. Of interest to me was the inclusion of Appendix 2, Biblical References. I feel that this book is a breath of fresh air in contrast to the usual atheistic drivel that holds that religion has no part in discussions of origins. In addition to those generally interested in the subject, I can particularly recommend this book for the pastor's study as well as the church library. I definitely feel that the high school age student troubled with these matters should have access to it.

Just prior to receiving this work, I chanced to get the opportunity to read John L. Wiester's *The Genesis Connection (1983).* This work also felt the value of incorporating Scripture and the religious aspect into a discussion of the controversy on the matter of origins. I am intrigued by the increasing appearance of this subject in scientific discussions.

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Charles Darwin's Religious Views; *From Creationist to Evolutionist* by David Herbert. 1990. Hersil Publishing. London, Ontario. 104 pages. Paperback. $8.00.

Reviewed by Jerry Bergman*

The author, David Herbert, a secondary school history teacher, has three master's degrees and is presently a doctoral candidate at the University of Toronto. He has produced an excellent, extremely readable, brief review of Charles Darwin which focuses on both the development of Darwin's ideas and his religious background. Darwin's generation was heavily influenced by the philosophies of French intellectuals such as Voltaire. This "cult of reason" expressed itself religiously as either deism or agnosticism. Darwin himself was heavily influenced by this intellectual climate; his family were primarily Unitarians, free-thinkers, agnostics, and atheists. Herbert shows quite effectively that, for the most part, Darwin's ideas were not radical in his social circle; his achievement was primarily to elaborate them. Even the theory that Darwin is most identified with, evolution, was not original with him. Herbert (p. 4) notes that Darwin's grandfather, Erasmus, discussed the idea that:

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**This book is available from Creation Research Society Books. (p. 121).

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> . . . all warm-blooded animals have arisen from one living filament [a simple cell], which **the great first cause** endued with animality, with the power of acquiring new parts, attended new propensities . . . and thus possessing the faculty of continuing to improve by its own inherent activity, and of delivering down those improvements by generation to its posterity, world without end (quoted from Erasmus's book. *Zoonomia, or the Laws of Organic* Life, 1794).

Herbert notes *Zoonomia* had wide circulation and support, but was not without opposition: Samuel Coleridge referred to it as "the orangutan theology of the human race substituted for the first chapters of the book of Genesis" (quoted on p. 5). Herbert notes that Darwin "spoke with a great deal of pride that *Zoonomia,* in 1817, had been placed on the *Index Librorum Prohibitorum"* (p. 5). Charles had both read his grandfather's book, *Zoonomia,* "which he thoroughly enjoyed" and enjoyed a close association with Dr. Robert Grant, an "outspoken evolutionist" (p. 15) who "made a lasting impression" upon young Darwin. A naturalist of his stature who, Herbert concludes, blatantly and openly denigrated the Biblical and supernatural world view, could not help but influence young Darwin to become less sympathetic toward the religious perspective concerning origins (p. 16).

Conversely, several prominent individuals in Darwin's life were "deeply religious," such as his good friend and professor of botany at Cambridge, Rev. John Henslow. Darwin, although he detested lectures, attended many of Henslow's botany classes and found them to be very perceptive and intellectually stimulating (p. 20). Another influential person in Darwin's life was Rev. Adam Sedgwick, president of the geological society and professor of geology at Cambridge. Sedgwick, though, as was also true of many of Darwin's contemporaries and Darwin himself, accepted many of the naturalistic beliefs of uniformitarianism, following a trend that was occurring in British academic society in general (p. 22). Another person of enormous influence was Robert Chambers (1802-1871) who wrote *The Vestiges of Natural History of Creation* which is the "first full-length presentation of an evolutionary theory of species in English" (p. 54). Darwin himself was especially influenced by Charles Lyell, an ardent deist and hard core uniformitarianist. The influence of these persons is illustrated by the fact that evidently the last time that Darwin expressed confidence in historical Christianity in writing was in a letter dated April 23, 1829 (p. 23).

Geology was once based firmly on a Biblical framework. After the Bible was challenged, people began to look at geology for support for their new non-Biblical world view. Herbert adequately shows that a major motivation of many of the leading geologists, but also biologists and other scientists, was to refute the basis for the supernaturalistic intervention world view. And the views of the dominant scientists soon became the general views of society. Herbert concludes that between 1820 and 1840 more books on geology were sold than English novels. Darwin's interest in geology was also enormous. Although it is often assumed that the major focus of the trip on the Beagle was the study of biology, Herbert notes that, of the 2,530 pages of notes Darwin took during his 57-month voyage, his geological notes totaled 1383 pages compared to only 368 pages of zoological notes.

Yet, according to his own words, Darwin did much thinking on religion, especially until the early 1840s. While on his trip on the Beagle, he accepted the Bible as an "authority" on points of morality (p. 32). He only gradually became negative towards Christianity; According to Darwin's autobiography, he later concluded that the Christian faith is "manifestly false" stating that God was a "revengeful tyrant" and that the Christian Scriptures were "no more to be trusted than the sacred books of the Hindus, or the beliefs of any barbarian" (p. 43). In spite of Darwin's skeptical views relative to religion in his later life, he often supported their moral and social work. Even at the age of 58, he sent a check to support Christian missionary work (p. 33).

Darwin's wife Emma was his first cousin and a Wedgewood and a Unitarian. The Unitarians of the middle 1800s were far more similar to the conservative Protestant denominations of today. Using her personal extant letters as a major source, Herbert concludes that she held the Bible in reverence, frequently read it, and expressed "anxiety over her husband's renunciation of the Bible." Further, his wife's concerns over Darwin's disbelief persisted both before and after their marriage, and was expressed in letters written as long as 20 years after their marriage. Emma consistently expressed "loving concern" to her loved ones, a sentiment which deeply touched Charles.

In the end, Darwin had to sort out the many conflicting religious influences that impinged on him. His agnostic and atheistic friends and colleagues, his devoutly religious wife, and some of his important professors, especially Henslow, produced in him an ambivalence which has "given scholars a great deal of latitude in pinning down his religious persuasion. . . . They span from his being a theist [more correctly a deist] to atheist or even an agnostic" (p. 49). The agnostic label is probably the most accurate, although much of his writings which touch on religion indicate that he never abandoned the view that there was a Creator Who governed by natural law, and was the first, uncaused cause.

Herbert discusses naturalism extensively, noting that both naturalism and Christianity were concerned with where we came from, why we are here and where we are going. As a belief system, naturalism required evolutionism, just as Christianity required some form of creationism. Herbert concludes that Darwin often argued in favor of naturalism against supernaturalism in a strongly polemical manner. Herbert adds that Darwin accepted his main contribution to evolution, natural selection, as valid not because he could prove it, but because it explains much data in a naturalistic framework (p. 61).

Darwin was very much of a propagandist for his ideas. He once announced in a letter of August 11, 1858 to Asa Gray that a person he had been working on convincing to his ideas, Hooker, had finally "been converted," As Herbert writes "Darwin could hardly contain himself, and his glee even now seems to jump right off the page when he declared our best British botanist . . . is a full convert and is now going immediately to publish his confession of faith; and I expect

daily to see proof-sheets." The level of his efforts at converting others is best shown by the fact that he exchanged 14,000 letters with some 1,800 correspondents in his 60 odd years. Herbert concludes that "just managing his voluminous mail was truly an astounding feat. . . . Truly, the managerial skills of Charles Darwin were extraordinary" (p. 59).

Towards the end of his life, Darwin was evidently even less than a theist. His famous "regretted" words in *The Origin* was his statement that "there is grandeur in this view of life, with its several powers having been originally breathed by a creator into a few forms or into one . . . from so simple a beginning endless forms the most beautiful and most wonderful things that have been and are being evolved." In a letter to Hooker relative to this statement, he said that "I have long regretted that I truckled to public opinion and used the Pentateuchal term of creation, by which I really meant 'appeared' by some wholly unknown process" (p. 69). Yet, in his biography Darwin categorically states that he believed in God—he often used the term a *First Cause*— and he thus deserved to be called at least a theist (p. 77). He even acknowledged that it was impossible to conceive "that this grand and wondrous universe, with our conscious selves, arose through chance" concluding that this was "the chief argument for the existence of God" and that "I cannot think that the world, as we see it, is the result of chance and yet I cannot look at each separate thing as a result of Design" (quoted on p. 76). Yet, he often expressed uncertainty, adding the conclusion to statements such as: "I just don't know:' He also often alluded to the "design problem," argument against creationism, such as man's "rudimentary mammae" whose purpose was not understood at this time, yet admitted "I cannot keep out of the question" of theology and origins (p. 78). Herbert concludes that Darwin's enormous vacillation provides Darwin scholars the considerable diversity of opinion held today regarding Darwin's religions views (p. 79). *

*Editor's Note: Readers are urged to consult *Did Charles Darwin Become a Christian?* published by Creation Research Society Books.

In the Beginning by Nathan Aviezer. 1990. KTAV Publishing House, Hoboken, NJ. 138 pages. $15.95.

Reviewed by Don B. DeYoung*

The author is a physics professor at Bar-Ilan University in Tel Aviv, Israel. He is thus a spokesman for contemporary Jewish thought on Bible science matters. Aviezer describes himself as an "observant Jew" who depends on traditional Jewish commentators for understanding the Torah. There are frequent references to the medieval Jewish writings of Radak (1160-1235), commentator and grammarian; Ramban (1194-1270) and Rashi (1040-1105), Talmudists and commentators.

Unfortunately Aviezer does not adhere to the timeless, conservative truths taught by early scholars, who did not compromise Scripture. Instead, he attempts to explain the Genesis creation account in terms of recent scientific thinking. Thus the first six days are taken as *long* phases in the development of the universe, beginning with the assumed big bang origin of the universe (p. 1). According to Aviezer's evolutionary time scale, the creation days are long indeed, 2.5 billion years each (15 billion years total). One wonders when the weakness and danger of this "modern science interpretation" of Scripture will finally be realized by those who promote it? History has shown that all secular science theories are forever transitory, by definition. Some theories are gradually modified; others are completely overturned by paradigm shifts. The interpretation of Genesis using the latest pronouncements of science is somewhat similar to identifying the Antichrist from the front page of today's newspaper! In both cases, the effort will likely miss the truth completely. Meanwhile, a long trail of misleading "wreckage" will accumulate from false interpretations. Thus it is with the standard big bang model, so popular in recent years. Many have taken this temporary account of origins to be final truth. Before, during the 1950's-60's, the steady state theory of universe origin was in vogue. During this present decade, new science ideas will likely replace the big bang theory. Naturalistic origin theories roll on by, with ever-shortening lifetimes of popularity. The refreshing alternative is a supernaturally created universe that is entirely beyond scientific explanation.

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I was disappointed that author Aviezer did not discuss the significant contributions of his fellow Jewish scientists. The list of outstanding Jewish researchers reads like a Who's Who of modern physics: Albert Einstein, Robert Oppenheimer, Edward Teller, Arno Penzias, etc. God blessed these scientists with remarkable insights into the details of the Creation. Aviezer missed an opportunity to discuss the unique contributions of Jewish science. The success must partially be due to the scientific emphasis of West European culture during this century. Perhaps the inquisitive Jewish mind toward the Creation is also at work.

The following series of quotes and comments reveals that physicist Aviezer accepts the questionable dogma of modern secular science:

"'Let there be light' [designates] the primeval fireball—the big bang" (p. 15). The big bang theory describes the Creation only if the Genesis account is completely rewritten. Apparently scientists such as Aviezer have no problem with this revision of Scripture.

"Today, the theory of continental drift is accepted by every geologist" (p. 32). Such blanket statements show incorrect and careless treatment of complex issues. There are many questions and doubts concerning the movement of continents in the past. These concerns are discussed often in the *Creation Research Society Quarterly*.

"If the solar system consisted only of the sun and a spherical earth, then neither the length of the day nor the number of days in a year would ever change" (p. 44). This statement is completely false! The seasonal, changing length of daylignt is due to the earth's tilt; the number of days per year depends on the earth's rotation. This book, which will probably be widely read, displays questionable scholarship on basic science.

"Our moon was formed from the remnants of the collision between a planetary body and the earth" (p. 48). This recent idea for the moon's beginning is no more credible than other lunar origin theories from past decades: fission, capture, and nebular moon formation. Lunar origin by collision is very improbable, and corroborating evidence is completely lacking.

> Darwin's theory . . . has been buttressed by an extensive array of fossil evidence. The only doubters are a small group known as 'creationists,' who object on religious grounds. In fact, it is well known that the first animals were tiny marine organisms, and only much later did any large sea creatures appear (pp. 53, 79).

It is generally agreed by both creation and evolution scientists that the fossils do not give evidence of evolution. The multiple "missing links" between Biblical "kinds" have never been found!

"The verbs 'create' and 'make' clearly denote two quite different processes" (p. 60). Biblical scholarship has shown that the verbs *asah* and *bara* in Genesis 1-2 are used interchangeably, with no inherent difference. Artificial distinctions made between the terms lead inevitably to confusion.

The subtitle of the book is "Biblical Creation and Science." Unfortunately the author has emphasized the latter term, and lost sight of the former. The book may be of interest to collectors of Bible-science material. However, the reader will not find any new insights from Jewish physicist Aviezer. He presents the standard, time-worn, faulty arguments of Bible-science compromise. The attempts to read modern science into Scripture remain unconvincing and unsatisfying. The clear, literal message of the supernatural Genesis creation story is the only credible alternative.

Biblical Myths and Mysteries, by Gilbert Thurlow. 1989. Chartwell Books. Secaucus, NJ. 72 pages. $33.33.

Reviewed by Clifford L. Lillo*

Although not concerned exclusively with creationism, this book might very well turn some Christians against a belief in the literal interpretation of the words in Genesis. For that reason, creationists should be aware of its contents. The flyleaf of the jacket indicates the writer, Gilbert Thurlow, Dean of Gloucester, will explain the purpose and symbolism behind the "myths" of the Old Testament. Indeed, Thurlow's Introduction (which, with picture captions, is his contribution to this picture book) makes the bald assertion that God's written word is merely a collection of tales partly based upon historical events. Thurlow claims that the compiler of Genesis simply used myths which he defines as tales about the supernatural. He says,

> The theme of man's origin and nature as pursued in the first book of the Old Testament has much in common with the literature of Babylon, Canaan, Egypt, and with folklore in many other lands around the world (p. 4).

The author makes several other statements indicating his contempt for the idea that the Old Testament is the inspired word of God. An example is his attitude toward angels. He writes,

> The sense of the isolated holiness of God led to the Jewish form of belief in angels. . . . But, perhaps under Persian influence, Judaism developed an ordered system of archangels and angels. . . . With this there developed belief in evil spirits, as in Zechariah 3:1; they were sometimes thought of as evil angels . . . (p. 8).

Another example is his claim that Jewish religious ideas evolved. He says,

> Exodus, 'The Way Out,' is one of the Bible's most dramatic books describing the evolution of Jewish religious thought from polytheism to belief in One God who will save mankind . . . (p. 27).

Even though Thurlow seems not to believe that Adam brought sin into the world and the corresponding need for a Savior, he does accept the reality of the Savior, Jesus. He says,

> So we talk of the Resurrection and the Ascension. We do not understand the full meaning of these words, but we believe they describe facts, which reveal truth of vital importance to all humanity, for they tell us about our being and our future (p. 11).

The beautiful photographs by Sonia Halliday of medieval stained glass, woodwork, reliefs, manuscripts, and murals will probably result in this book being purchased by many devout Christians, but the text by Thurlow degrades its value to those who believe in the Bible as the word of God. Creationists should encourage Christians to seek pictures of medieval stained glass in books that reflect the divine origin of God's Holy Word.

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LETTERS TO THE EDITOR

Article By John Byl

The September 1990 issue of *CRSQ* indicates that creationist literature is reaching a new level of credibility. The editors and authors deserve commendation and encouragement. The paper by John Byl merits intensive rereading, even memorization (Byl, pp. 68-71). But I must express exception to two sentences in Dr. Byl's treatment: ". . . Setterfield's model . . . still is to be preferred over competing theories that do not [satisfy the Biblical framework]" (Byl, p. 69).

Our concept of God's character requires His revelations to be both truthful and harmonious. Some critics have contended that the first and second chapters of Genesis present diverse creation accounts, written by two individuals who lived several hundred years apart. Genesis 2:19, 20 in the King James version suggests that the (other) animals that inhabit land and air were created *after* Adam. The apparent conflict with Genesis 1:20-27, 31 is due to the limitation of the Hebrew language to only a simple past tense, no pluperfect "had made" in elaboration of a simple "made." Genesis 2:19 specifies that all the animals presented for naming by Adam had been created by God. Genesis 1:22-27, 31 provide additional specifications that they were created on the fifth and sixth days of Creation Week, prior to Adam's creation, and require the elaboration of a pluperfect understanding of Genesis 2:19a, as in the New International Version.

Genesis 1:16 specifies that the extraterrestrial objects which became visible from Earth on the fourth day of Creation Week were creations of the Deity Whose Creation Week manifestations are described. There are no additional Biblical statements which directly clarify a distinction between simple past and pluperfect past for Genesis 1:16, as there are for Genesis 2:19a. If the distinction should be critical, the need for clarification would be apparent to a Creator with the capabilities portrayed in the Bible. This foresight would be expected to incorporate definitions of key terms which might become misunderstood in the normal development of word meaning and connotation in human language, or as a consequence of the difficulty in preserving precise meaning in a translation. Such key terms are "heaven," "earth," and "day."

Most, possibly all, contributors to *CRSQ* have no difficulty interpreting the repeated definition of "day" in Genesis 1 to exclude the concept of an epoch that may be a long period of time when used in connection with Creation Week, even though the term is clearly used in a figurative sense in some subsequent portions of Scripture. Regardless of expanded or figurative use "heaven" and "earth" may have elsewhere, their meaning in use associated with Creation Week is clearly specified in Genesis 1:6-10. Extraterrestrial luminaries were not visible from the surface of planet Earth until the fourth day of Creation Week (Genesis 1:14-19). The creation account is explicit concerning the Primary Cause for these objects. The translators of the King James version had no basis for specifying a pluperfect in preference for a simple past in Genesis 1:16, such as there is for Genesis 2:19a; nor did they have a basis for excluding such specification. Modern individuals whose scientific knowledge strongly impels toward a pluperfect sense for the creation of extraterrestrial objects should not be hindered from enjoying the benefits of faith in the first eleven chapters of Genesis as God's Word, accurate in every specification.

For the benefit of readers who may have difficulty adjusting to this insight, let me point out that whether translated "heaven" or "heavens" in the introduction of Genesis 1:1, 2, the conclusion summary of Genesis 2:1, 4a, or the intervening text, the Hebrew original is the same, *Shamayim*, a plural form which is never used in a corresponding singular. Any difference between the translation of *shamayim* or *erets* (earth) in Genesis 1:1, 2 or 2:1, 4a and in Genesis 1:6-10, as in the New International Version, is an interpretation of the translators, and is not a specification of the original text.

Going back to the problem sentences in Dr. Byl's paper, on the basis of the considerations outlined in this letter, I can classify Setterfield's proposal as an attempt to accommodate a creation model that goes beyond the basic stipulations of the Biblical text. The hold of long-established usage will prevent many individuals from accepting the viewpoint I have introduced here. I present it for the liberation it can bring to individuals who expect truth and harmony in all God's revelations, whether through the Bible, astronomy, planetary and planetary satellite features, mineralogy, or isotope relationships. The finding of this harmony is a challenge second only to that of affirming revealed truth, regardless of whatever scientific "understanding" (whether lacking or apparently contradictory) we may have.

Reference

Byl, John. 1990. On the viability of variable constants. *Creation Research Society Quarterly* 27:68-71.

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Australian Creationist Journal

I would like to call attention to the publication of volume 4 (1990) of the *Ex Nihilo Technical Journal.* Australian palaeoanthropologist Greg Beasley contributed a paper entitled 'Pre-Flood Giantism: A Key to the Interpretation of Fossil Hominids and Hominoids.' He demonstrates how, for example, *Sivapithecus* is but a giant form of the modern orang-utan, and that the fossil remains trace out a post-Flood migration path from Ararat to Borneo and Sumatra. Similarly, morphological shrinkage can be seen in the fossil australopithecines along their migration path from Ararat through Ethiopia and Tanzania to the modern pygmy chimpanzee in the Congo. In another paper, French sedimentologist Guy Berthault reports on experiments he has conducted on lamination in sediments in still and running water. His results clearly demonstrate that multiple layering results from turbulent flow. In this volume of the journal are also several further papers on the speed of light controversy, including a regression analysis of the historical measurement data by statistician Michael Hasofer.

We are also pleased to announce that beginning in 1991 our journal is moving to annual publication in two issues, to appear at six-month intervals. To coincide with this increased publication schedule, we are making a slight change to the name of the journal to *Creation Ex Nihilo Technical Journal,* to bring it into line with our parent layman's magazine *Creation Ex Nihilo.* In 1991 our *Creation Ex Nihilo Technical Journal* will also be issued on a subscription basis.

For copies of volume 4, or subscriptions, readers in the United States are asked to write to:

Creation Ex Nihilo Technical Journal
PO Box 710039
Santee, CA 92027

Readers elsewhere can write to me.

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QUOTE

These discerning comments help bring to focus a central aspect of Bacon's utopianism, and of a great strand of thought after him. The one great One is now totally immanent; it is mankind organized as the state; its instrument in issuing a new ultimate decree, a new predestination for man and nature, is technology and science. Science is thus cast into a messianic role and becomes progressively basic to utopianism.

Rushdoony, Rousas John. 1971. The one and the many. Craig Press. Nutley, NJ. p. 274.