MINISYMPOSIUM ON VARIABLE CONSTANTS—XI

CRITIQUE OF "RADIOHALO EVIDENCE REGARDING CHANGE IN NATURAL PROCESS RATES"

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Abstract

The conclusion of the previous article (Brown, 1990) that the sharpness of halo rings established the constancy of radioactive decay rates is examined and rejected. The conclusion is found to rest on uniformitarian assumptions, the validity of quantum mechanics at all past times, and on the view of the relation between "miracles" and scientific considerations. Lastly, some comments are made on some faulty claims relative to the proximity of Po and U halos and on the implications of the darkness of halo rings and/or densitometer studies.

Constant Decay Rates?

This paper (Brown, 1990) concludes that the sharpness of halo rings essentially establishes the constancy of radioactive decay rates within a factor of two over geologic time. Near the end the article goes even further and says that the "most reasonable conclusion" of theoretical analyses is that "radioisotope half lives and basic laws" have not changed "over the time geological formations have been in existence, and probably not changed throughout the history of the universe." The author does not discuss—and in fact may not be aware of—the far-reaching implications of this purely uniformitarian conclusion, but this is precisely the information needed in order for most creationists to understand the issues involved in this article.

For example, if decay rates have remained constant, then creationists need to know it, for such a view firmly establishes the basis of conventional radiometric dating for fossils as well as rocks. It appears that many creationists have thought all old radiometric ages associated with fossils can be explained away by contamination from prior radioactive decay. It is true that dating methods based on K/Ar, Rb/Sr, or U/Pb techniques are susceptible to contamination, but evolutionists have recognized this possibility and have in certain instances complimented those methods with another technique—fission-track analysis—that is not susceptible to contamination.

Fission Tracks

Fission tracks form in minerals from the spontaneous fission of U-238, and their abundance relative to U-238 is interpreted as the radiometric age of the mineral based on a constant decay rate. One interesting feature about fission tracks in minerals is that they can be completely erased by thermal annealing. Afterward, a new set of tracks develops which, on the assumption of a constant decay rate, then "dates" the time of annealing. Has such an analysis been done on annealed minerals associated with bones? Yes! Gleadow (1980) carefully analyzed thermally annealed zircons contained in a volcanic tuff overlying hominid remains in Africa. His result was a fission-track age of 1.87 million years, which closely correlates with the K/Ar analysis of 1.89 million years on other material from the same layer (McDougall, Maier, Sutherland-Hawkes, and Gleadow, 1980).

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In arriving at conclusions about the constancy of past decay rates, the paper essentially utilizes the same argument used by geologists at the turn of the century. Two empirical equations relating halo radii and alpha energies of the U-238 decay chain with the respective half-lives are emphasized. One differentiates the first equation (1) and presumably arrives at a new equation (2) relating fractional differential changes in halo radii. Using Equation 2 it is concluded that significant changes in decay rates (or half-lives) have not occurred because halo radii have remained unchanged. Using Equation 3 the paper draws similar conclusions about the constancy of alpha energies—and hence physical laws in general.

What the paper does not say is that the results of this analysis depend completely on the past validity of quantum mechanics and, in particular, the assumption that the standard quantum mechanical interpretation of radioactive decay is correct. But the past validity of quantum mechanics is hinged on the implicit use of the Uniformitarian Principle, the assumption that physical laws have remained unchanged. In other words, the author has used uniformitarian premises to conclude uniformity of radioactive decay. This is one reason why the uranium radiohalo test for decay rate stability is based on circular reasoning (Gentry, 1984).

Faith in Uniformity

A strong faith in uniformity of physical laws comes out most clearly in the discussion near the end of his article where electrical, short-range and long-range nuclear forces are assumed to have always been the same as they are today. This section says it is:

> highly unlikely that changes in the basic natural laws for these three forces (interactions) could be compensatory for large changes over the complete range of half life and alpha energy of all the alpha particles produced by spontaneous nuclear transmutation (Brown, 1990, p. 102).

Again, what the author considers to be "highly unlikely" is a conclusion based on the uniformitarian premises used in his own analysis.

Also, the idea that any proposal that such a change in decay rate has occurred is contrary to the available physical data, consequently specifies a miracle, and is a religious proposition that is outside the range of

scientific consideration, deserves special comment. Apparently the author has overlooked the fact that modern cosmology's view of origins begins with an event—the Big Bang—that has been openly acknowledged as "miraculous" by a prominent astronomer (Davies, 1982, p. 161), and yet has continued to be the subject of intense scientific investigation for several decades. And there is no question that at least some of that "scientific" interest has been fueled by a religious connection initiated by Lemaitre's anti-scriptural invention of a presumed Primordial Atom which supposedly started the evolution of the universe. Clearly, a religious attachment per se does not rule out scientific inquiry.

I suggest a broader view of this topic reveals that the miracles outlined in scripture, rather than being excluded from scientific investigation, actually may have resulted in such unusual physical effects that they can be ignored only by deliberate intent. Specifically, we have positive indication from Psalm 19 that God intended for his miraculous creative power exhibited in the heavens to point men to Him rather than to gods of wood and stone. Some men may ignore this evidence, but that does not alter God's purpose in their creation.

Should it not be expected, therefore, that the occurrence of miracles in the earth's creation would stand out boldly as contradictions within the uniformitarian framework of earth history? Such contradictions should be scientifically explored to the fullest, for in so doing they may add their weight to the testimony of scripture concerning God's creative activity. Indeed, the creation of the earth was a miracle, and scientific investigation shows there is solid scientific evidence to support it (Gentry 1974, 1984, 1988). The Flood was a miracle, and there is considerable scientific evidence to support this as well.

Likewise, in considering the age of the earth, we should realize that radioactive decay does not have to be interpreted as Brown has done in his article. In a separate publication I discuss another model of radioactive decay which completely invalidates the use of uranium-ring sizes as a measure of decay-rate change (Gentry, 1990). The fact that large decay rate changes could have occurred in this model without being reflected in enhanced ring sizes means that we must search elsewhere to find evidence of those changes. Such investigations have already been done, and scientific data strongly supportive of a young age of the earth, which is also at variance with the assumption of constant decay rates, have been published in the open scientific literature for many years. (Gentry, et al., 1982a, 1982b). All these evidences are discussed at length in a book, *Creation's Tiny Mystery* (Gentry, 1988).

Halos

Lastly, a few comments need to be made concerning the author's claims relative to Po halos and U halos. First, the claim of common association of Po halos and "complete uranium radiohalo ring sets" is not supported by the data in his reference of my article (Gentry, 1987). Neither is it supported by any of my other publications on this topic. Then how can this claim be understood? Apparently the author has taken one photograph shown in my article (Gentry, 1987), where I showed a U halo adjacent to a Po halo, and used that one photograph as the basis for claiming U halos and Po halos are "commonly associated with one another." It is not clear why or how the author managed to overlook the many instances in my publications (Gentry, 1968, 1971, 1974, 1984, 1987; Gentry et al., 1974) and in my book (Gentry, 1988) where Po halos and U halos in minerals are shown to be separate and unassociated with each other.

The second item concerns the author's view that some U halo rings might be darker than expected because Po can be separated from U and then deposited along with U in the halo center. In this case we must carefully separate fact from unsupported speculation. All the radioelements in the U decay chain—Pa, Th, Ra, Rn, Po, Bi, and Pb—can be separated from one another because they have different chemical properties. This is an experimental fact that has been confirmed numerous times. Indeed, in my studies on halos in coalified wood I found overwhelming evidence that Po derived from U decay was a part of the U-rich solution that invaded the gel-like wood at an earlier period of earth history and, moreover, was accumulated in PbSe sites within this matrix (Gentry, et al., 1974). Uranium, however, was not detected in these sites. Thus, even under ideal natural circumstances—meaning a large supply of U and its daughters—the experimental evidence shows that U does not accumulate in sites that retain secondary Po. Neither is there any evidence that Po would accumulate into typical U-halo centers such as zircons and uraninites.

This last fact relates directly to Brown's conclusion that he is not aware of any "thorough investigation" of ring densities which would determine Po/U ratios in U halos. Two matters are relevant here: (i) Obviously, if there is no evidence for Po accumulation in U-halo centers, we can hardly expect that an analysis of ring densities would reveal an accumulation that never occurred, which accords with the results of my investigation of U-halo ring densities that was published 16 years ago (Gentry, 1974); (ii) these results have not been challenged during the intervening period either by Brown or anyone else.

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ARTICLE REVIEW

Creationism and the Dinosaur Boom by W. L. Stokes. 1989. *Journal of Geological Education* 37:24-26.

Reviewed by Paul A. Garner*

Stokes' article sets out to criticize and refute the creationist model of earth history as it relates to the dinosaurian reptiles. Paul S. Taylor's book, *The Great Dinosaur Mystery (1987),* written for children, is particularly singled out for attention—Stokes calls its contents "a contrived fairy tale" (p. 26). However, Stokes' commentary consists of many misrepresentations and some easily-avoidable errors.

Stokes criticizes Taylor for using phrases like "long ago" and "thousands of years" without specifying the creationist belief in an earth age of 6000 years. Firstly, most creationists believe that the earth was created sometime between 6000 and 10,000 years ago. This notwithstanding, Stokes' criticism is insubstantial: evolutionist literature on dinosaurs for children commonly talk of "millions of years" without specifying a uniformitarian earth age of 4600 million years (e.g. Wise, 1963).

Taylor is criticized for noting the case of the wrong-headed dinosaur—the Brontosaurus (now a technically defunct name as Stokes points out). Stokes claims that creationists use such stories to imply that scientists make ridiculous blunders and are likely to be dishonest about many other things too. Note that in Stokes' mind the terms 'scientist' and 'evolutionist' appear to be synonymous. In actual fact, creationists refer to these cases as examples that although most scientists are sincere, they can be mistaken or in error This, of course, holds true for creation scientists and evolutionists alike. No human being is infallible, free from bias, or entirely objective.

Furthermore, Stokes complains that creationists have made no scholarly attempts to excavate, reconstruct and name dinosaur specimens. However, as Emmett L. Williams has pointed out in a previous editorial in this Quarterly, creation scientists do not have access to the funding for research that is available to evolutionists, nor are the establishments where they work always sympathetic to creationist views (Williams, 1988). It is the very attitude toward creationists that Stokes' article fosters that perpetuates such an undesirable situation.

In his book, Taylor warns against uncritical acceptance of artistic reconstructions of dinosaurs, in light of the relative paucity of evidence as to their true life appearance. Stokes caricatures Taylor's position as implying that deceit governs such reconstructions, and asks why Taylor's book contains dinosaur illustrations if this is the case. Stokes has obviously not read Taylor's work very carefully. To quote from the section of the book that Stokes is referring to, Taylor says (p. 14): ". . . no pictures of dinosaurs *in this book or any other* are exactly right. Every dinosaur painting is sure to contain at least some wrong information" (my emphasis).

The contemporaneity of man and dinosaurs is also denied by Stokes, unsurprisingly. He asks why no dinosaur skeletons have been found alongside those of advanced mammals (e.g. man), yet he makes no mention of an article by Woodmorappe (1983) which includes a review of the causes for the virtual absence of pre-Pleistocene human fossils within a Flood geology model. Also he inquires why no mammalian or human footprints are found among those of dinosaurs, and why no dinosaurs appear in cave paintings. Examples of both these phenomena have been documented by creationists, however. Recently, Rosnau, et al. (1989a, b) have referred to quasihuman and quasimammalian ichnofossils which occur in the Mesozoic Kayenta Formation of Arizona along with dinosaur tracks. It should also be realized that ephemeral markings such as footprints require rapid lithification, sedimentation and burial in order to be preserved at all—creationists have little difficulty in accounting for such phenomena! As for cave drawings, Stokes' reading of Taylor's book is selective. On page 39, Taylor provides a photograph of an ancient Indian carving from the Grand Canyon which may picture a dinosaur.

Next, Stokes delves into the realm of Biblical exegesis and criticizes Taylor for an incorrect translation of Job 40:16. However, it seems that on this point Stokes has not 'done his homework' properly. Stokes claims that Job 40:16 says that the strength of 'Behemoth,' which many creationists believe refers to a dinosaur, lies in his "navel," and then questions that dinosaurs had navels. Taylor is accused of cleverly omitting the reference to the navel; Taylor's version says "the muscles of his belly."

However, Young (1939, p. 689) notes that of the three Hebrew words translated 'navel' in the King James Version, only two actually mean 'belly button' (e.g. 'shor' in Ezekiel 16:4, and 'shorer' in Song of Solomon 7:2). However, the word used in Job 40:16 is 'sharir,' and more properly means 'muscle' or 'sinew.' It would seem that Taylor's version is valid and accurate.

Stokes denies that dinosaur graveyards are due to mass catastrophe, either during the Flood or in post-Flood times. He attributes all to ordinary accumulations in bogs, around drying water holes, or on river sand bars. However, many of the accumulations seem to testify to unusual events, and easily lend themselves to catastrophic modeling. According to one's precon-

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ceptions one could take this evidence to represent many local catastrophes within a long-age, uniformitarian framework or as evidence of Flood-burial and rapid post-Flood sedimentation. Other factors (e.g. out-of-place fossils, lack of paleoerosion in ancient strata, evidence from paleoecology of unbalanced and disturbed ecosystems, refutations of radiometric data and evidence of young age for the rocks, etc.) favor the latter option. Examples of such dinosaurian graveyards abound. For example, Norman (1985, p. 76) says:

> Today *Plateosaurus* remains are known to occur in mass concentrations of relatively complete remains, notably at Trossingen in the Federal Republic of Germany, Halberstadt in the German Democratic Republic and La Chassagne in France.

There is also a well-documented *Iguanodon* graveyard at Bernissart in Belgium. Many dinosaur fossils also give clear indications of having been buried recently and rapidly. For instance, in 1925 Charles W. Gilmore described a beautifully preserved, almost intact skeleton of a young *Camarasaurus* discovered at Dinosaur National Monument in Utah. If such a specimen had not been buried rapidly the carcass would have rotted away, or been scavenged by carnivores (Norman, 1985, p. 86). Around the skeleton, and particularly between the ribs was found a thin carbon layer, probably the remains of the creature's skin! Is it really possible that traces of skin could be found after tens of millions of years?

Stokes refers to "scores of fossil forests with trees standing in place" (p. 26). However, many of these deposits have been, or are being reinterpreted in a manner more supportive of Flood geology. For example, the Cromer Forest-Bed Series of East Anglia, England was once considered to represent *in situ* forests. A more modern interpretation is that the tree stumps did not grow in the spot, but were swept into position (Chatwin, 1961, p. 57). The case of the Yellowstone fossil forests is well known to many creationists, and readers of the Quarterly are directed to the works of creationist Harold Coffin for further information (Coffin, 1976, 1979a, b).

Stokes also would like evidence of geological deposits containing mixtures of fossil marine shellfish, land-dwelling vertebrates and vegetation from diverse environments, which he supposes would be laid down in a catastrophic flood. Geology can indeed furnish him with numerous examples. Francis (1961, pp. 18-19) writes of a stratum in England which contains fossilized mosses (freshwater), along with marine crustacea and fish. In fact, he comments that such mixed strata are "well known features of coal measures of all ages." Francis also refers to "the evidence of the fossil-bearing layers of the lignites of Geiseltal in Germany. Here also is a complete mixture of plant, insects and animals from all climate zones of the earth capable of supporting life" (p. 18). In the sequence of strata overlying the Cromer Forest-Beds I referred to earlier is a marine bed containing molluscs of both arctic and temperate species. Wright (1937, p. 110) says of this stratum, "the evidence is conflicting as to the climate." Andrews (1961, pp. 201-202) refers to similar inconsistencies in the flora of the Chalk Bluffs of Central California, and comments: "This occurrence of climatically divergent elements in a fossil flora is not an uncommon problem

" The Eocene London Clay also contains a mixed flora of tropical and temperate species (Andrews, 1961, p. 189). Fritz (1980, p. 309) comments on a similar phenomenon from the Yellowstone petrified forest beds, and says that the mixture of tropical and temperate plants is extreme, and is damaging to the *in situ* theory of how these beds were deposited. Wieland (1989) writes about an Upper Carboniferous deposit of the coal basin of Montceau-les-Mines, near Autun in France which contains a mixed marine-freshwater-terrestrial faunal assemblage which appears to have been entombed rapidly. Finally, Norman (1985, pp. 158-59) comments on a quite recently discovered *Scelidosaurus* skeleton from Charmouth, England, a terrestrial dinosaur found in association with sea-dwelling plesiosaurs and ichthyosaurs.

Evidence that dinosaurs and other large reptiles survived well into historical times is dismissed in a single paragraph without any rationale being given by Stokes for doing so. Yet there have been many evolutionists who have become convinced by the historical, and modern documentary evidence. For example, the world-renowned ornithologist and conservationist Peter Scott, founder of the Wildfowl and Wetlands Trust and the Worldwide Fund for Nature, was personally convinced that a population of large, paleohistoric reptiles was still inhabiting the depths of Scotland's Loch Ness. Roy Mackal, the University of Chicago, has spent much time and effort in his attempts to track down the 'Mkele Mbembe' of the Congo Basin which he believes could well be a living dinosaur. Bernard Heuvelmans draws attention to the numerous examples of 'living fossils' and documents evidence that there are further 'living fossils' (including dinosaurs) still to be discovered (1958). Many other examples could be given–it is surely unwise for Stokes to be quite so dogmatic about the fate of the dinosaurs and other supposedly extinct creatures, when other respected scientists are more open-minded.

Stokes' article contains other comments and criticisms, but this review has answered his main points. The scientific evidence relating to dinosaurs does not lend support to evolutionary hypotheses, but instead confirms the biblical account of earth history. A recent article in the *Journal of the Biblical Creation Society* outlines evidence of design in the dinosaurs, highlights the startling lack of transitional forms or dinosaur ancestors, and shows that the facts more readily confirm creationist views of these magnificent animals (Darrall, 1989). I heartily recommend Dr. Darrall's article, and Paul Taylor's book* to anyone, adult or child, who wants to read an informed account of how the dinosaurs fit into the biblical Creation-Flood scenario.

*Readers may be interested in a recent book review of Taylor's book– *CRSQ* 25:49.

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BOOK REVIEWS

How Life Began by L. R. Croft. 1988. Evangelical Press. Durham, England. 120 pages. $10.00.

Reviewed by David and Kenneth Rodabaugh*

This book presents many recent discoveries, particularly in the field of molecular biology, that render the naturalistic explanation of life's origin impossible and provide strong evidence for special creation. L. R. Croft, a lecturer in the biological sciences at the University of Salford, is quite thorough in displaying why he considers the 'primeval soup theory' to be the greatest scientific myth of all time. He discredits several current theories advanced since Darwin to account for a naturalistic transition from nonlife to life and completes the book by providing strong proof of intelligent design.

The author refutes the evolutionary explanation by detailing biochemical processes and a critical review of his discussion requires greater expertise in chemical and molecular biology than is possessed by the reviewers. Although many areas of the book are quite technical, the arguments are convincing and references are provided for those who cannot verify the finer points from personal knowledge.

The author begins by giving the reader a history of the philosophical and scientific viewpoints regarding the origin of life from Greek civilization up to the present times. This is most interesting as many of us living in societies where religious freedom is granted neither connect evolution with its mythological origins nor consider the influence which atheists and Marxists have gained through its inception into our school systems and scientific communities (pp. 7-13). It is pointed out how our society has blindly accepted as scientific that which is merely a frantic attempt to justify myths through politics and scientific forgery. As an example of this, the author states that originally Darwin himself pointed to a supernatural creator for the origin of life to merely lessen the tumult he knew his book *Origin of Species* would create (p. 21).

Since Darwin, the scientific community has covered up the lack of evidence for such beliefs and derived many theories which they hope will explain their incredible premise. Currently, the most widely held theory of origins is that life on earth arose millions of years ago in a certain 'primeval soup' present in pools of water through a mixture of atmospheric elements with sunlight, electricity or other form of heat. This viewpoint is presented in most public school textbooks on the matter along with evidence which is cited and presumed fact. The book closely examines these alleged facts.

The author demolishes, "The myth of the primeval soup," in Chapter 3.* In considering Miller's 1953 experiment and subsequent experiments where amino acids were formed through applying heat to elements alleged to be in the primordial atmosphere, the author mentions: 1. that these amino acids were racemic (both D and L forms) and thus proteins formed from these would not support life; 2. the majority of amino acids do not belong to the 20 amino acids that occur in natural protein molecules (pp. 40-45). His conclusion is that three decades of experimentation show that small traces of nearly any simple organic compound may be produced, but this is a far cry from the formation of life. He states, "The entire primeval soup story is a classic example of how easily science may enter a blind alley and become inextricably lost" (p. 45).

Several problems in the formation of giant biomolecules are outlined on pages 45-54. One well-known problem in the formation of polymerized proteins in water is that water loss is necessary for this process. Living organisms solve this problem with the presence of enzymes and the molecule ATP. It is clear the enzymes were not present in the primordial soup. Even if they were formed, they would not have lasted long since the primeval soup was by definition a conglomeration of nearly every conceivable chemical substance. There would have been innumerable enzyme inhibitors present to inhibit an enzyme as soon as it appeared. Thus, such molecules could not have formed; however, even with the assumption that they had formed, they could not have remained**

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*Editor's Note: The title of chapter four in Thaxton, C. B., W. L. Bradley and R. L. Olsen. 1984. *The Mystery of Life's Origin: Reassessing Current Theories.* Foundations for Thought and Ethics. Richardson, TX is "The Myth of the Prebiotic Soup." For a review of this book see Williams, E. L. 1986. *CRSQ* 22:200, 201.

**Editor's Note: Readers may be interested in the following articles on this subject: Williams, E. L. 1967. The evolution of complex organic compounds from simpler compounds: is it thermodynamically and kinetically possible? *CRSQ* 4:30-35; Williams, E. L. 1981. Fluctuations as a mechanism of ordering in Williams, E. L. editor. *Thermodynamics and the development of order.* Creation Research Society Books. Terre Haute, IN.