

Creation Research Society Quarterly

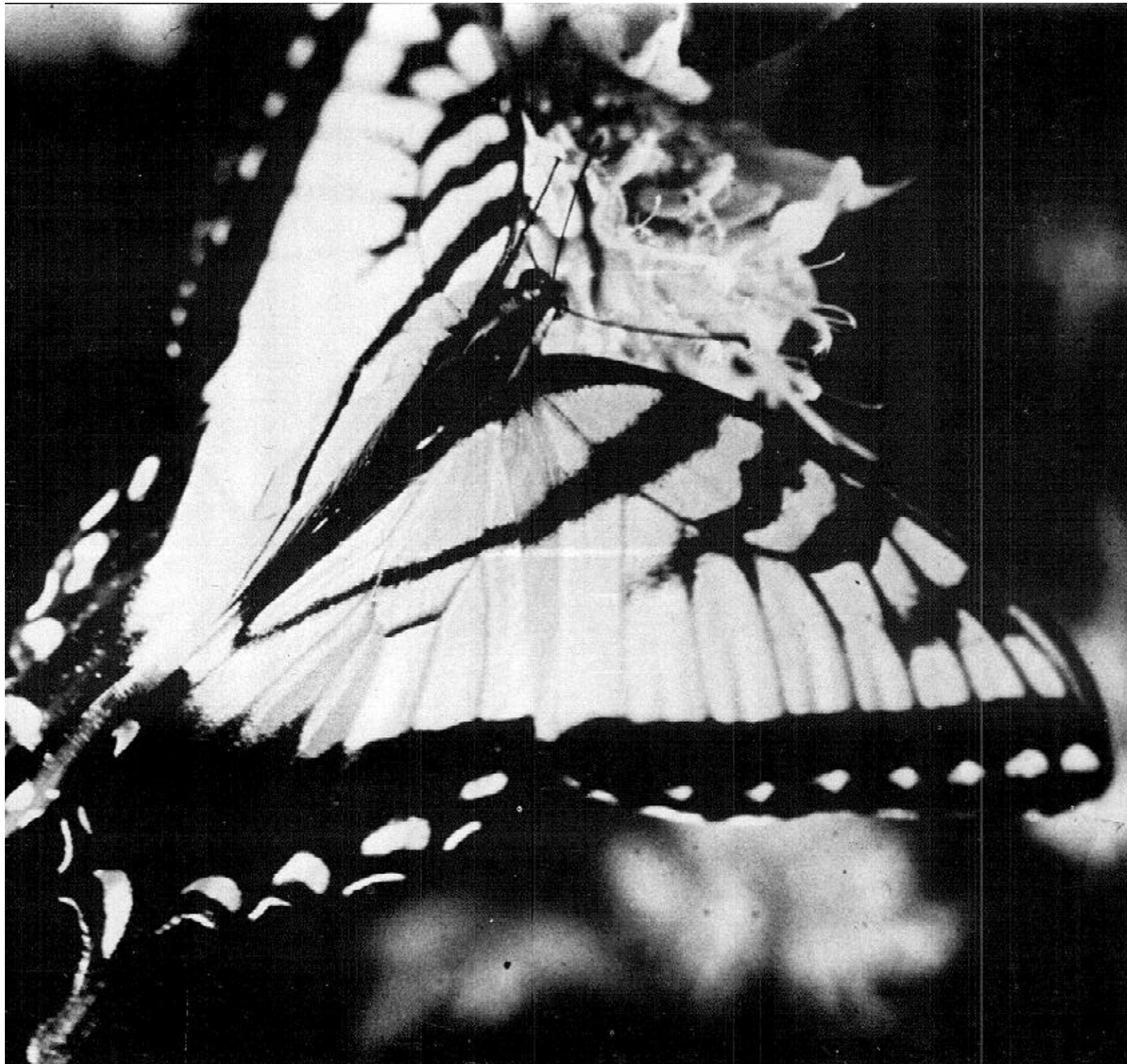
Haec credimus:

For in six days the Lord made heaven and earth, the sea, and
all that in them is and rested on the seventh.—Exodus 20:11

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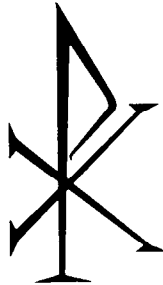
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COVER ILLUSTRATION

On the front cover is a picture of a Tiger Swallowtail butterfly, taken by Mr. Gordon Pratt, of the Department of Biology, Queen's University, Kingston, Ontario, Canada. The picture is used here by permission.

The most striking thing about butterflies is, of course, their wings. But the wings of insects generally are remarkable in more ways than one. For one thing, it is very hard to see how the wings, and the ability to fly, could ever have developed according to any evolutionary scheme. To be sure, such schemes are hinted at, but they are so implausible that one wonders whether even those who propose them really believe them.

Mr. Stephen Butt discusses this matter of the flight of insects in an article elsewhere in this issue of the *Quarterly*. He shows that the most reasonable view is that the insects were created with the equipment for flight, and the ability to use it.

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QUOTABLE QUOTE

"The atheist's impatient refusal to believe that spirit could beget matter only made Silin smile.

"Why don't they ask themselves how crude matter could beget spirit? That way round, it would surely be a miracle. Yes, a still greater miracle!"

Alexander Solzhenitzyn in *The Gulag Archipelago*. This quotation was suggested by Mr. W. Witter, who teaches at the Greenville Senior High School, Greenville, Ohio.

INSECT FLIGHT: TESTIMONY TO CREATION

STEPHEN BUTT*

Received 6 September, 1979.

The evolutionists propose utterly different schemes, alike only in their implausibility, for the origin of flight among insects. As the saying is, when they differ so they can not all be right, but they could all be wrong.

Creationists, on the other hand, can view the great variety of methods of flight among insects as evidence of the Creator's skill, in giving His creatures equipment to make them fit for the style of life to which He assigned them.

The flight of insects is a fascinating phenomenon which has inspired much study by scientists. Insects are the only invertebrates which possess this capability. This enables them to exist in great numbers of environmental situations, so they are much more diverse than other invertebrates, with approximately one million species described.

The typical insect wing is a superbly designed flying tool. It consists of a thin membrane reinforced throughout with numerous veins which result in a very functional compromise between weight and strength. The anterior portion of the wing is stiffened with a heavy costal vein, and the wing then becomes thinner and more flexible toward the trailing edge. This structure is capable of a very strong sculling action. This sculling action can be analogized by fanning air into a fire.¹ If one selects a flat board for the task, he will find it quite ineffective. A small piece of rug held stiff on one margin, or a moderately flexible piece of cardboard is much more effective.

Insects which have two pairs of wings frequently join the anterior and posterior wings by means of hooks and grooves to create a single sculling unit as in the case of the Hymenoptera and many Lepidoptera. Insects such as the Odonata, which do not have their wings joined, overcome the problem of air turbulence by beating the front and rear pairs alternately.

Wing movement in insects is complex, and consists of elevation and depression, fore and aft movement, pronation and supination (twisting) and changes in shape by folding and buckling.² The wingtips describe a figure-8 pattern. Many insects can hover or fly backward by changing the angle of the figure-8. Some of the very good fliers (Diptera, Hymenoptera, and some Lepidoptera) can fly sideways or rotate about the head or tail by employing unequal wing movement. Romoser points out that the wing movement of insects is so efficient that it produces a polarized flow of air from front to rear during 85 per cent of the wingbeat cycle.²

Insects with a large wing area and a slower, fluttering flight such as Isoptera, butterflies such as *Papilio*, and the Odonota, have the wing muscles attached directly to the wings, and one nerve impulse creates one wing muscle contraction, much like invertebrate muscle. The Ephemeroptera utilize this scheme. Their wings are constructed like corrugated sheets, which are very poor for a forward sculling action, but are admirably suited to the peculiar up and down flight they employ for the mating process, as they do not feed while in the adult stage.¹

The Hymenoptera and Diptera, and some Lepidoptera such as Sphingid moths, must combine ex-

cellent flying ability with a small wing area. A honeybee, for example, could not function well in its hive, if it had large wings which are bulky even when folded over the back, as in *Papilio* or the Dobson Fly. They compensate for a reduced wing area with a very rapid wingbeat. Wingbeat frequencies vary from 55 per second for some beetles, to over 200 per second for the honeybee, and an incredible 1,046 per second for a midge (*Forcipomyia*). Clearly, nerve tissue is not capable of firing this many times a second. These insects move their wings by an indirect, asynchronous muscle scheme. Opposing pairs of muscles act to depress and elevate the top of the thorax, to which the wing bases are attached. With a portion of the thorax as a fulcrum, the wings are levered up and down. A single motor nerve stimulus begins a cycle in which the contraction of one member of a muscle pair stretches the opposing muscle and stimulates it to contract. This process can be repeated several times before another nerve stimulus becomes necessary to reinitiate the process, so very high wingbeat frequencies can be obtained. The natural elasticity of the thorax in the Diptera and some Coleoptera acts to enhance the activity by imparting a "click" action in which the wings are relaxed in the up

NOTICE OF OPEN MEETING

Notice Regarding Research Reports

An open meeting of the C.R.S. Board will be held beginning at 1:00 p.m., Friday, April 18, 1980, at the Concordia College, Ann Arbor, Michigan.

The C.R.S. does not hold conventions, and this meeting is not to be understood as a Creation Seminar in the usual sense of that term. However, various individuals and groups carrying out research under the auspices of the C.R.S. will give progress reports on such activity. C.R.S. members wishing to present short reports of their own creation research projects should write to Dr. Emmett Williams, Jr., 5093 Williamsport Drive, Norcross, Georgia 30071, submitting a one-page abstract of the data and conclusions to be shared. The abstracts may be printed for circulation at the meeting. Dr. Williams will coordinate the session and will include as many papers as time permits. Those wishing to attend are cordially invited.

General announcements and progress reports will also be given on Friday, possibly at a session held Friday evening, beginning at 6:00 p.m.

On Saturday morning, April 19, 1980, the Board of the C.R.S. will go into closed session.

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and down positions. As they pass the center of the wingbeat pattern, they are driven swiftly to the extremes by this spring action.

Truly the existence of such marvelous design must corroborate the testimony of scripture that God's eternal Power and Godhead are revealed by the things that are made, so that man is without excuse if he rejects the truth. Evolutionists find the existence of insect flight as thorny problem in their scheme of things. The fossil record helps very little, as the earliest fossil, believed to be of Devonian age, is a Collembolon, a wingless order well represented on the earth today; while the oldest fossils of winged insects are found in the Carboniferous. All of the winged fossils are fully winged, with no transitional forms.—

Alexander and Brown outline three principle theories for the origin of insect flight, then add a new one of their own. The first theory, the "flying fish" hypothesis was developed by Oken.⁴ He believed that wings are homologues of nymphal gills of a primitive insect, as abdominal gills are sometimes locomotory organs, and they began to be used as gliding organs, when insects leaped out of the water to escape predators. No notal thoracic gills, however are present in juveniles of modern insects, and tremendous difficulties are evident in transferring a juvenile apparatus constructed to function underwater to an adult device used for locomotion in the air. The flying fish analogy is not serviceable, because insects are too small to break through the surface film in a similar fashion.

Forbes points to the fact that notum projects laterally in crevice dwellers such as cockroaches, millipedes, and silverfish.⁵ He believes that these projections could have been enlarged sufficiently to serve as guiding planes affording a selective advantage in the form of dispersal and escape, and that muscles were introduced first to steer, and later to power these appendages. A major problem with this hypothesis is explaining how notal flaps could afford a selective advantage before they were large enough to serve as gliding planse.

The third hypothesis introduced by Wigglesworth⁶ states that wings arose in tiny, passively airborne species to increase buoyancy during windborn dispersal, muscles appearing later to provide control during takeoff and landing, and then flapping flight. An argument against this hypothesis is that small insects such as aphids have such a small mass that active control of flight is virtually impossible. Drastic changes in structure would be necessary to make flapping, controlled flight a possibility. Also, it is not explained by this idea why wings are restricted to adult forms.

Alexander and Brown hypothesize insect wings arose as mating display devices.³ They mention among other things that wings of the flightless red katydid and many Gryllids are used in stridulation, and also are lifted to expose thoracic glands from which the female feeds during copulation. They also point to the band-winged grasshoppers (Oedipodinae) which employ wing noises and display of brightly-colored underwings as mating behavior. Wings would thus have originally arisen as mating display devices on the male, and later have evolved a flying function. They also point to Paleodictyopteran fossils, which have fleshy pronotal lobes in

addition to large meso- and metathoracic wings. They believe that the lobes took over an epigamic display function from the wings, once the wings had evolved a locomotory function. A problem with this hypothesis is explaining how the wings thus developed could be transferred to the female insect, and why the aforementioned tree katydids and Gryllids remain flightless if flight affords a selective advantage. Fossil evidence for the hypothesis is also lacking.

The presence of such differing theories of insect flight gives testimony to the fact that biologists are reluctant to leave any of the pages of the evolutionary scheme blank even when faced with meagre and conflicting evidence.³ The fossil record lends so little support that entomologists are free to imagine anything about the origin of insect flight.⁶ The fossil record, with its numerous examples of fully developed flying insects, and lack of transitional forms, testifies that God created the living things to reproduce their own kind (Gen. 1:24). The engineering marvel of insect flight is one of God's many works that display His wisdom (Psalm 104:24). Our understanding of God's role in creation and especially His creation of us human beings is linked with out need of the gospel. Rev. 4:11 states that God is worthy to receive glory, honor and power because He created all things and gives them their being. We are morally bound by God's creative ownership of us to bring Him glory and honor by obeying his law perfectly. In light of our rebellion against this imperative, how merciful it was of God to speak to us by His Son through Whom He made the universe (Heb. 1:2) to effect our atonement (Rom. 3:25)! When we behold the marvel of insect flight, we should rejoice that it displays God's handiwork and be humbly grateful that Christ the Creator (Col. 1:16) stooped so low as to provide salvation for those men of His creation who will call on Him.

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Jupiter's Galilean Moons

(Continued from page 208)

- ⁹Smith *et al.*, *op. cit.*, p. 962.
- ¹⁰Slusher, Harold S., and Thomas P. Gamwell, 1978. The age of the Earth: a study of the cooling of the Earth under the influence of radioactive heat sources. Creation-Life Publishers, San Diego.
- ¹¹Smith *et al.*, *op. cit.*, p. 962.
- ¹²*Ibid.*, pp. 957-971.
- ¹³*Ibid.*, p. 969.
- ¹⁴*Ibid.*
- ¹⁵*Ibid.*
- ¹⁶Schefter, *op. cit.*, p. 57.
- ¹⁷1979. *Science News* 116, 181.

CELLULAR ORIGINS AND THE THREE "PRIMARY KINGDOMS": A CRITIQUE

KEVIN L. ANDERSON*

Received 26 July, 1979.

By use of two-dimensional electrophoresis of a cell's rRNA a 'fingerprint' of the cell can be produced. This "fingerprint" indicates the existence of a large difference between what has been termed "prokaryote" and "eukaryote". In fact, some select groups of organisms thought to be prokaryote are no more prokaryote than eukaryote. Thus three "primary kingdoms" have been proposed by evolutionists for these basic cell types.

Such a strong difference in the reproduction system of these three cell types indicates that any evolutionary history would have to be at a simple level with an extremely early divergence. As a result of this, the evolutionary model for the cell must consist of three coexisting paths rather than the classical single pathway.

In view of this a creation model would appear to fit more precisely with available data.

Introduction

The classical approach of evolution has maintained that the formation of proteins and nucleic acids from the "primordial soup" gave rise to what are called "simple prokaryotes". These in turn evolved into eukaryote forms. See Figure 1. The prokaryotes presumably then evolved into more advanced forms of bacteria, and the eukaryotes into the complex cells that make up most present multicellular organisms. See Figure 2. Thus all forms of life are thought to have had a single origin, and the basic cell types belonged either to *Prokaryotae* or *Eukaryotae*.

However, recent research has caused many evolutionists to take a different look at their model, and in turn to propose a new one. This new model splits the two kingdoms (*Prokaryotae* and *Eukaryotae*) into three "primary" or "urkingdoms": *eubacteria*, *urkaryotes*,³ and the most recent, tentatively called *archaebacteria*.⁴ Each of these kingdoms is conceived to have evolved along virtually independent evolutionary paths.

The implications of this are numerous and far

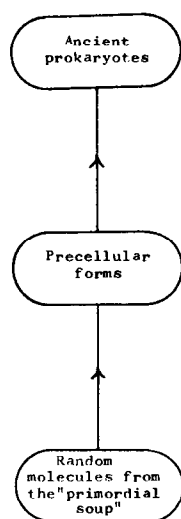


Figure 1. This shows the classical view of the evolution of prokaryotes.¹ In these illustrations, an attempt has been made to be consistent, in having the form or stage considered to be the oldest at the bottom, and more recent ones higher.

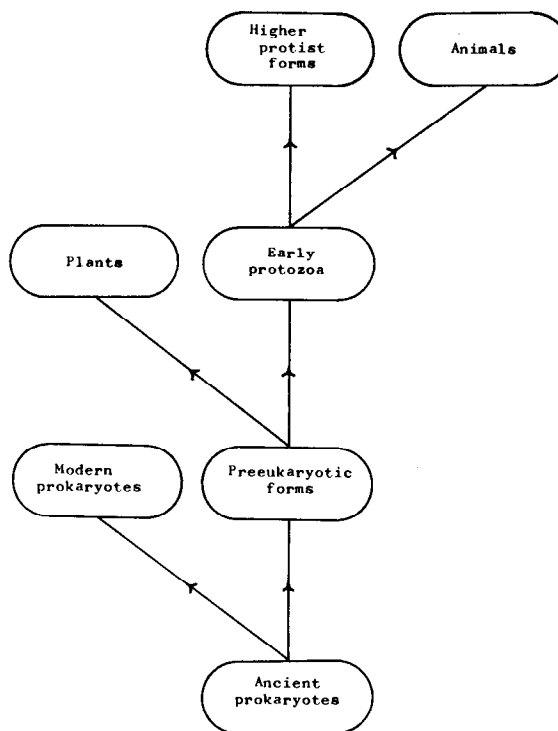


Figure 2. This shows the classical view of the evolution of the eukaryotes and advanced prokaryotes.²

reaching. This article is intended to introduce some of these new developments, and touch upon some of the implications for both evolution and creation.

Determination of Type

To study the alleged evolutionary history of an organism evolutionists feel they need a "comparative approach that can measure degree of difference in comparable structures . . ."⁵ The genome is believed to give the evolutionary history of that cell, and so the comparison of nucleic acid and protein sequences is becoming a strong evolutionary systematic tool.^{6,7} Ribosomal rRNA has been found to be of a broad enough distribution to cover the entire field of living systems. The 16S (18S for eukaryotes) rRNA has appropriately been used for the study of similarities and differences among cells.⁸

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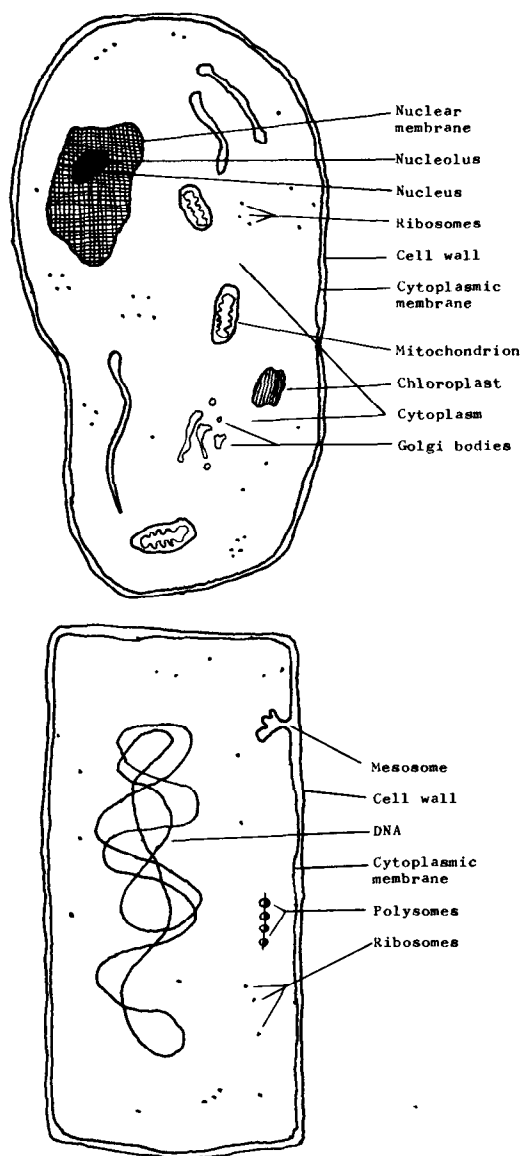


Figure 3. This gives a general comparison of a eukaryotic cell (above a plant cell), and a prokaryotic one (below, a rod-shaped bacterium). In other words, they are respectively a *urkaryote* and a *eubacterium*. The *Archaeobacteria*, incidentally, resemble the prokaryotes in their structure.

The method involves digesting the rRNA with T1 ribonuclease. "Primary", followed by "secondary", and "tertiary" two-dimensional electrophoresis gives oligomer groupings and their sequences. More detailed discussions of this method are published elsewhere,^{9, 10} and will not be dealt with further in this article.

The resulting two-dimensional patterns give a "fingerprint" of the cell's rRNA. These "fingerprints" show a consistent and distinct spot pattern for all three urkingdoms.¹¹ In fact, the *archaeobacteria*, comprised of cells thought to be prokaryote, are no more prokaryote in their rRNA than eukaryote.^{12, 13} So a broad gap separates the three types of cells, and therefore their conceived evolutionary history as well.

Eubacteria

The "primary kingdom" *eubacteria* contains all of the 'typical' bacteria (so far studied), and corresponds approximately to the conventional "prokaryote". It can be split into three major subdivisions consisting of 1) blue-green bacteria (algae) and chloroplasts, 2) "Gram-negative", and 3) "Gram-positive bacteria".¹⁴ See Figure 3.

These cells contain a "simple" nucleus. This nucleus consists of a single chromosome made of a double stranded molecule of DNA unbound by a nuclear membrane. They also lack membrane-bound organelles such as mitochondria. Their translational system consists of 70S ribosomes each composed of a 30S and a 50S ribosomal subunit. These subunits in turn contain 16S and 23S rRNA. The 16S rRNA is used electrophoretically to "fingerprint" the cell.

The association coefficients (S_{AB}) of these "fingerprints" has been found to be consistently similar among the *eubacteria*. See Table 1. More comprehensive sequence results of the three urkingdoms are published elsewhere.^{15, 16}

Urkaryotes

The *urkaryote* primary kingdom contains all of the typical eukaryotic cells, as well as higher protists (i.e., fungi, slime molds).¹⁷ See Figure 3. They contain a "complex" nucleus consisting of several chromosomes bound by a nuclear membrane. Surrounding this membrane is the cytoplasm, the outer boundary of which is the cytoplasmic membrane. Within this cytoplasm are the mitochondria and plastids. These smaller organelles contain their own DNA, and other reproductive material. Their physiology is geared toward energy production (in the form of ATP), and provides the cell with energy.¹⁸

The *urkaryotes'* cytoplasm also contains larger ribosomes than bacteria, consisting of an 80S, each made of a 60S and a 40S subunit. These rRNAs are larger, with a 28S, 18S, and a 5S. The 18S is used to "fingerprint" these cells. See Table 1.

The 16S rRNA of the chloroplast was "fingerprinted", and found to be more nearly like the 16S of the prokaryote than the 18S of the eukaryotes.¹⁹ On this basis evolutionists consider the chloroplast to be of an eubacterial origin.

Archaeobacteria

This new primary kingdom encompasses several subgroups consisting of methanogens, halophiles (extreme) and several thermoacidophiles.^{20, 21} These compose a group of little-studied organisms previously scattered throughout prokaryote classification, and morphologically resembling bacteria (*eubacteria*).²² See Figure 3.

These organisms appear to require "special" habitats such as hot acidic conditions for thermoacidophiles, high concentrate salt conditions for halophiles, and the methanogen's requirement of growth which lies near the redox extreme defined by hydrogen.²³ Isolation of these organisms in a more 'normal' environment so far has not been accomplished.²⁴

Table 1. The association coefficients (S_{AB}) of some of the members of the three primary kingdoms. Association coefficients are given by $S_{AB} = 2N_{AB}/(N_A + N_B)$, where N_A , N_B , and N_{AB} are the total numbers of nucleotides in sequence of hexamers or larger in the catalog for organism A, B, and their catalog interaction. (Reference 3, p. 5089.)

	1	2	3	4	5	6	7	8	9	10	11	12	13
Archaeobacteria: (16S)													
1. <i>Methanobacterium ruminantium</i> strain M-1	0.11	0.10	0.10	0.11	0.07	0.13	0.12	0.11	0.12	0.51	-	0.25	0.24
2. <i>M. thermoautotrophicum</i>	0.11	0.10	0.10	0.11	0.06	0.11	0.12	0.11	0.14	-	0.51	0.25	0.30
Eubacteria: (16S)													
3. Chloplast (<i>Lemna</i>)	0.08	0.11	0.06	0.21	0.19	0.20	0.21	0.31	-	0.14	0.12	0.10	0.12
4. <i>Corynebacterium diptheriae</i>	0.09	0.10	0.07	0.28	0.22	0.34	-	0.23	0.21	0.12	0.12	0.09	0.10
5. <i>Escherichia coli</i>	0.05	0.10	0.06	-	0.24	0.25	0.28	0.26	0.21	0.11	0.12	0.07	0.12
Urkaryotes: (18S)													
6. <i>Lemna minor</i>	0.29	-	0.36	0.10	0.05	0.06	0.10	0.09	0.11	0.10	0.10	0.13	0.07
7. <i>Saccharomyces cerevisiae</i>	-	0.29	0.33	0.05	0.06	0.08	0.09	0.11	0.08	0.11	0.11	0.08	0.08

Methanogens were the first class of organisms in this urkingdom to be recognized. These make up a group of highly fastidious, highly anaerobic organisms that are found in nature only in swamp environments, and the rumens of cattle. They employ an unusual metabolic function, reducing CO_2 and oxidizing hydrogen to form methane.²⁵ They contain neither peptidoglycan (bacterial cell wall components made of diaminopimelic and muramic acids), nor cytochrome b or c, and they have a slow generation time of 17 to 65 hours.²⁶⁻²⁹ Also specific only to methanogens is a unique coenzyme system including coenzyme M (involved in methane production), and coenzyme F_{420} .^{30, 31}

All the organisms comprising the *archaeobacteria* also exhibit special qualities other than those specific for the methanogens. There are both gram negative and gram positive cell walls,³² all lacking peptidoglycan. Also, all contain just a negligible amount of saponifiable lipid.^{33, 34} They in turn have lipid analogs, composed of ester links replaced by ether links. And instead of straight carbon chains they have branched carbon chains.^{35, 36}

The 16S rRNA of these cells are used to "fingerprint", and comparisons with the rRNA of the other two urkingdoms indicates a difference warranting a third urkingdom. See Table 1. In addition, the tRNA of methanogens lacks the "common sequence" T Ψ CG³⁷ (found in both of the other primary kingdoms) indicating the extent of difference of *archaeobacteria* to the other urkingdoms.

Evolutionary Implications

As mentioned earlier, the development of the three urkingdoms has caused many evolutionists to re-evaluate their model. This is because of the indications now that none of the three basic cell types evolved from one another, and in fact, either their evolutionary paths diverged early, or they never joined at all.^{38, 39}

The former concept is the view more generally accepted. It involves the evolution of a primitive organism less advanced than the primitive prokaryotes. This organism has been referred to as a progenote.⁴⁰ These

progenotes are conceived to have evolved into the three cell types of today.^{42, 42} See Figure 4.

This new model states that first, following a 'straight' line of evolution, the *progenote* evolved into prokaryotes (the eubacteria). As the conditions of the earth supposedly changed from anaerobic to aerobic an

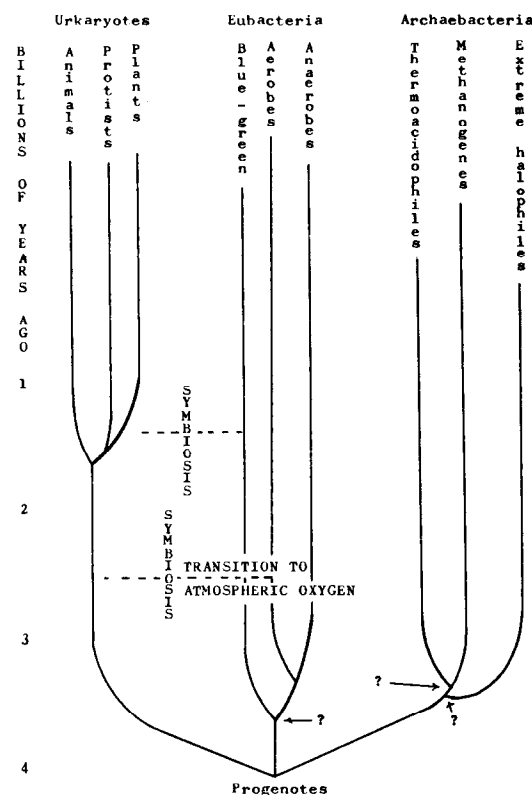


Figure 4. This illustrates the model proposed for the evolution of the three "urkingdoms". The words "TRANSITION TO ATMOSPHERIC OXYGEN" indicate the point in time at which according to the evolutionary theory, the atmosphere changed from reducing to oxidizing.

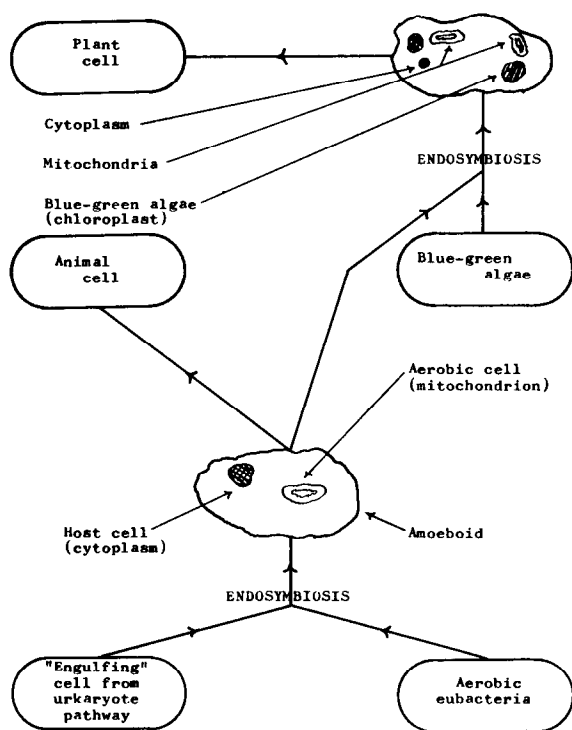


Figure 5. This shows the suggested model by which the eukaryotic cells evolved through endosymbiosis.

anaerobic pleiomorphic microbe (mycoplasma?) engulfed and symbiotically harbored a smaller prokaryote.⁴³ More recent ideas state that the "engulfing" species, which now constitutes the eukaryotic cell's cytoplasm, was a cell from a second evolutionary pathway.^{44, 45} See Figures 4 and 5. The engulfed prokaryote would have been an evolving aerobe and in the new environment, it evolved into what is now called the mitochondria. The engulfing cell was then an ancient amoeba (amoeboid). Later subsequent engulfing of blue-green algae followed by endosymbiotic evolution formed the chloroplasts of the cell.^{46, 47} This caused the split between animal and plant cells. See Figure 5.

Evidence for this model is based strongly on the rRNA "fingerprints". The 18S of the *urkaryotes*' cytoplasm, and the 16S of the *eubacteria* indicates that these two cells were not of the same evolutionary descent, and therefore the engulfing species was not a form of prokaryote. The close similarities of the *eubacteria*'s rRNA and the chloroplast's rRNA is the basis that the chloroplast had an early common pathway in the *eubacteria*.

At the same time (or earlier) the model states that a third pathway was progressing from the *progenotes*. This pathway, under considerably different conditions from those that acted on the pathways of the other two cell types, gave rise to the *archaebacteria*.⁴⁸

Evolutionary Problems

As is apparent, creationists now have a new, and somewhat more detailed evolutionary model to deal with. Whether this model is less untenable than the old

model remains to be seen. It is beyond the scope of this paper to give a detailed critical analysis of this model, but a quick overview is in order.

Evolution of a random mixture of chemicals to an energy-producing, reproducing cell continually has plagued evolutionists.⁴⁹⁻⁵⁰ Detailed discussions can be found elsewhere.⁵¹⁻⁵⁴ These problems still confront evolutionists in this new model because it still requires a viable cell from random molecules (*progenote*).

Evolution from the *progenote* to the *eubacteria* is the same as the classical model of prokaryote evolution. Thus all the biochemical and thermodynamic problems of the classical model still remain. All that is new for this pathway is that now one of the many required intermediate forms has been given the name *progenote*.

The eukaryotic (*urkaryotes*) evolution has undergone alteration though. Instead of the classical idea of eukaryotes evolving from prokaryotes, eukaryotes are proposed to have been a product of endosymbiotic existence of two cells (one existing inside another). Both then altered and adapted so as to coexist. This notion of aerobic prokaryotes entering into an endosymbiotic relationship with a biochemically different organism followed by immediate evolution into eukaryotes is extremely speculative.⁵⁵⁻⁵⁸

It should be pointed out here that this engulfed cell would have been an "evolving" aerobe. This is because the anaerobic prokaryotes and anaerobic eukaryotes would have encountered the oxygen increase simultaneously. An "evolving" aerobic cell is a postulated, but totally undefinable intermediate. In addition, a possible working model of such a cell's metabolism is untestable and inconceivable. For example, even facultative aerobes and facultative anaerobes have complete enough systems to function as either. An "evolving" aerobe, though, would not be capable of aerobic processes, otherwise it already would be aerobic. Thus it would be no more than an obligate anaerobe. This means that any aerobic enzyme systems or cytochrome systems it had would have been incomplete. And the view that an incomplete system would not be detrimental to the cell can not be supported by any known science. This means that the "evolving" cell would most likely have proven detrimental not only to the engulfing cell, but to the evolving aerobic cell itself.

There is also evidence of aerobic adaption in the cytoplasm of present eukaryotic cells. Among them, for example, is the presence of the enzyme superoxide dismutase.⁵⁷ This could indicate the aerobic nature of the "engulfing" cell. This in turn would make the survival need of aerobic symbiosis unnecessary.

Last of all, the evidence that the earth ever had a reducing atmosphere continually has been criticized by creationists, and other scientists as well.⁵⁸ Primarily any evidence appears to exist mainly among the preconceived ideas of evolutionists. With no reducing atmosphere there would be no onslaught of oxygen for the pre-eukaryotic cell to face. This means that there would have been no need for endosymbiosis in the cell's attempt to survive the changing atmosphere.

The *archaebacteria* present a new problem for evolutionists. The *archaebacterial* pathway is from an absolutely undetermined origin.⁵⁹ So any evolutionary

history is only speculation, not science. The primitive earth conditions necessary for the evolution of these "strange" cellular forms, and at the same time the evolution of pre-eubacteria and pre-urkaryotic cells, are almost beyond reasonable speculation. Besides, this pathway involves the same biochemical and energetic problems of the other two. And in view of the total lack of biochemical similarity of the *archaebacteria* to either of the other "primary kingdoms", the possibility that they arose from a totally separate path of origin is strong.⁶⁰⁻⁶¹

This means that evolutionists not only have to contend with the gap from random molecules to prokaryotes, but also the gap from random molecules to *archaebacteria*. In addition, the evidence against endosymbiosis shows there are no transitional forms for eukaryotic evolution either, thus giving evolutionists a gap from random molecules to eukaryotes (ie., *urkaryotes*). None of these gaps contains anything more than just wishful thinking (on the evolutionists part) to fill it.

While the difference between *archaebacteria* and other cell types is not well understood yet, the large difference of complexity between prokaryotes and eukaryotes (*eubacteria* and *urkaryotes*) is generally known. So great is this difference that it has been compared as greater than the difference between a man and a tree.⁶² Taking this vast gap into account one can begin to see the problems of an independent path of evolution leading to eukaryotes. The tremendous number of transitions and intermediates boggles the mind and defies all scientific probabilities.

Creationist Implications

This new evolutionary view that cellular forms diverged earlier in history than they once believed has excellent implications for special creation. For example, note that all three urkingdoms are viewed as having diverged at a level of organization referred to as *progenote*. As mentioned, this simply means that they diverged at a simple, early level; if they diverged at all. But *progenote* is simply a hypothetical organism existing at a convenient divergence point (giving a much needed transitional form). There is no proof that such a cell (ie., simple enough to allow for the extreme divergence of the urkingdoms, but complex enough to be a viable cell) ever existed. In addition it can not be argued that there was only one basic type of *progenote* from one evolutionary pathway. That is to say that evolutionists must admit that the *progenote* form may have evolved upon several occasions.

This becomes significant for creation since there now exist three evolutionary pathways, each with an unfilled gap of billions of years. At the same time this new model predicts the coexistence of the three basic cell types. This coexistence is consistent with a creation model. Thus the account of the evolution of the cell is inevitably becoming more like a creation model. See Figure 6.

Summary

With the discovery of some unusual bacteria (ie., methangens, extreme halophiles, etc.), and the use of

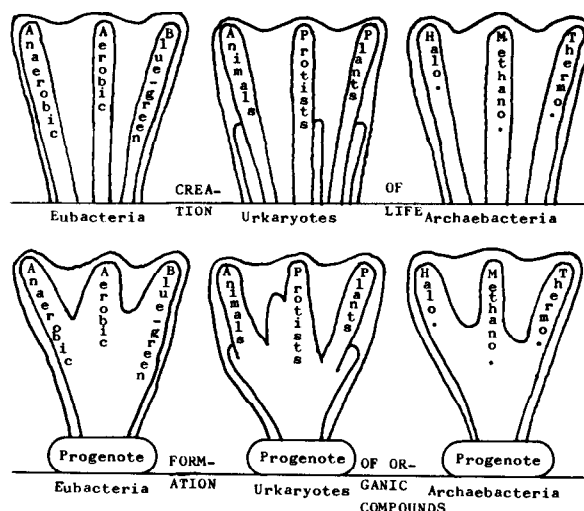


Figure 6. This compares the evolutionary model for the three urkingdoms (below) with a creation model (above). In the latter it is supposed that the progenotes of the three pathways are not the same, i.e., there existed three progenote forms at three different times.

rRNA "fingerprinting" of cells, three basic, quite dissimilar, cell types have been determined. These comprise the purposed "primary kingdoms" *eubacteria*, *urkaryotes*, and *archaebacteria*. Because of the large differences among these cells' basic reproduction systems, any evolutionary history would have to have been at a point of divergence much earlier than formerly suggested. Furthermore, there is no reason, except that of evolutionary desirability, to believe that these three cell types did not each have its own totally separate evolution. (If it had any.)

This change in the time scale and ancestral scheme has caused the evolution model to take a new form. This form, strangely enough, more closely resembles a creation model. Though many evolutionists may argue against such a comparison, any attempted rebuttal would appear fruitless.

So again we can say that evolution and science have failed to mix, and the concept of evolution at a cellular level continues to haunt evolutionists, the number of questions increasing many fold faster than the number of answers.

"The real question biology will come to face is not whether two of the three lines of descent are more closely related to each other than the third. It is, rather, the deeper but ill-defined question (or set of questions) having to do with the nature of progenotes and how they become prokaryotes, and how the eukaryotes have formed from various simpler entities."⁶³

And, I might add, how they became *archaebacteria*.

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IS THE DESTRUCTION OF PLANTS DEATH IN THE BIBLICAL SENSE?

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Some have attacked the historicity of the account in Genesis by disagreeing with St. Paul's statement that death entered the world through sin. They say that death is part of the natural order, that both plants and animals died before man came onto the scene, and that even the consumption of plant matter as food involves the death of the plant, or of cells. The author examines this argument, and suggests that plants are not alive in the same sense that animals are, and that in that case the destruction of parts of a plant need not involve death in the Biblical sense.

Did death enter the world as the result of the fall of our first parents? Or is death part of the natural order of things present in the world from its very beginning? Orthodox Christianity has traditionally accepted the position that death, also the physical death of animals and

man, entered the world with the fall of our first parents. St. Paul writes "Sin entered the world through one man and death through sin, and so spread to all men because all men sinned" Romans 5:12. Some have argued that these words refer only to spiritual death, the total alienation of man from God. They argue that Adam and Eve did not die physically in the instant in which

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they ate of the tree of the knowledge of good and evil.

While it is true that physical death did not come immediately the process of dying certainly began with their eating from that tree. In that moment they lost the immortality which God had intended for them from the beginning. Death had entered the world.

Others have argued that physical death must have been present from the beginning. They have argued that the consumption of food itself involves the death of living organisms and on that basis have insisted that death was a part of the natural world which God created. When it is pointed out that God set aside plant matter as food for man and beast, Genesis 1:29f, and when this initial statement is contrasted with Genesis 9:3 where God tells Noah and his sons that they may eat meat, critics point out that even the consumption of plant material involves the death of cells and therefore death itself.

This argument is also the basis for rejecting the historicity of the creation account. It is recognized that the account claims that death was absent prior to the fall; yet death is said to be a part of the natural order of things. So it is reasoned that the creation account must be allegorical, an extended parable, rather than an actual historical account.

But are plants "alive" in the same sense in which animals are alive? When God created plants He spoke "Let the earth bring forth vegetation, plants yielding seed and fruit trees bearing fruit in which is their seed, each according to its kind upon the earth and it was so", Genesis 1:11. When it came to the creation of the animals, God not only spoke but He added His blessing: "Be fruitful and multiply and fill the waters in the seas and let the birds multiply on the earth" Genesis 1:22. Just as the special creation of man from the dust of the earth described in Genesis 2:7 sets man apart from the animals, so the blessing added in the account of the creation of animals sets them apart from the plants.

It is indeed apparent that there are marked differences between plants and animals. The basic organizational unit, the cell, is different in plants and animals. Plants have a rigid cell wall which animals lack. Because of the presence of a large vacuole the nucleus is crowded against the edge of the cell; in the animal the nucleus typically is in the center of the cell. Plants are able to synthesize amino acids and proteins;

animals must depend on plant proteins. The plant has an extremely complex reproductive cycle with a sporophyte and gametophyte generation. The result is that asexual processes are more common in plant reproduction than are sexual processes. In a recent article, Levin questions the applicability of the species concept to plants for this very reason.¹

Are plants alive then in the same sense as animals are? There seems good evidence from biology that this is not the case, that plant "life" is quite different from animal life. The account of their creation in Genesis suggests that plant "life" is on a different level from animal life. If this is the case the "death" of plant cells as is the case when they are consumed for food may not be death in the same sense that this term is applied to animals and to man.

Once more this raises the question of definitions and categories. The Bible uses an entirely different basis for taxonomy than that which is employed by systematists today. The Bible classified organisms on the basis of the habitat which they occupy. It lumps together organisms living in the air, those living on the ground, and those living in water. Modern systematists base their categories not on habitat but on internal and external structure. There really is no "right" way of classifying organisms. The Biblical system is just as valid and correct as is the system employed by modern taxonomists. Biologists today find the present system of taxonomy workable and satisfactory, and this is certainly acceptable. However, this does not mean that this is the only "right" way of classifying things and that the Bible is scientifically incorrect when it classifies together the bird and the bat or the whale, the fish and the sea monster. Classification is an arbitrary procedure; this may also be true of the definition of living things. Thus, the consumption of plant material by man and animals at the beginning may not indeed have involved "death" in the Biblical sense of that term. "Death" so far as animals and man are concerned may well have entered the world through the fall. It is not so far fetched to believe that in Eden the wolf and the lamb fed together and that the lion ate not flesh but straw like the ox.

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Theistic Evolution and the Biblical

(Continued from page 221)

32. The Cain and Abel incident is a myth; we cannot ascribe those events to any known individuals.

33. Early man was quite primitive and technologically immature.

32. Hebrews 11 lists Old Testament persons who are cited as examples of faith. One of these is Abel, who is contrasted with Cain (a negative example). Hebrews 11:4. Jesus verified the historicity of the death of Abel in Matthew 23:35 and Luke 11:51; cf. I John 3:12.

33. Early civilizations, within only a few hundred years of man's creation, were already building sophisticated musical instruments (Genesis 4:21) and refining alloys in blast furnaces (Genesis 4:22). Consider also the technology involved in building Noah's Ark (Genesis 6:14-16) and the Tower of Babel (Genesis 11:3-6).

(Continued on page 232)

EVIDENCE AGAINST EVOLUTION FOUND IN A GEOLOGY TEXT

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This study arose out of a series of letters from a geologist who is evidently a theistic evolutionist. In them, he placed great faith in the index-fossil system of dating stratified rocks. Accordingly, I decided to find out just what a modern historical geology book has to say about the basis for dating the various formations from the Cambrian on up to the Pleistocene. I found "Evolution of the Earth"¹ one of the clearest and most straightforward in defining the problems involved in dating each formation; also it has a remarkably fine series of illustrations. I should recommend the book to any Creationist who wishes to become acquainted with modern geological concepts, and to understand just what phenomena must be explained by a really adequate Flood geology theory of the stratified rock formation.

It will be understood that in criticizing the usual evolutionary doctrines, I am not attacking "Evolution of the Earth" or its authors. I am pointing out weaknesses in the usual theory, which are in fact admitted in the book.

After giving a detailed history of how "Strata Smith" worked out the succession of strata in England, followed by Baron Cuvier in France, the authors give a remarkably clear statement of how correlation of rock formations is accomplished by comparison with the succession of strata found in Wales. Thus they say on page 66: "We have distinguished the Cambrian System of rocks from the Cambrian Period of time. The rocks of this system in Wales where they were first studied and named, provide a world standard for comparison or correlation of rocks anywhere else, which, on the basis of similar fossils, are judged to have formed during that same first period of the Paleozoic Era." Then after discussing intraformational discontinuities, the following most interesting statement is made: "It follows that if elsewhere a more complete sequence of Cambrian rocks were found with fewer and smaller discontinuities and more fossils, it would provide a better world standard of reference than does that of Wales. While that is true, the original European System standards are now so firmly established by long usage that such changes have not been made." Thus as they point out: "When Charles Walcott, a geological pioneer in western America, identified thick strata in southeast California as Cambrian, he was performing a correlation with Wales based upon index fossil assemblages. Such correlations have an implicit *assumption* that similar evolutionary stages of development were reached essentially simultaneously by particular organisms in all parts of the world." After pointing out that environmental differences in space also must be assessed as factors affecting the distribution of fossils, they conclude that: "It is never possible to be absolutely sure that the very first and last appearances have been discovered, therefore the total temporal range of an index species is constantly subject to revision." (pg. 67) Also "the index fossil *par excellence* is one which lived more or less independent of the bottom environment where sediments form. Obviously floating or swimming forms would so qualify. Fortunately, there are several such groups that also evolved rapidly and therefore serve well for correlation even between different sedimentary facies." (pg. 68) Geologically "evolved rapidly" simply means that the species is limited to only a narrow portion of the succession of stratified rocks, such as the Protoperia found only at the very base of the

Cambrian system. Having then built up a world wide sequence, evolution is supposed to be the explanation of why these various assemblages of plant and animal fossils are found in this particular order of occurrence.

As will be shown from quotations taken from this book, a total sequence is not found anywhere in the world. Also any particular "era" of stratified rock may be found lying directly on the basement complex, and also every "age" of rock is also lying at the surface, the later-deposited strata having been presumably eroded away! Finally, there are innumerable places where the fossils are in the wrong order, and these are explained as being due to overthrusts or thrust faulting. Yet as shown in my article on the Glarus overthrust ²there is no physical evidence of such overthrusting in most cases.

Until the twentieth century there still lingered a faith among geologists that the stratigraphic record was naturally divided by world rhythms of mountain building, and transgressive-regressive cycles conforming neatly with the system boundaries. This, the authors point out, reflected a century old influence of Hutton's and Lyell's cyclic view of the earth; and it provided a convenient rationale for a universal time scale. But, they point out, modern stratigraphic studies have shown this scheme to be a fraud in its simple form; mountain building and unconformities have not been so perfectly uniform either in age or magnitude over large regions.

On page 97 they admit that "Today it is impossible to accept the simple linear extrapolations back in time of present rates of practically any process." Also they concede that: "Today decay of unstable nuclear species is the only terrestrial process that we dare to consider statistically constant through time. This of course is an assumption, but based on sound physical reasoning (page 99) . . . It was assumed, of course, that all the stable daughter isotopes present had formed only from the parent isotope in a particular mineral crystal." My own reaction is how do we know that some so called derived leads or "daughter isotopes" were not there to begin with, a necessary result of the creative process. Thus in Figure 8.17, page 159, the isotopic dates of the Cordilleran vary from 0.0 to .3 billion years! Though many of the Pre-paleozoic rocks are highly metamorphosed "others are almost as youthful looking as many Cenozoic ones." (page 146) They are often exposed right at the surface of the earth and in many parts of the world are virtually identical with the Paleozoic ones! As the authors say: "In general the lowest stratigraphic ap-

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pearance of Cambrian index fossils has defined this boundary, but no human being was around to paint a stripe on the rocks for us; so in continuous or conformable sequences of strata, what assurance is there that Cambrian index fossils appear in a position synchronous with their lowest position in Sedgwick's Welsh appearance?" How very true this is; but does not the same reasoning make one question the logic of assuming that Carboniferous or even "younger" strata could not have been deposited simultaneously with the Cambrian in other parts of the world? Most certainly they are also found lying directly on so called Prepaleozoic rocks.

In Chapter 9 it is pointed out that unusually high rounding values of sand grains suggest a long history of wind transport. Yet most, as shown by marine fossils, were deposited in the sea. How can these facts be reconciled, ask the authors. "The present does not provide a complete key to the past, for we cannot find good samples today of all phenomena found in the ancient world." (page 210) Cambrian rocks are often at the surface as shown in figure 9.26, page 211, all subsequent strata presumably eroded away. To explain the extensive limestone strata it is claimed that large continuous areas of shallow water or seas existed in late Cambrian times, thus allowing the limestone deposits. These presumably came from macerated shell debris, yet much limestone has no shell debris at all. Agitation of the water causes the loss of carbon dioxide, saturated condition of the calcium ions, and so precipitation of calcium carbonate on all convenient surfaces. Also filamentous algae could not have received adequate sunlight for photosynthesis in water much deeper than 100 to 150 meters, the maximum depth indicated for the Cambrian-Ordovician epeiric seas. Certainly nothing of this sort is found now.

A most interesting statement is made on page 219 to the effect that much if not most of the sediments were formed by infrequent, short-lived violent events rather than average conditions. Some very fine limey muds are forming behind the Florida Keys reef, but the water is less than 3 meters deep, so only roughly similar to the conditions of early Ordovician rock formation. On page 229 the late Ordovician sea is represented as being one of the most complete floods experienced by any continent, resulting in a tremendous uniform shallow sea, the like of which is non-existent today.

On page 241 a most interesting statement is made: "In turn the difference between their fossil assemblages make it difficult to correlate between the facies on the basis of index fossils; this illustrates the limitation of facies fossils as discussed in chapter 4. The correlation problem is complicated further by the fact that the strata have been severely folded and faulted." Here it is recognized in a limited way that index fossils sometimes give erroneous ages. On page 245 some spectacularly ill-assorted conglomerates are described. They are in the northern Appalachians and limestone fragments from mixed Cambrian and early Ordovician formations occur helter skelter as local deposits within Ordovician black shales; some of the blocks are many meters long and occur in scattered localities. An attempt is made to explain this by postulating submarine

avalanches. But why should an avalanche happen to bring lower Cambrian deposits into such a mixture with the presumably upper Ordovician strata? On page 250 the great volume of Ordovician sediments is accounted for by postulating elevation in one part and resulting sediments deposited in another subsiding part. Surely some fanciful concepts are needed to explain the unusual arrangement of the strata.

We are asked to imagine shallow epeiric seas oscillating over the system due to world-wide sea level changes many times. This is because a beach exemplifies dynamic equilibrium or steady state, for energy is constantly being expanded in the system, and sand is constantly in motion, yet the beach does not change in form significantly through long ages of time (except for severe storms, which temporarily upset the equilibrium). Accordingly shallow epeiric seas must be postulated to explain all extensive stratified rocks. This is a phenomenon quite unlike anything now observable.

On page 283 it is shown that younger Devonian strata rest unconformably upon a variety of older rocks, including even Prepaleozoic ones. Another sea level change is postulated, and practically all of the craton and even parts of the mobile belts eroded to produce profound changes in the continent. Practically all of the early Devonian and Silurian strata were eroded and completely removed. Accordingly the upper Devonian rests on Ordovician and Cambrian rocks.

On page 290 discordant dates of 300-150 million years were obtained from biotite mica and 700-1100 years from zircon of the same rock. A complicated attempt is made to explain this by multiple heating and deformation. On page 293 in figure 11.41 a map is shown with discordant dates ranging from 350 to 850 million years! Complex assumptions of remelting are used to "explain" them. They are found in the Hudson Highlands area.

On page 295 tree trunks found in the upper Devonian are described. They are supposed to have floated westward from the Catskill area and then been deposited in black muds (not shale). The authors state that "These black shales represent a puzzle" (page 297) "The most probable suggestion is that the sea was so clogged by floating marine vegetation (like the present Sargasso region of the mid-Atlantic) that mixing and oxygenation of the bottom was inhibited." It would seem to me that this type of thing is exactly what one would expect in some places during the beginning phase of a world-wide flood.

Subtropical conditions are postulated in north America, Europe, Siberia and Australia. The climate was much more mild and homogeneous than today. "If so the present is not a very good key to the past in terms of climate." (Conclusion on page 298 to the first paragraph.)

In the early Carboniferous and Permian times much of the craton was raised above sea level. In a geologically short time from the middle Paleozoic what had been a paradise for denizens of the deep was to become one for luxuriant swamp forests, lurking reptiles, and giant insects. Most certainly a remarkable amount of evolution in a relatively short time is postulated in order to account for these remarkable new creatures.

On page 311 the strata deposited over the craton and innermost parts of the mobile belt are described as showing a *repetitive* pattern present in varying degrees in late Paleozoic strata in other continents. "At least 50 late Paleozoic cycles are known" and "It is apparent that these were rapid oscillations, occurring in a wholly different time scale than earlier Paleozoic transgressions and regressions." My own reaction is that this is exactly what one would expect on a world wide flood basis as relatively shallow waters ebbed and flowed across the continents. Only the time scale of the phenomena is of course immensely different in orthodox as compared to Flood geology concepts.

It is surprising how much thrust faulting is appealed to as the explanation of the wrong order of the fossils. Thus the entire Marathon-Quachila is described as having been deformed by northward thrust faulting, as determined by the fossils being in the wrong order in this large sector. On page 330-331 the observation is made that shallow nearly flat thrust surfaces within superficial rocks are known in many belts. They are explained by the idea that they simply slide over deep level metamorphic and igneous basement like rocks in the same manner as a rug may slide and wrinkle over a rigid floor. This is the gravity tectonic concept and the authors comment that "many of these matters are incompletely understood by even the most advanced specialists."

Also on page 366 the Cretaceous strata are shown resting unconformably on a variety of older rocks! The same was true of the middle Jurassic as shown on map 13.18, page 362. How could Cuvier or "strata" Smith ever get any sequence out of this? Again in the early Cenozoic a series of complex *low angle* thrust faults carried immense slabs of rock eastward over one another along a zone extending from Mexico to Northwestern Canada. Figure 13.30 shows Silurian strata thrust over Triassic, yet there is very little evidence physically of this thrusting.

A surprising number of transgressions and regressions of the sea are postulated in this era also and it is observed that "while transgression appeared in one area, regression may have prevailed only 100 miles away." Surely this is the sort of thing one would expect in a world-wide flood situation. The sudden extinction of the dinosaurs is still a mystery as regards its cause. It is most interesting that there are no connecting links in the family tree of the dinosaurs as shown in figure 13.50 on page 394.

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Reprint

A Decade of Creationist Research, by Duane T. Gish. Reprinted from the *Quarterly* for June, 1975. 16 pp., 75 cents postpaid, 50 cents each for orders of 100. Order from the College Bookstore of Concordia College, 4090 Geddes Road, Ann Arbor, Michigan 48105.

In figure 14.38, page 424, only Jurassic to Quaternary strata are shown lying on the mantle. There are thousands of such places where only a few "ages" of rock formations lie on the basement mantle. Much ingenious maneuvering is necessary to explain the lack of successive or previously deposited sediments as the case may be. On page 431 it is noted that angiosperm flowering plants in all their vast variety occurred or "evolved" only since early Cenozoic time! The parallel evolution of the needed insects for cross pollination occurred at the same time. This amazing burst of evolutionary activity is entirely unexplained. Why not simply admit that while the swamp-loving types of plants grew in one area, flowering angiosperm types of plants grew in another area ecologically designed for them.

Finally we have again vast areas thrust over strata supposedly much "younger" in age. Thus in northern Scotland Caledonian (Eocambrian) is thrust over unmetamorphosed flat-lying lower Paleozoic sandstone and limestone. Also figure 16.22, page 495 shows Jurassic and Cretaceous shales carried north over Tertiary Flysch. In figure 16.5 on page 482 an immense number of thrust faults are shown. In South America, the most severe structural disturbances, including eastward thrust faulting toward the craton, were delayed until Miocene and Pliocene times. Most of the great uplift of the mountains occurred in late Cenozoic times. Yet we find plants such as certain woolly-leaved *Calceolaria* species highly adapted to the Andes mountain environment.

The above is only a sampling of the many fascinating subjects covered by the authors of this remarkably interesting book. After carefully reading it I have come to the conclusion that if anything Henry M. Morris and John C. Whitcomb³ have understated the problems "orthodox" geologists face in trying to explain the many wrong order formations, unconformities and disconformities. Probably the total area in which fossils are in the right order is far less than where they are found in the wrong order, or where the "younger" strata containing them rest directly upon the basement complex.

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Evolutionistic Defense

(Continued from page 227)

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JUPITER'S GALILEAN MOONS

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The Voyager, in March, 1979, found live volcanoes on one of Jupiter's Galilean moons, and different patterns of cratering (or lack of craters) on the four of them. These findings point to a recent creation of these moons, and thus disagree with the usual evolutionary ideas about the origin of the Solar System.

Introduction

The Voyager I space probe was launched from the Earth on September 5, 1977, aimed at the planet Jupiter. On March 5, 1979, Voyager I made the closest approach ever to the planet Jupiter. It came within 217,000 miles of Jupiter's surface, which is slightly less than the distance from our moon to the Earth. Voyager I took thousands of photographs and made thousands of measurements on Jupiter and its moons. The preliminary report on Jupiter and its moons appeared in the June 1 issue of *Science* magazine.¹ A popular description of the mission appears in the July issue of *Popular Science*² magazine.

Four of the five innermost moons of Jupiter are large enough to be seen by amateur astronomers using very low-powered telescopes. Galileo was the first one to observe these moons through his crude telescope centuries ago, and he named them Io, Europa, Ganymede, and Callisto, in order of increasing distance from Jupiter. The largest four of Jupiter's 13 moons are called Jupiter's Galilean moons. Although these moons are visible through earth-based telescopes they are so distant that no significant surface features are visible through even the most powerful earth telescopes. Part of Voyager I's mission was to fly by as many of these Galilean moons as close as possible, and to analyze them in as much detail as possible. The closest approach distances from Voyager I to the surface of each of Jupiter's Galilean moons were 12,800 miles from Io, 456,000 miles from Europa, 71,300 miles from Ganymede, and 78,600 miles from Callisto.³ These moons, like our own moon, have practically no atmosphere. The surface features of whatever events happened on them long ago should remain as a frozen museum of clues to the origin of those moons and of our solar system.

Volcanism on Io

Io, the innermost of Jupiter's four Galilean moons, was found to have at least seven active volcanoes. These volcanoes spewed plumes of ejecta from 60 to 160 miles high above the surface of Io.⁴

The volcanic plumes shoot forth at speeds up to 2000 mph, 20 times faster than volcanic eruptions on Earth.⁵

A volcano powerful enough to blast a continuous stream of ejecta at a velocity of 2000 miles per hour is extremely violent. No other moon or planet besides the Earth in our solar system is known to have any active volcanoes.

The usual evolutionary model of the origin of the solar system⁶⁻⁸ pictures the planets and moons four or

five billion years ago as very hot condensing objects. During the next billion years, they were hot and volcanoes were active. About four billion years ago the smaller objects, i.e. the moons, cooled so that their volcanic activity stopped, and their surface features became essentially frozen. This evolutionary description fit knowledge of the motionless surfaces of the moon-sized objects (Mercury, the Earth's moon, and Mars' two moons) observed closely prior to Voyager I. However, active volcanism on Io does not fit this evolutionary model that predicts the extinction of volcanic activity four billion years ago. A better explanation is that Io did not go through the alleged evolutionary history. Rather, it was created recently enough so that its internal heat energy has not yet had time to cool.

The natural retreat for evolutionist is to blame the failure of their model on some principle that is an exception to it. One such possibility is radiogenic heating to maintain a molten interior for Io. However, even evolutionists admit this amount of radioactivity is unreasonable.

What causes such violent volcanic activity? To keep a body the size of Io in a state of continuous volcanic activity through geologic time by radiogenic heating would require an unreasonably large fraction of long-lived radionuclides.⁹

Radioactive heating is not new to the creation-evolution question. It is the principle assumed by evolutionists to invalidate the proof of a young Earth from known cooling laws. Without an internal source of heat energy, the interior of the Earth would be much cooler than it is now, assuming it has been cooling for five billion years. Evolutionists assume that the energy released from postulated radioactive decay in the core of the Earth is responsible for keeping the interior of the Earth hot over geologic time. However, Dr. Slusher's recent study¹⁰ has revealed this assumed radiogenic heating for the Earth to be inadequate. Thus, the Earth still must be younger than five billion years to be as hot as it is now.

Tidal heating is the modification of the evolutionary model for the origin of the solar system seized upon by evolutionists.

A model for tidal heating of Io published by Peale et al. just before encounter seems to be the likely explanation. In this model, Europa and Ganymede induce a forced eccentricity in Io's orbit. This motion causes variations in the amplitude of the large fixed tides produced by synchronous rotation about Jupiter.¹¹

The proposed tidal heating effect would generate heat energy throughout geologic time by continually stretching and deforming Io. The interior of Io should be hot just as a rubber band heats up when it is successively stretched and relaxed.

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It is left to the reader to decide which model better explains volcanism on Io: (1) the recent creation model or (2) the evolutionary model as modified by excessive radiogenic heating or by tidal heating.

Cratering

The general result of impact cratering studies¹² on the four Galilean moons is that one moon has none, one moon probably has none, and two moons have plenty. The surface of Io, the closest Galilean moon to Jupiter, bears many marks, pits and brightly colored areas, but Io has no recognizable impact craters. Europa, the second closest Galilean moon to Jupiter, has a rather uniform appearance all over. Europa had canal-like markings, but no visible impact craters. Europa was never as close as the other three Galilean moons to Voyager I, so that the details of its surface are still unknown. Yet it is fair to say that there are no large impact craters visible on Europa. The outer two Galilean moons, Ganymede and Callisto, both had a significant density of impact craters.

This varied cratering among the four Galilean moons does not square with the evolutionary model of the origin of the solar system. According to the evolutionary theory,¹³ the rate of cratering never varied by more than a factor of two from Mercury to Jupiter at any given time in the past. It further postulates a time of very heavy cratering from Mercury to Jupiter approximately four billion years ago. These two postulates allow a reasonable evolutionary explanation of the similar impact crater densities and sizes on the surfaces of Mercury, our moon, Mars and Mars' two moons. Of course, the postulates were made precisely to explain those known features, so it is no wonder they work for them. The evolutionary expectation was that Jupiter's moons should have about the same impact crater density as the planets and moons just mentioned.

The cratering rates estimated by applying these models to Ganymede and Callisto are roughly similar to the present cratering rate on the moon. The estimated cratering rate on Io is several times higher because of the greater effect of Jupiter's gravity.¹⁴

The actual densities of impact craters is about as far removed from the evolutionary expectations as possible. Io, the innermost Galilean moon, has no impact craters at all, instead of the very high density of impact craters predicted by the evolutionary theories. Europa, the second closest Galilean moon, probably has no impact craters either, in spite of the evolutionary predictions of high crater density. The outer two Galilean moons are the only ones with any craters, although the evolutionary model expects them all to be cratered. These results are so contrary to the evolutionary expectations that the investigators analyzing the photographs of Jupiter's Galilean moons write.

The remarkable absence of recognizable impact craters on Io implies either that the flux of impacting bodies is extremely low or that Io's surface is extremely young.¹⁵

Geologist Laurence Soderblom of the U.S. Geological Survey at Flagstaff, Arizona, studying the Io photographs, continually revised the age of Io's surface. Originally he thought it was approximately four billion

years, similar to our moon. Later he estimated its age at 100 million years. The next day, he estimated its age at possibly no more than 10 million years. Then he later told Popular Science reporter Jim Scheffer,

I'm down to a million years or so for Io's surface. It just keeps looking younger.¹⁶

It seems much more likely that the simple recent creation model is correct. The surface of Io is young, because the entire moon, like everything else in existence, is young.

Conclusion

The volcanism on Io can be explained most naturally as the erupting internal energy of a moon that has not been in existence long enough to have dissipated whatever internal energy it was created with. Io's active volcanoes therefore point to a recent creation for Io. The general trend of cratering on the Galilean moons is the opposite of that predicted by the evolutionary description of the solar system. The lack of cratering on the two innermost Galilean moons is most naturally explained in terms of their recent creation. If the evolutionary description of the age of moons fails for Jupiter's Galilean moons, similar evolutionary presuppositions applied to our own moon should be discouraged. Since the Earth-moon system is believed by evolutionists to have formed at approximately the same time, Jupiter's Galilean moons point to a recent creation for the Earth and its moon, too.

Post-Script: Saturn and Titan

It would be interesting to know whether one of Saturn's many satellites exhibits properties similar to those of Jupiter's Io. Early in September, 1979, the Pioneer II spacecraft encountered Saturn. Although Pioneer II was much smaller than the Voyager spacecraft which have recently encountered Jupiter, still many of the Pioneer II data on Saturn were new and exciting. Pioneer II showed that: "... there are signs of a possible hydrogen cloud (though not a complete, Io-type torus) associated with Titan."¹⁷ Unfortunately, most of the data on the atmospheres and surfaces of Saturn's satellites were drowned out by solar interference. We shall have to wait until the larger Voyager spacecraft which photographed Jupiter make their way to Saturn, before we can tell what the surfaces and atmospheres of Saturn's satellites are like.

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(Continued on page 196)

AN ANTHOLOGY OF MATTERS SIGNIFICANT TO CREATIONISM AND DILUVIOLOGY: REPORT I

JOHN WOODMORAPPE*

Received 9 August, 1979.

This report focuses on points of interest to Creationists and Diluvialists, gleaned primarily from the geological sciences.

The main topics mentioned include: biological evolution; the need of apologetics and consequences of a lack of apologetics; the lingering influence of Charles Lyell; examples and types of mixing of fossils in the geological time scale; the subjectivity of fossil species and genera; the artificiality of the geological column; evidences that many alleged ancient fossil reefs are in fact not reefs; critiques of uniformitarian claims about sedimentary environments; miscellaneous evidence against the validity of the geological column; and the way in which errors, similar to those in geology, can arise in archeology.

Outline

- I. SOME BRIEF NOTES ON BIOLOGICAL EVOLUTION.
- II. PHILOSOPHICAL ISSUES RELATED TO UNIFORMITARIAN VS. DILUVIAL GEOLOGY.
- III. OVERLAP OF FOSSILS IN THE GEOLOGIC RECORD.
- IV. SOME GEOLOGICAL RAMIFICATIONS OF THE CREATION AND THE FLOOD.
- V. CRITIQUE OF ALLEGED ANCIENT SEDIMENTARY ENVIRONMENTS: EMPHASIS ON REEFS AND DELTAS.
- VI. SOME EVIDENCES AGAINST THE VALIDITY OF THE GEOLOGICAL TIME SCALE.
- VII. ARCHEOLOGY AND PREHISTORY.

The scientific papers written by one individual are only a small fraction of what can be written about scientific tenets in an all encompassing paradigm such as the evolutionary-uniformitarian or the Creationist-Diluvialist paradigm. The active study of the professional scientific literature brings to light many such tenets.

It is useful for the tenets to be available to other workers even if they have not been studied to the point of writing separate works on them. This report is intended to be a collection of miscellaneous findings, primarily in the geological sciences, which are of especial significance in the negation of the evolutionary-uniformitarian paradigm and the establishment of the Creationist-Diluvialist paradigm.

The advantage of such a report is that it presents tenets in a more organized and more convenient form than scattering them over several *CRS Quarterly* lies in the "Letters to the Editor" Column. Some of the tenets presented in this report go along with the findings of other Creationists and Diluvialists, others serve as sequels to topics covered in the 3 main works of the author published in the March 1978, September 1978, and September 1979 numbers of the *Quarterly*, while still others are brand new lines of evidence. All the findings can be used by other scholars to incorporate in their works on given topics, while others it is planned will be incorporated by the author in his future works.

I. SOME BRIEF NOTES ON BIOLOGICAL EVOLUTION

1. Hostility Towards Teleology

Woodfield¹ wrote: "Modern science is on the whole hostile to teleological explanations. That they are obscurantist and unempirical has been the dominant

view among scientists since the Renaissance . . . The most common criticisms of teleology nowadays are either that they are animistic, i.e. they assume that the thing being explained has a mind, or that they tacitly invoke a supernatural being who directs the course of events."

Comment: Animism is a pagan view. If Woodfield's statement is correct, then a strongly atheistic value system dominates the sciences of origin. This is evident by the fact that postulating a supernatural becomes "obscurantist and unempirical" while the most tenuous and unobserved materialistic-mechanistic views, are never recognized as being obscurantist and unempirical. It is high time that scientists recognize that a (however unempirical) teleological explanation can be as scientific as a (however unempirical) materialistic scenario for the unobservable past.

2. The Cambrian Explosion: An Enigma for Evolution

Towe² wrote: "One of the most striking and enigmatic aspects of paleontology has been the sudden appearance of advanced and diversified metazoan organisms in the early Cambrian. This subject has been the object of considerable research and speculation and numerous hypotheses have been proposed to explain the phenomenon."

Comment: This is yet another statement indicating the magnitude of difficulty that the Cambrian explosion holds for evolution.

3. Similar Environment An Insufficient Explanation for "Convergent Evolution"

In commenting on the claim that evolution to fit a similar environment actually explains "convergence", Riedl³ said: "Parallel environmental factors may account for most of these but not very likely for all of them." He then proposed an evolutionary system that involves some kind of feedback mechanism.

Comment: Recognition of the difficulty for evolution caused by "convergence" has been discussed and documented by the author in his previous article⁴ on Cephalopods. It is more reasonable to accept that the Creator used similar morphologies on otherwise very different forms of life rather than contend that similar forms arose twice independently.

4. Morphology of Carnivores Before the Fall and Curse

Salvadori and Florio⁵ write: "Equipped with powerful jaws and long molar teeth typical of carnivores, the panda eats enormous quantities of fibrous bamboo

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shoots, although occasionally it hunts small mammals to complete its diet."

Comment: The panda helps explain what presently-carnivorous animals may have been partly like before the Fall and the Curse. It is commonly supposed that enormous morphological changes had been wrought on animals to make them carnivorous. The example of the panda suggests that morphological changes were not as great as behavioral changes. Cats, dogs, bears, etc. may have had long molar teeth as they have today since the Creation, but the sharp teeth may have been used on bamboo shoots instead of on the flesh of prey.

II. PHILOSOPHICAL ISSUES RELATED TO UNIFORMITARIAN VS. DILUVIOLOGICAL GEOLOGY

1. The Need for Effective Apologetics

In contrasting identifiers (those college students who practice the religion of their upbringing) with apostates (those college students who have totally rejected the religion of their upbringing), Caplovitz and Sherrow⁶ note: "In every religion, the label 'intellectual' is substantially more popular with the apostates."

Comment: Herein lies the fruit of years of neglect by Christians of apologetics. The philosophy of atheistic evolutionary humanism has been allowed to so totally saturate the academic scene that it is considered un-intellectual to be a believer. Solid presentation of apologetics and the defense of the Gospel and of Scriptures is long overdue. Happily, Creationism on campus has had a major impact, but much more is needed.

2. Fallacies in Claims of Repression of Scientific Inquiry

Lewis⁷ writes: "As a result of intensive research since the beginning of the present century, the traditional image of the Middle Ages as an epoch of sterile subservience to the authority of the Church and of Aristotle in scientific matters has been destroyed. Instead, it is now recognized as a period during which scholars became capable of wide ranging and subtle, albeit habitually inconclusive, speculation upon topics commonly supposed to be the distinctive concern of early modern science."

Comment: Unbelievers frequently attack religious belief for allegedly having repressed scientific inquiry and having hindered the development of science. This statement of Lewis from a scientific journal (*Nature*), if accurate, indicates that there was substantial science in the Middle Ages and that the Church did not repress scientific inquiry.

3. Atheistic Consequences of Uniformitarian Geology

Writing in a geologic journal, Campbell⁸ said: "Time was when hope of heaven and fear of hell exercised a major influence on man's thinking and conduct. Today, with the declining influence of revealed religion (a decline for which many hold science in general and geology in particular responsible) man seems to possess fewer or even no guides for his thoughts and actions. Thus it is philosophy that he must turn for help, for it is philosophy that seeks to define the underlying principles of the universe."

Comment: Uniformitarianism and the denial of God and his works go together. This was discussed in detail

by the author in his work⁹ on cyclic sedimentation. The drift towards meaninglessness and to man-centered humanistic philosophy follow as a consequence.

4. Charles Lyell on Catastrophism

Long ago, the pioneer uniformitarian geologist Lyell¹⁰ said "Never was there a dogma more calculated to foster indolence, and to blunt the keen edge of curiosity than this assumption of the discordance between the ancient and existing causes of change."

Comment: From his own experience with dozens of geology professors, the author can definitely conclude that never has a dogma fostered more uninquisitiveness, narrow-mindedness, and even some hostility than the dogma of uniformitarianism. When asked of catastrophism on a more than local scale but not mentioning the Flood or the geological time scale, one professor said: "Let's stick with modern facies analysis . . . They work. Why drag in catastrophism?" Another said "When are you going to start thinking like a scientist?" (He has since moderated, and respects the author and his works). Another said and still says curtly: "Worldwide Flood . . . Hah! . . . are you bringing that _____ up again?" Still another said: "Diluvialism is like the plogiston theory . . . gone forever . . . no finds could ever bring it back." (This is fallacious. While the author knows of no chemist who upholds the plogiston theory and who would write a paper supporting it, we all know dozens of professional geologists who are Diluvialists and many who have written scientific papers supporting that position.)

5. Persistence of Lyellian Influence on Modern Geology

In a review of a recent book B.J.S.¹¹ said: ". . . when we realize that so many of our accepted and frequently unquestioned beliefs descend directly from observations made by Lyell."

Comment: Mentioning Lyell is not only of historical interest. Psychology may have outgrown Freud, but in many instances geology has not yet outgrown Lyell.

6. The Interpretative Nature of Geological Sciences

Von Herzen¹² said: "Where many physical variables are relevant over a broad range of time and space scales as for most earth science hypotheses, formal 'proof' becomes difficult or impossible. The validity of an hypothesis then becomes a subjective judgement, either individually or by many persons, and is frequently dependent on the way the original hypothesis is framed."

Comment: The oft-repeated uniformitarian claim that their's is the only valid and scientific way of looking at earth history is therefore presumptuous, especially when it is realized that uniformitarianism rests upon rationalistic premises.

7. Present Uniformitarian Attitudes Towards Catastrophic Processes

Kumar and Sanders¹⁴ wrote: "Moreover, as the geologic philosophy of what might be called *uniformitarian catastrophism* continues to gain adherents and respectability, the study of storm deposits in the geologic record is losing much of its former 'instant stigma'." Uniformitarianist catastrophism describes the kind of thought expressed by Lyell (1830); it refers to the effects of catastrophic storms within the context of a uniform-

itarian view of geologic history.” (italics theirs)

Comment: It is evident that there long has been (and to some extent still is) resistance towards the acceptance of *any* catastrophic process. Where tolerated, catastrophic processes are admitted only as numerous, local in nature, fitting within the geologic time scale, and having occurred only within the context of ancient analogs of modern sedimentary environments.

8. A Case of Reversed Cause-Effect

Dietrich¹² wrote: “The quest for knowledge about geological history began when man first wondered about his environment. Some historians think the biblical story about the Great Flood may even have been framed in answer to questions dealing with man’s finding fossil seashells on high and dry land.”

Comment: This is like saying that heavy perspiration causes hot weather. He proposed that fossils caused the Flood (belief in the Flood.) Actually, it was the Flood which caused fossils. Ancient post-Diluvian man may have been aware of the Flood as the cause of fossils to a greater extent than has been supposed.

9. A Principle True for Both Uniformitarianism and Diluvialism.

Glikson¹³ said: “In dealing with rocks formed when the world was less than half of its present age, a strict adherence to the doctrine of uniformitarianism is considered unjustified.”

Comment: He is, of course, saying that conditions on the earth for the first 2.2 billion years may have been substantially different from the last 2.2 billion years. This principal amazingly also applies in the Creationist-Diluvialist paradigm. The earth was half its present age at about the time of Moses. Uniformitarianism has applied only since then, again only for the last half of time of the earth’s existence.

III. OVERLAP OF FOSSILS IN THE GEOLOGIC RECORD

1. Increased Stratigraphic Ranges for Vertebrate Fossils

Wills¹⁴ wrote: “. . . Period names . . . are losing much of their old significance through the repeated discovery of fossils which overlap the old boundaries . . . ‘Carboniferous’ amphibia now range right through the Permian and well up into the Trias. Many ‘Triassic’ reptiles range up into the Jurassic; and some also downwards even to low in the Permian. Recently a tortoise carapace not hitherto known below the Eocene (or one remarkable similar) turned up in Triassic rocks.”

Comment: It is obvious that many fossil groups are found to have longer stratigraphic ranges than had been earlier supposed. In his cephalopod¹⁵ paper, the author documented some long-ranging cephalopod taxons.

2. Mammalian Footprints in Carboniferous Rock?

Sarjeant⁷¹ wrote: “Barkas considered it ‘not improbable’ that the former tracks were those of a ‘small, broad, four-legged mammal’ . . . they figure as footprints of uncertain systematic character . . . the tracks described by Barkas have received no subsequent attention, nor have any others been reported from Northumberland.”

Comment: The possibility of mammalian tracks in

Carboniferous rocks is radical because “primitive” mammals are not supposed to have appeared until Late Triassic-100 million years later. “Advanced” mammals are not supposed to have appeared until early Tertiary-200 million years later.

3. Horse Hoofprints in Devonian Rock?

Sarjeant⁷² also wrote: “His illustration shows circular impressions with a raised central region, indeed rather like horse hoofmarks but quite *unlike* the footprints of any animal likely to have been in existence in the Devonian.” (italics his)

Comment: Horses are not supposed to have appeared until the Tertiary, 300 million years after the Devonian. The effect of preconceived notions about stratigraphic ranges is obvious in the above statements by Sarjeant. While isolated footprint evidence is tenuous, it is admitted that the prints from the Old Red Sandstone do look like horse hoofprints.

4. A Possible Drastic Increase in the Stratigraphic Range of Frogs

Cameron and Estes¹⁶ discussed the riddle of fossil “tadpole nests.” They believe that they are poorly preserved. But the main argument they advance for these structures not being tadpole nests is the fact that these structures are found in Silurian rock while the earliest frogs are Jurassic. They also consider no other vertebrate in existence in Silurian times to be capable of having made such structure.

Comment: Although somewhat tenuous, this may be an evidence for increasing the stratigraphic range of frogs from Jurassic-Recent to Silurian-Recent. The profound gap between the first appearance of body fossils and first appearance of trace fossils would be an evidence against geologic time; the gap favoring a short or nonexistent time difference between Silurian and Jurassic rocks.

5. Progressive Increase in Stratigraphic Ranges is a Rule

Raup¹⁷ testified that it is much more probable as a result of continued fossil collecting to increase the stratigraphic range of a known taxon rather than discover a new short-range taxon.

Comment: It is therefore clear that the instances cited above are far from isolated. The fact that extension of stratigraphic ranges with further collecting is the major trend indicates that the entire fossil record is becoming more random with time; that overlap of all fossils is continually increasing.

6. Stratigraphic Range Extension Of Conodonts Ascribed To “Time Warps”

Sandberg¹⁸ reported finding typically Middle Devonian conodonts in Early Devonian rock, and Ordovician conodonts in Late Devonian rock. These were called “nearly perfect heterochronous heteromorphs” and were not considered to be simple extensions of stratigraphic ranges nor reworkings but “time warps.” When conodonts are found in rocks “younger” than they are “supposed” to be, this is supposed to be evolutionary atavism (genetic throwbacks to earlier forms). By contrast, when conodonts appear in much older rock than is “proper” for them, then this is supposed to be a case of them being precursors of evolutionary change

("anticipation" of forms that will appear in the distant future).

Comment: This "time warp" concept illustrates the absurd lengths to which rationalizations for "out of place" fossils will go.

7. "Reworking" An Alleged Cause for Mixed Palcofloral Remains

Vanguetaine¹⁹ said: 'Siegenian and Emsian acritarchs in the Synclitorium of Dinant originate from redistributed Silurian and Ordovician sediments . . . On the southern flank Silurian and Ordovician are mixed in some localities.'

Comment: "Reworking" is a common rationalization for fossils found where they are not "supposed" to be. In his article on cyclic sedimentation²⁰, as well as in the one on cephalopods,²¹ the author gave several other examples of alleged reworking.

8. Expected State of Preservation Reversed in Alleged Reworking

Mildenhall and Wilson²² wrote: "Abundant well-preserved Cretaceous pollen and spores occur in all samples studied . . . Rare Pliocene pollen and spores occur . . ."

Comment: If there is found a difference in state of preservation of fossils considered to have been reworked versus those formed penecontemporaneously with sedimentation, then it is expected that reworked fossils will be in a worse state of preservation than the others because the former were transported in the reworking. This case is interesting because the allegedly reworked fossils are in a better state of preservation than the others which give the "true" age of sediment! "Reworking" rationalizations for mixed fossils are plastic.

9. Subjectivity of Fossil Species and Genera

North²³ said: "Except in standard sections, more fossils are identified wrongly than rightly."

Comment: The fact that geologists routinely "misidentify" index fossils should be an excellent indicator of the subjectivity of fossil species and genera.

10. Disparity Between Morphologic and Evolutionary Genera

In discussing genera within the Bivalve Family Lucinidae, Bretsky²⁴ wrote: "... the major phenetic clusters showed little similarity to the genera recognized on phylogenetic grounds. Some of the major clusters represented only part of one genus, others combined two or more genera, and others were an assortment of species from several genera."

Comment: Such artificiality of phylogenetic genera shows that evolution is fantasy.

Furthermore, all claims of stratigraphic ranges rest upon the taxonomy of the fossils involved. The statements by North and by Bretsky illustrate the subjectivity of fossil species and genera; a point made by the author in his work on cephalopods.²⁵ North was speaking about fossil cephalopods (ammonoids used in biostratigraphy) whereas Bretsky's statement shows that it applies also to Bivalves.

11. Circularity in the Geologic Time Scale

North²⁶ wrote: "The paleontological time-scale rests

squarely on the law of superposition, independent of any theory or assumption. From this unassailable foundation; the paleontologist became for more than a century the arbiter of all stratigraphic organization. But for geologists, the law of superposition presupposes the existence of decipherable geological sections, and every geological section must have a top and a base. The paleontological succession was pieced together from hundreds of such sections, the tops and bases of which had been established by geologists on the ground. The paleontologists' wheel of authority turned full circle when he puts this process into reverse and used his fossils to determine tops and bottoms for himself. In the course of time he came to rule upon stratigraphic order, and gaps within it, on a world-wide basis."

Comment: A certain degree of circularity is evident here. The Law of Superposition can only apply if there are objective sections which can be superposed, and sections exist only if there are tops and bottoms delineated for them. But tops and bottoms can be set only if there is an order of fossils. The order of fossils is determined by the superposition of sections, and the superposition of sections is determined by their tops and bottoms which are deduced by the order of fossils.

12. Circularity in Delineation of Biostratigraphic Ranges

Bond and Bromley⁷³ said: "On the basis of these field relations, the Gokwe Formation is significantly younger than the Stormberg Basalts of the Karroo System, but older than the Kalahari Beds. Thus it is younger than the early part of the Jurassic and older than the Mid-Tertiary. This is a wide bracket which by paleontological means may be narrowed considerably. The presence of remains of dinosaurs rules out any age later than the end of the Mesozoic."

Comment: Circular reasoning is evident here. Dinosaurs are known to be Mesozoic because they are only found in Mesozoic rocks, and rocks are Mesozoic if they contain dinosaurian remains.

13. Patchwork in Formation of the Geologic Column

Krassilov²⁷ said: "The field geologist is seldom so lucky as to find out the sequential relations of all rocks in his area without reference to adjacent areas or more distant regions." He also said: "The regional stratigrapher is supposed to define existing divisions of rocks and then to relate them to the international scale which stands for standard reference. Thus, regional classification can be conceived as natural and the international scale as artificial at least outside the stratotype area."²⁸

Comment: This illustrates how the geologic column is conceptual. Regional stratigraphy is not left to itself but is put together into a worldwide "onion skin" system of geologic ages. But the geologic column is admittedly artificial as applied to any one single area on earth. The geologic column is not as much read from the rock as it is read *into* rock.

IV. SOME GEOLOGICAL RAMIFICATIONS OF THE CREATION AND THE FLOOD

1. The Creation of the Earth and Differentiation of the Crust

Johnston²⁹ said: "Pillow lavas . . . are common in many parts of the Canadian Shield."

Comment: Since pillow lavas form underwater, this implies that there was a great deal of water during formation of the Shield areas. The Shield areas, being composed primarily of igneous and metamorphic rocks, and (with few exceptions) unfossiliferous, probably were formed during Creation Week. The formation of pillow lavas in Shield regions suggest the process of Creation whereby God differentiated the waters from the land (Genesis 1:9-10). Since most of the Shield is composed of granitic rocks, and granitic magma contains as much as 20% dissolved water, it is not difficult to envision the differentiation being first of all the driving off of waters from the formless crust so that it could crystallize. Much water would still be available during associated volcanism, enabling pillow lavas to form. Finally, the waters drained off the Shield areas to form permanent, dry land.

2. Impact Craters or Unusual Volcanism During Creation Week?

Nininger³⁰ commented: "The majority of impact craters are old—too old for the material that made them to be preserved in recognizable form; but coesite, stishovite, impactite, shatter-cones and shock metamorphoses are more durable, and they are not common products of vulcanism."

Comment: The fact that meteoritic material is not preserved at or near alleged meteoritic craters in the Precambrian may be an evidence against such a mode of origin, especially in the context of a proven young earth. Because the process of formation of the earth and its crust took God only the first few days of Creation Week, some action may have involved an explosive transfer of material from one part of earth into another via "autobombardment." The process of formation of impact craters may have been volcanism so intense that large chunks were injected into suborbital, ballistic trajectories. The craters thus formed indirectly from volcanism; the petrology and mineralogy reflecting the impact whereas the absence of meteoric material indicates that it was terrestrial, not extra-terrestrial, material that formed the craters.

3. Primacy of Submarine Volcanism During the Flood

Moore³¹ said: "Pillow lavas, produced as fluid lava cools underwater, is the most abundant volcanic rock on earth . . ."

Comment: The significance of submarine volcanism during the Creation Week has already been discussed. Noteworthy is the fact that submarine volcanism was also predominant during the Flood; water being everywhere and lava usually coming into contact with it during eruptions.

4. Tectonics and Metamorphism During the Flood

Sawkins *et. al.*³² wrote: "Geologists who study metamorphic rocks have long realized that enormous amounts of thermal energy are required to convert sediments and volcanics of regional extent from their original condition into high-grade metamorphic assemblages. Clearly, the requisite heat must be supplied from below, but by what physical means was it delivered to the site of metamorphism? The conduction of heat through rock is so slow that the thermal conduction of heat from deeper regions is simply inadequate to

account for the geometry of many metamorphic belts.

Comment: The authors are proposing that heat from plutonism helped cause metamorphic belts; having noted that geothermal heating is insufficient. Metamorphic rocks find an easy explanation in a Diluvial context. Mountains being built in months instead of tens of millions of years would have trapped tremendous amounts of heat from tectonomagnetism. The heat would have metamorphosed the rocks; having been incapable of dissipating quickly because so much was generated in such a short time.

5. More Evidence For Cataclysmic Deposition

Milici *et. al.*³³ write: "Figure 24 shows a tree that was buried to a depth of 4.6m (15 ft.) Because the tree is in growth position and shows no root regeneration, it probably was buried very quickly, certainly before it could decay."

Comment: This is yet another example of a tree trunk being buried upright over many feet of sediment, demonstrating very rapid burial. Similar examples and other lines of evidence for cataclysmic burial have been discussed by the author in his works as well as by other Diluvialists. The finding of evidences for a young earth is crucial in showing that one, not many, cataclysms formed these deposits.

6. Disturbance of Marine Ecology During the Flood

McKerrow³⁴ wrote: "It can be concluded from the above discussion that Mesozoic, Tertiary, and modern bottom-dwelling communities are more intimately linked with sediment type than those in the Paleozoic (except for some early Palaeozoic communities which were dominated by the deposit-feeding trilobites.)"

Comment: This find is very amenable to a Diluvian interpretation. The poor connection between fossils and lithology may be an evidence that they were not *in situ* seas but Flood deposits. The Paleozoic thus represents early Flood deposition with catastrophic mixing of marine fossils with sediment. By the time the rocks labeled Mesozoic were being deposited, the Flood was receding, sedimentation was slower, and more organisms could find habitat in regions of energy appropriate for them.

V. CRITIQUE OF "ANCIENT SEDIMENTARY ENVIRONMENTS": EMPHASIS ON REEFS AND DELTAS

1. Evidence Against Evaporitic Origins of Salts

Meynen³⁵ wrote: "Paradoxical as it appears, it is at times difficult to judge the aridity and humidity of a climate from the fossil plants. This is because the buried plants are mainly those growing near or in the basins. For example, the Kazanian flora . . . contains only mosses, ferns and sphenopsids . . . i.e. obviously hydrophyllic forms. However, the flora-bearing beds alternate in this section with rocks indicative of an arid climate (gypsums, dolomites).

Comment: This interbedding of evaporites (so-called) with plants may be an evidence against these salts having arisen from evaporation of drying-out seas over immense periods of time.

2. Uniformitarian Presuppositions and "Ancient Reefs"

Braithwaite³⁶ said: "The spur to recognize fossil reefs came initially from their investigation in modern seas and, at the time their study first began, the simple presence of corals was felt to be evidence of 'a reef.'"

Comment: This illustrates how the "present is the key to the past" dogma of uniformitarianism causes a natural tendency to attribute ancient rocks to present processes. In particular, it illustrates how fossiliferous limestone can be attributed to ancient reefs by reading reefs into the rock because reefs exist today. The whole issue of alleged "ancient reefs" has been discussed by Austin³⁷ (former pseudonym Nevins).

3. Plasticity and Accommodation of Alleged Reef Characteristics

Rigby³⁸ said: "Any model for recognition of reefs in the geologic record must allow for considerable variation in relief, size, shape, biological composition, and facies relations."

Comment: It is evident from the statement that all of the criteria for recognition of reefs are quite plastic. It thus becomes facile to take characteristics of limestones and attribute a reef environment to the rocks. The great variation in criteria that have been used may indicate that reefs have been read into, not out of, the rocks.

4. Difficulty of Proving "Ancient Reefs."

Philcox³⁹ wrote: Wave resistance is used in many definitions as a criterion for 'reef.' It is therefore important to clarify what wave resistance means, whether it can be recognized in ancient reefs, and what effect the use of this criterion has on our thinking . . . Diagnosis of the wave-resistance capacity of ancient buildups is difficult."

Comment: Most definitions of a reef include wave-resistance caused by the binding action of organisms that grow there. This indicates that it is very difficult to prove that ancient rock was one a wave-resistant sediment, and—by implication—a reef.

5. Most "Ancient Reefs" Admitted Not To Be Reefs

Wilson⁴⁰ said: "Organic framework construction is known to be important in the middle Paleozoic and in some situations from Jurassic to Holocene times. Most organic buildups in the geologic record are in no sense organic frame-built reefs."

Comment: Even by uniformitarian standards, much of what has been attributed to reefs isn't reef at all.

6. Silurian "Reefs" of US Midwest Are Not Reefs

Despite advocating a reef origin, Lowenstam⁴¹ wrote: "Regarding the reef builders, unless the *Stromatolites*-like forms are algal, the sole reef builders were all coelenterates. Since bottom-cementing habits had not as yet been acquired in Niagaran times by Foraminifera, pelycypods, gastropods, or barnacles, there was a noticeable lack of these accessory elements which today contribute to the strengthening of the framework constructed by the reef builders . . . Today the adnate tubes of polychaete worms form an important strengthening agent of the framework erected by the reef-builders. Though this habit among polychaetes was already developed in Niagaran times, as shown by *Spirorbis* in the inter-reef habitats (Lowenstam 1948), the niche range had not then been extended to reefs . . .

Among the reef dwellers, we miss altogether elements such as the calcareous algae, Foraminifera, and echinoids which today make up a major portion of, and occasionally the bulk of, the reef sands. The niche of *Halimeda* of today was, in Niagaran times, occupied by the similarly jointed crinoids, that of the pelycypods largely by brachiopods. Today reef crinoids are few and elutherozoic in habit, as are all reef echinoderms; in the Niagaran the Pelmatozoa were exclusively sessile forms. This is further due to the fact that as of today we have no evidence of asteroid or holothuroid representation on the Niagaran reefs. . .

It is perhaps worth stressing that the enormous biomass of the Niagaran reefs was, as that of modern reefs, basically dependent upon a plant foundation. Yet so far, we have no definite records of this vital element of the Niagaran reefs."

Comment: The Niagaran (Middle Silurian) "Reefs" of the Great Lakes region are probably just as famous as the Permian Capitan Reef of Texas, discussed by Austin.³⁷ Upon close examination, the statements of Lowenstam render the reef interpretation untenable. It is evident that very many forms of life expected to be present on reefs are absent. The claim that these forms had not evolved to fit the reef niches by Silurian time may be viewed as a rationalization. The absence of so many reef organisms from the Silurian "reefs" is thus decisive evidence against them being reefs. Also noteworthy is the fact that Braithwaite³⁶ noted the problematic nature of *Stromatolites* and, based on his studies, concluded that *Stromatolites* was mud-based and could not have served as a framebuilder or former of a wave-resistant structure.

7. "Ancient Reefs" are Actually Flood Deposits

Wilson⁴² wrote: "By analogy with present shelf depths, whose Holocene sediments much resemble ancient limestones, we can safely assume that in the geologic past, shelves and platforms hundreds of miles wide were covered with water only a few tens of meters deep. Again, by analogy with actualistic models, it is hardly conceivable that tidal currents and wave action in such widespread and shallow seas could have been very effective. Yet many deposits across the North American craton contain uniform sequences of rock types for hundreds of miles and such deposits commonly include beds of clean quartz sandstone and pelletoid or oolitic lime grainstones! These are clearly the result of wave and/or current activity and yet are widely distributed over thousands of square miles. On such flatbottomed, shallow seas not much wave energy can be generated and tidal effects are severely restricted (Keulegan and Krumbein, 1950). It is thus probable that such deposits were formed by shoreward progradation of shorelines and offshore oolitic bars."

Comment: Instead of being evidence for progradation and lateral migration of the environment, the presence of evidence for high energy deposition over wide areas may be evidence against the usual uniformitarian interpretation of ancient shallow seas. The Flood can easily account for the widespread presence of high-energy conditions of deposition.

8. Subjectivity in "Sedimentary Environment" Designations

Friedman and Sanders⁴³ said: "Although the test of a geologist's skill is the depth of perceptiveness and logic used in interpreting rocks in terms of their formative processes and environments of deposition, *even the most astute geologist commonly is unable to arrive at a unique interpretation of a given rock.* (italics theirs)

Comment: Such difficulty of "sedimentary environment" diagnosis is often attributed to complicating factors. An alternate view would be that difficulty is caused by the fundamentally erroneous presuppositions and methodology of uniformitarian geology which attributes all ancient rock to environments now in operation (as seas, rivers, deltas, etc.), when in actuality these are Flood deposits.

9. Sedimentary Structures From a Wide Variety of Hydrologic Conditions

Suttner⁴⁴ wrote: "Also, no longer are primary structures routinely directly associated with depositional environments in interpretation of facies motifs. Instead, there is broader recognition of the fact that sedimentary structures are products of processes and that processes overlap specific environments."

Comment: A wide variety of hydrologic conditions can produce given sedimentary structures. The uniformitarian claim that ancient sedimentary rock can be objectively and compellingly assigned to analogs of environments now in operation grows weaker as does the claim that only processes now in operation can uniquely explain sedimentary structures in ancient sedimentary rock.

10. Tenuous Basis For Many "Sedimentary Environment" Claims

Harbaugh⁴⁵ said: "All too commonly, geologists who study stratigraphic sequences attempt to interpret the depositional environments of the strata in terms of only one or two variables—such as water depth or wave energy."

Comment: Many "sedimentary environment" designations are weak even from a uniformitarian viewpoint. Variables such as water depth and wave energy easily dovetail with a Diluvian interpretation.

11. Contradictory "Sedimentary Environment" Designations

Adams and Patton⁴⁶ wrote: "Various interpretations— offshore bar, beach, eolian, and fluvial,—have been made for the depositional environment of the Lyons Formation. Although attempts have been made to apply a single environmental origin to the entire lateral exposure, it now seems probable that the formation was deposited in several closely related but distinct environments, and that these account for the observed lateral and vertical changes within the formation."

Comment: The fact that the whole gamut of sedimentary environments has been attributed to the Lyons Formation (a well-sorted, mature sandstone) may be an indicator of the fallaciousness of attributing ancient rock to sedimentary processes now in operation. The whole issue of "sedimentary environments" was discussed by the author in his work on cyclic sedimentation.⁴⁷ Contradictory designations may indicate that these rocks

were not formed in analogs of present environments, but rather that Flood deposition simulated an assortment of environmental characteristics.

12. Differences Between Ancient and Modern Sedimentation

Lundegard *et. al.*⁴⁸ said: "The Brallier depositional sequence differs significantly from existing submarine-canyon-fan models in that it lacks large-scale radial dispersal patterns as well as canyon and channeled inner-fan facies. Rather than radial progradation, characteristic of a large, stable submarine fan, uniform progradation from multiple sources . . . In spite of the paucity of modern analogs for such a depositional system, the Brallier Formation and other ancient examples attest to the significance of turbidite sedimentation in deltaic settings."

Comment: This is a clear example of ancient sediments not quite resembling modern ones. Multiple-source progradation may be an evidence that the above-discussed sediment is not an ancient delta but a Flood deposit; torrents of water flowing from various regions and covering a large area. The prominence of turbidites is especially suggestive of large-scale Flood deposition.

13. Widespread, High-Energy Sedimentary Veneers Unlike Today's

Newell⁴⁹ wrote: "... most present configurations (topography, chemistry, circulation, climate,) are strikingly unlike those that must have prevailed when the Paleozoic and Mesozoic limestone seas spread over immense and incredibly flat areas of the world . . . Closely comparable epeiric seas probably do not exist today . . . Supratidal and intertidal mud flats are today much more restricted in area than they must have been at times of widespread Paleozoic and Mesozoic limestone seas."

Comment: The widespread sedimentary rock veneer on top of the cratonic basement may be an indicator that these rocks resulted not from shallow seas of which there are few presently, but from Flood deposition.

14. Disturbance of Modern Sedimentation

Swift *et. al.*⁵⁰ said "Thus, a palimpsest sediment is one which exhibits petrographic attributes of an earlier depositional environment and in addition, petrographic attributes of a later environment . . . Palimpsest sediments, like relict sediments on modern shelves, are more common in the rock record than is commonly realized."

Comment: The fact that an ancient sedimentary rock shows the attributes of more than one environment may be an indicator of the fallaciousness of attributing ancient sediments to analogs of modern environments. Rather, the mixing of environmental attributes indicates that the properties of flowing Floodwater simultaneously resembled processes taking place in several different modern environments.

15. Mixing of Trace Fossil Assemblages and Sediment Type

Chamberlain⁵¹ said: "... *Chondrites* and *Zoophycus* are more extensive in deep-water deposits than previously thought." In speaking of sedimentary rock facies, Seilacher⁵² wrote: "*Glossifungites* facies may oc-

cur in deeper and *Zoophycus* facies in shallower positions due to local channeling or restrictions, but *Nereites* facies seems always to be restricted to the deepest zone."

Comment: It is commonly taught that trace fossil assemblages show an ichnofacies zonation due to organisms having inhabited different regions of a sedimentary environment. Thus, the zonation from shallow, agitated waters to deep, tranquil waters is reflected by the zonation: *Skolithos*, *Glossifungites*, *Cruziana*, *Zoophycus*, and *Nereites*. The statements of Chamberlain and Seilacher indicate that the ichnofacies zonation is sometimes mixed. Such zonation therefore is not exact and need not imply the onetime presence of analogs of modern environments. The overlap and even mixing of ichnofacies may have resulted from organisms of different subenvironments having become mixed during Flood deposition.

VI. SOME EVIDENCES AGAINST THE VALIDITY OF THE GEOLOGIC TIME SCALE

1. The Vaunted Supremacy of the Geologic Column

After considering Archbishop Ussher's famous chronology as being a search for the limits of time, McLaughlin⁵³ commented: "Today we continue Archbishop Ussher's search, but we now use a far more accurate source of information than his Bible. From the beginning of its history, the earth has maintained a detailed geological journal . . ."

Comment: the items already presented in this report and especially those about to be presented in this section demonstrate the fallacy of McLaughlin's statement.

2. Significance of Paraconformities

After describing some trace fossils from Ordovician rocks near Sinat, Iraq, Seilacher⁷⁵ commented: "The Silurian is missing and the boundary to the overlying Devonian was for a long time arbitrary due to the sandy and unfossiliferous nature of the passage beds. A sudden shift in the trace fossil record from a *Nereites* to a *Skolithos* community has here proved to be a better boundary criterion than lithology and seemingly conformable relationship."

Besides listing several paraconformities, Newell⁵⁴ said: "The Devonian rests paraconformably on Cambrian rocks over much of Montana (Sloss and Laird 1947). Many geologists would term this a disconformity, but over large areas its recognition and evaluation depends solely on fossils. Every experienced biostratigrapher can cite other examples of such paraconformities."

Comment: Many Diluvialists (for example, Whitcomb and Morris⁵⁵) have taken note of paraconformities. In the latter example cited above, the Ordovician and Silurian are "missing" and there is little or no evidence for the alleged 150 million years of nondeposition and erosion. The absence of geologic ages with no evidence of sedimentary discontinuity is thus evidence against the validity of the Phanerozoic geologic column. Noteworthy from the latter cited statement is the fact that such paraconformities are common.

3. Gross Disparity in Extrapolation of Sedimentation Rates

Wilson⁵⁶ wrote: "Considerable discrepancy exists when such rates obtained from deposition on modern tidal flats and reefs are applied to thicknesses of ancient neritic strata. For example, the Great Bahama Bank should have 35000-50000 m of post-Cretaceous sediment instead of 4500± (Goodell and Garman, 1969, p. 528). Since these rates do not jibe with the rates of deposition of even thickest known ancient carbonate deposits of comparable environment, we assume that the carbonate producing system operates intermittently and is very sensitive."

Comment: The fact that present sedimentation rate must be reduced by a factor of 10 in order to make it compatible with the amount of time supposed to have elapsed since the Cretaceous may instead be interpreted as evidence against the validity of geologic time and geologic ages. Even the amount that there is need not imply millions of years of formation, because sedimentation rate was magnitudes greater during the Flood than at present.

4. Near Absence of Major Placers in Pre-Tertiary Sedimentary Rock

" . . . most placer deposits of economic value are in rocks of Tertiary age or younger. . . ."⁵⁷

Comment: The paucity of placers in the geologic record is explained by claiming that they were in regions of erosion and therefore were not preserved. Alternatively, their near-absence may indicate that the fossil record is not the result of normal sedimentation, but of cataclysmic Flood sedimentation where not many igneous and metamorphic parent rocks are eroded to yield placers. Their abundance in Tertiary reflects post-Flood sedimentation, whereas Precambrian placers date back to the Creation.

5. Paucity of Ecological Relationships Among Ancient Life

Ansich and Gurrola⁵⁸ wrote: "Much of present day ecological study is concerned with biological interactions and relationships among organisms. Such interactions, e.g., commensalism, predation, parasitism, and competition for space, are rarely preserved and, at best, can only be inferred from the data available to the paleontologist."

Comment: These lacks are attributed to the non-preservation as fossils of most organisms that lived. Another reason may be that fossils do not represent ancient *in situ* seas but Flood deposits, where ancient seas were stirred up and their contents deposited on land. Lack of solid ecological evidences from most fossil groups may thus be evidence against geologic periods and geologic time.

6. Unnatural Basis For Geologic Periods

Rodgers⁵⁹ said: "Detailed analysis of the 'fine structure' of the Taconic Orogeny combats the dogma that orogenies are sharp, discrete events punctuating the geologic record (separating periods and abruptly terminating geosynclinal sedimentation) and suggests instead that they reflect 'random walk' processes within the earth."

Comment: The fact that orogenic processes fail to show well-defined effects within geologic periods may be yet another evidence of the fallaciousness of uniformitarian historical geology. The fact that an orogeny may affect rocks of a geologic period and yet the same orogeny not effect rocks of the same period in the same general region may be an indicator of the non-existence of geologic periods.

7. Paleontological Difficulty Caused by Acceptance of Geologic Time

Hewitt and Hurst⁶⁰ described the cephalopod *Aegoceras* and the fact that its size increases going stratigraphically upward. It was considered that it is either an evolutionary growth rate increase or a temperature-induced increase in growth rate. If accepted as evolutionary, then the time required would necessitate the section having been deposited as a rate of only 5mm./1000 years, which is less than pelagic oozes and this is inferred to be an offshore shelf region where a sedimentation rate of 1mm/1yr. should be expected, unless 99% of time was occupied by unseen disconformities. For this reason an ecological, not evolutionary, explanation was favored for the stratigraphic size increase.

Comment: The impossibly low sedimentation rate that would have to be accepted if the *Aegoceras* progression were evolutionary is a *reductio ad absurdum* of claims of evolution in stratigraphic section.

8. Evidence Against Geologic Time From Fossil Diversity

Raup⁶¹ said: "There are about 250,000 different species of fossil plants and animals known . . . In spite of this large quantity of information, it is but a tiny fraction of the diversity that actually lived in the past. There are well over a million species living today and known rates of evolutionary turnover make it possible to predict how many species *ought* to be in our fossil record. That number is at least 100 times the number we have found." (italics his)

Comment: This very small (relative to today) amount of fossil species is much more easily explained by the fossils representing mutually-contemporaneous life that was buried during the Noachian Deluge than by successive evolving populations over hundreds of millions of years. The paucity of fossil species indicates one population giving rise to all fossils, not countless populations.

9. Persistence of Drainage Patterns

Friedman and Sanders⁶² wrote: "Two contrasting kinds of results have come from modern paleocurrent studies. On the one hand, slopes such as that which presently inclines southward toward the Gulf of Mexico from Minnesota, have maintained this orientation for at least several hundred million years. On the other hand, paleoslopes such as those inferred from the Cenozoic strata of the French Maritime Alps, have completely reversed inclination since the Pliocene Epoch. Presumably, such slope reversals have resulted from rapid subsidence to great depths of much of the Mediterranean Basin."

Comment: Owing to the ease of topographic changes on the earth, the lack of change of paleoslope over alleged

ed several hundred million years in the continental interior of the US may be evidence favoring a very short period of deposition for these deposits rather than several hundred million years. Such constant paleocurrent direction is thus more in accord with a brief but global Flood than it is with geologic ages taking place on a constantly changing earth.

10. "Extra" Sections Within and Between Geologic Periods

Mintz⁷⁶ said: "The problem has always been complicated by the fact that the strata which are missing in the type area but found elsewhere are not part of the original definition of any of the units, and hence great arguments have arisen as to the time period to which they ought to be assigned. To this day geologists are still involved in the process of fixing the period boundaries."

Comment: Stratigraphic sections keep turning up which could theoretically be attributed to additional geologic periods between or within existing ones. However, Mintz⁷⁷ noted that geologic periods are arbitrary divisions of (supposed) geologic time, so the modern practice is to integrate these "extra" sections into existing geologic periods instead of erecting new ones. The appearance of "extra" sections indicates that stratigraphic order of fossils is more random than previously known, and that geologic periods are even less credible than before.

11. Significance of Alleged Overthrusts and "Wrong"-Order Strata

In a book on fossils, Spoczynska⁷⁸ wrote: "Certain fossils are found only in particular strata, and these latter are composed only of certain specific types of rock. These characteristic fossils are called 'indicator fossils' and, as this term implies, they act as pointers to a particular period of geologic time. It will be seen from this that if fossils A and B are found only in beds of, say, Carboniferous age, should they turn up in combination with Permian rocks which date from a much later period, one must draw the conclusion that movements of the earth's crust have thrown these earlier beds up. The intrusion of Carboniferous fossils A and B among C and D which are found only in Permian strata is therefore a definite indicator of earth movements at some time or other."

Comment: This illustrates how overthrusts are assumed if fossil strata appears in "wrong" order. The statement about fossil mixing being a "definite indicator" of overthrust hints at lithologic and structural evidences being inconclusive; overthrusts accepted only because of "wrong" order. This point is made by many Creationists (for example, Read⁷⁹).

12. Volcanic Evidence Against Geologic Time

In describing a situation from New South Wales, Australia, Dulhunty and McDougall⁸⁰ wrote: "In some places . . . the younger flows overlap the Garrawilla Lavas, making differentiation difficult . . . Petrographically, the lavas of the two age groups appear . . . to be remarkably similar, consisting of alkali olivine basalts, but the Mesozoic rocks tend to be somewhat altered."

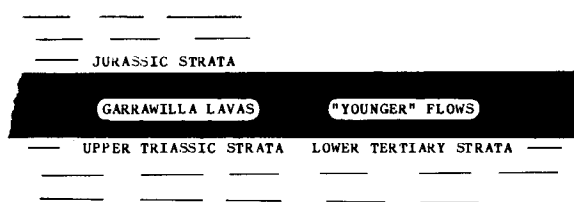


Figure 1. This diagram illustrates an excellent line of evidence against geologic time. Lower Jurassic lava flows (left) are nearly identical to nearby Tertiary flows (right). This suggests that both are really one contemporaneous extrusion of magma. The 120 million years of time which is supposed to separate Lower Jurassic from Tertiary is thus shown to be totally fictitious. (See Section VI, no. 12, for documentation.)

Comment: Two groups of lava flows, one Jurassic and the other Tertiary (see Figure 1) are nearly identical in composition. This argues for one lava flow only, drawing Jurassic and Tertiary into contemporaneity.

13. Possible Evidence Against Geomagnetic Reversals

The eminent British geophysicist Tarling⁸¹ wrote: "It is now generally accepted that most of Europe and North America were contiguous from Devonian to Cretaceous-Tertiary times. On this basis, the paleomagnetic data of the two continents should also be consistent when the continents have been placed in their previous relationship. In fact there are serious, consistent differences between the paleomagnetic data on most acceptable reconstructions while reconstructions based on the paleomagnetic data alone do not result in viable continental reconstructions. Such observations suggest either that the paleomagnetic data still contain consistent errors, the geomagnetic model is wrong, or that the actual continental relationships were radically different to all extant models."

Comment: These grave difficulties in using paleomagnetic data may be evidence against the uniformitarian view that the earth's magnetic field has been constantly reversing itself and been in existence for millions of years over geologic ages. This would be in accordance with the work of Barnes⁸², who proposed a short-lived non-reversing geomagnet and consequent young earth.

14. Skepticism Among Uniformitarian Geologists Towards Radiometric Dating

In a published discussion following their paper, Sabine and Watson⁶³ said: "Mr. Webster Smith... regarded the atomic dating method (except in respect to carbon) as still very tentative especially where the older rocks were concerned and where discordant and even absurd results were quite common. There were records of granites which atomically were older than other granites that they intruded... argon was all too prone to be either deficient, wholly absent, or even too high; in such cases the author 'adjusted' his figures."

Comment: There is some skepticism among uniformitarians towards radiometric dating; a point made and documented towards the end of the author's work⁶⁴ on radiometric geochronology.

15. Disregard For Radiometric Results Inconsistent With Others

Cahen and Snelling,⁶⁵ after discarding an anomalously old K-Ar result, said: "... the only reason for... rejecting the age... was that it was out of keeping with the three other apparent ages of biotites of the same Series..."

Comment: This illustrates how discrepant results in radiometric dating are conveniently disregarded. In his work,⁶⁴ the author extensively documented the fact that dates are disregarded not only when they are in conflict with some favored value(s), but also when they conflict with accepted values for biostratigraphic positions.

16. Selective Publication of Dating Results

Bath⁶⁶ said: "Unpublished work by the author on Silurian shales from Pembrokeshire and the Welsh Borderlands has shown that such rocks can define isochrons giving ages significantly younger than the time of deposition adduced from faunal evidence."

Comment: Besides indicating that Rb-Sr isochrons from shales are often anomalous, this also illustrates that discrepant results are often (or usually) not published; two points documented previously.⁶⁴

17. Failure of Radiometric Dating in Precambrian Stratigraphic Studies

After describing one group of geologists who uncritically accepted radiometric dating, Salop⁶⁷ said: "... the other group, in the face of many discrepancies between radiometric and geological data, tended to reject this technique in stratigraphic studies, or accepted it with great caution."

Comment: The fact that Pre Cambrian Dating results are often very contradictory has been discussed towards the end of the author's work.⁶⁴ This statement by Salop illustrates the consequences of such erratic dates.

18. The K-Ar Isochron Method Has Its Own Problems

Shafiqullah and Damon⁶⁸ said: "The $^{40}\text{Ar}/^{36}\text{Ar}$ vs. $^{40}\text{K}/^{36}\text{Ar}$ isochrons are valid only when all samples of the system under consideration have the same non-radiogenic argon composition. If this condition does not hold, invalid ages and intercepts are obtained. Models 2-9 yield isochron ages that are too high, too low, or in the future, sometimes by orders of magnitude."

Comment: It is often claimed that the K-Ar isochron method is superior to the conventional K-Ar method because the former measures, not assumes, the initial $^{40}\text{Ar}/^{36}\text{Ar}$ ratio, and can overcome and "excess argon" problem. This statement indicates that isochrons can form that are discrepant and absurd, and—like conventional results—are subject to open-system rationalizations whenever discrepant and unwanted results are obtained. The Bourinot Group (volcanics; Cambrian, ref. 372) in Table 1 of the author's work⁶⁴ is an example of an isochron that is "too young," and this is attributed to thermally-induced argon loss with homogenization of the remainder during the alleged heating event on the rock.

VII. ARCHEOLOGY AND PREHISTORY

1. Fallacy in Dating of Prehistoric Man and His Alleged Cultural-Technical Evolution

Brown⁶⁹ said: "In archeology it is now realized, despite long resistance, that dating and classification by

means of technical typology, for example by stone tools, is no longer possible in many cases. The Acheulian stone industries of Africa are possibly as old as 1.4 Ma, but in Atlantic and Mediterranean Europe they are rare until mid-way through the Brunhes Epoch."

Comment: This finding is very much in line with the work of Creationists who long insisted that technical typology is not an evolutionary stage in man but a progressive restoration of technology among Noah's immediate descendents in the first few centuries after the Flood. The difficulties in using technical typology for dating reflects the fallacious evolutionary premises that hold to human evolution.

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 CA—Cambridge University Press
 CR—Creation Research Society Quarterly
 EC—Palaeogeography, Palaeoclimatology, Palaeoecology
 EL—Elsevier Scientific Publishing Company, Amsterdam, New York
 ES—Earth Science Reviews
 GA—Geological Society of America Abstracts with Programs
 GL—Journal of Geological Society of London
 JG—Journal of Geology
 JP—Journal of Paleontology
 LE—Lethaia
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SEVERAL SIGNIFICANT DISCREPANCIES BETWEEN THEISTIC EVOLUTION AND THE BIBLICAL ACCOUNT†

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It is the purpose of this article to demonstrate that it is impossible to accommodate theistic evolution to the Biblical account of creation. Furthermore, as many publications of the Institute for Creation Research (as well as others) have shown, all the real scientific data support literal Biblical creationism, so that such compromises are self-defeating, as well as dishonoring to God's Word.

Introduction

In discussing a model for the origin of the universe and the earth, it is important to remember that there are basically only two positions possible: "In the beginning God created" or "In the beginning everything happened by itself." Each position has its variations, but it is really a theistic/nontheistic question. If one rejects the former, he has no alternative but to hold to the latter, for there is no third choice.

Within the "In the beginning everything happened by itself" framework fall the various attempts to explain origins apart from divine intervention: the nebular hypothesis, big bang, expanding universe theories, etc. These differ from each other in the mechanics of how things started, but they are all merely variations of the naturalistic or non-theistic explanation of origins.

Within the theistic or "God created" framework there are two quite different positions, each with its distinct hermeneutical approach (method of interpretation) to the Biblical record. The first is held by those who call themselves scientific creationists. The hermeneutical presupposition here is that the words of the Scriptures are to be understood in their literal sense, unless the context clearly demands otherwise. Since there are no compelling Biblical reasons for abandoning this hermeneutic in Genesis 1, the picture we get, with an unbiased, straightforward reading, is that of a relatively young earth created within the span of 144 hours, or 6 normal days. Those who hold this view appeal to the growing body of scientific data being amassed which confirms their position that the age of the earth is to be numbered in thousands, rather than billions, of years.

The second group of theists have constructed a system that is a curious blend of Biblical data and evolutionary speculation, set within a basically uniformitarian framework. The classical designation for this group is "Theistic Evolutionists": that is, God is responsible, to some extent, for creating the universe, but He did so over a time span of billions of years and in the general sequence suggested by the so-called "geologic column." A very similar approach is taken by those who call themselves "Progressive Creationists," but the difference is largely in name only. It is currently fashionable for theistic evolutionists to go by the title of "Progressive Creationists" in order to avoid the popular resentment in Christian circles against evolution and its non-theistic orientation.

In practice, however, both views are essentially the same. The difference merely concerns the amount of God's intervention within the evolutionary process. Theistic Evolution is more uniformitarian, deistic, and naturalistic, in that it keeps God's creative involvement in His universe to a minimum. Evolution is assumed to be a valid principle of science, and this mechanism is quite capable of carrying on the required processes without help. Progressive creationism is likewise uniformitarian and evolutionary in its framework, but it sees God coming down at various intervals during the evolutionary process to give a slight direction to an otherwise blind process.

The hermeneutics of theistic evolution and progressive creationism are highly questionable, however, for they claim that the Biblical word "day" really means "billion of years," "created" really means "evolved," and so on. If our spoken and written words no longer mean what they say, then all communication becomes hopeless. Likewise, the Biblical record: if we cannot trust Genesis I to convey meaningful and accurate information, why should we give heed to the words of salvation in John 3? In other words, if God did not mean what He *said*, then why did He not say what He *did* mean?

Biblical scholars have long recognized the absurdity of Philo's and Origen's allegorical interpretations of Scripture, and it is time we also took a stand against this twentieth-century scientific allegorism. The words of Scripture are not suspended in isolation from each other, and subject to a lexicographical shell game; they are always set in *context* which, in each case, determines the definition of any particular word.

II. A Study in Contrasts

It is the thesis of this article that theistic evolution and progressive creationism both require a scenario that is so totally at variance with the Biblical record that neither can be harmonized with Scripture. The points below will contain first an item that is an important part of the evolutionary scheme, paralleled by a fact from the Biblical record. The order is generally that which appears in Genesis 1:1 and following.

QUOTABLE QUOTE

"It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts."

Sherlock Holmes, in the story
A Scandal in Bohemia

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The Evolutionary Scenario

1. Space, matter, and time are eternal.
2. Light is as eternal as the universe.
3. When the earth first formed, it was very hot.
4. The original atmosphere was reducing (methane, ammonia, and other poisonous gases) and gradually changed into the oxidizing (oxygen and nitrogen) type that we know today.
5. Plant life produced the atmosphere as we know it today.
6. The first life evolved in the sea, then moved to the land.
7. There is, or at least there should be, a continuum (a continuous transition) between the varieties of plant life.
8. It took a long time for plants to evolve.
9. The earth is the final phase in cosmic evolution.
10. Earth is a relatively insignificant grain of sand in a sea of stellar galaxies.
11. Life began with simple creatures and progressed to the more complex animals.
12. Reptiles evolved into birds.
13. There is, or should be, a continuum among the animal species.
14. There is, or should be, little difference between the higher animals (apes) and man.
15. The fossil record speaks of death and destruction from the very beginning.
16. Man developed in the image of apes.
17. Evolution took place over billions of years.
18. Evolution is a continuous process.
19. The present is the key to the past (uniformitarianism).
20. Early animals were carnivorous (meat-eaters).
21. It has always rained upon the earth.
22. Man was formed from one of the lower animals.
23. One of the lower animals was already alive when it became a man, and God merely added a soul.
24. There really is no one individual we can call "Adam"; the term refers to a race of early-evolved men.
25. Agriculture was developed late in the evolutionary history of man.
26. Language took a long time to develop in man.
27. Since Adam evolved out of one of the animals, there is very little difference in the psychological makeup of animals and man. (This is a fundamental premise of modern psychology).
28. Woman, like man, evolved out of an animal.
29. Marriage is a developed cultural institution.
30. Man has been in existence only the last 1/1500th of the earth's history.
31. The Garden of Eden is a myth.

The Biblical Record

1. There was a period when there was no time, space, or matter. Genesis 1:1; cf. Hebrews 1:2
2. The earth was formed in total darkness; light was created later on the first day. Genesis 1:1-3
3. The earth was created with a cool water surface from the beginning. Genesis 1:2
4. The atmosphere was created quickly and has always been essentially the same as it is today. Genesis 1:6-8
5. The atmosphere preceded all plant life. Genesis 1:6-12
6. The first life was created on land, followed by sea life. Genesis 1:11-13, 20-23
7. Plants were created as distinct species, each "after its kind." Genesis 1:11-12
8. Plants were created with seeds and fruit on their first day of existence. (The Biblical doctrine of creation with the appearance of age). Genesis 1:11-12
9. Earth was formed first, in darkness; nothing else was in space besides the earth. Three days later, the rest of the solar system and the galaxies were created. Genesis 1:1-2, 14-19
10. The earth is the center of the universe (theologically), and the rest of the planets and galaxies are peripheral, in this sense, to the earth and subservient to man's needs. Genesis 1:14-15
11. The first animals created included "great whales"—highly developed mammals—and then the so-called "lower forms." Genesis 1:21
12. Birds were created before "creeping things." Genesis 1:20-24
13. Animals were created in distinct species, each "after its kind." Genesis 1:21
14. Animals and man are referred to as distinct kinds. Genesis 1:24-27
15. God created everything so that "it was good." Death did not come into the universe until after the Fall. Genesis 1:31; Romans 5:12
16. Man was created in the image of God. Genesis 1:26-27
17. Creation took place in 6 literal days of 24 hours each. Genesis 1
18. God finished His creative activity on the sixth day, and He is no longer involved in completing the created order. Genesis 2:1-3
19. God works suddenly and completely, and sometimes He uses major and catastrophic events. Genesis 1-2, 6-8, 11
20. Early animals were herbivorous (plant eaters) and did not become carnivorous until after either the Fall or the Flood. Genesis 1:29-30
21. Prior to the flood there was no rain. Genesis 2:5-6
22. Man was formed from dust. Genesis 2:7
23. God breathed the "breath of life" into the nostrils of a dead object and it became alive. Genesis 2:7
24. The inspired writers of both Testaments clearly speak of Adam as an individual, not as a race of people. I Chron. 1:1, Romans 5:12-19; I Cor. 15:21
25. The first and only responsibility of Adam was to tend the Garden of Eden. Genesis 2:9, 15-16. Abel, his son, was a farmer by occupation. Genesis 4:2
26. Man was created with an enormous vocabulary and grammar, and he conducted intelligent conversations from the beginning. Genesis 2:18-24
27. Man was created so distinct from the animals that he was unable to find one physically and emotionally compatible with him. Genesis 2:20
28. Eve was a direct act of special creation, taken from the side of Adam, not another animal. Genesis 2:21-23
29. Marriage was instituted by God for the first couple. Genesis 2:24
30. Man has existed, except for a few literal days, from the beginning of the creation. Matthew 19:4, Mark 10:6
31. All inspired Biblical writers understood Eden to be a literal place. Ezek. 28:13; 36:35; Joel 2:3; Amos 1:5

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THE TOWER OF BABEL

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It is argued that more than Scripture actually says has commonly been read into the account of the Tower of Babel. In particular, Scripture does not say explicitly that the diversity of languages began there instantaneously. An interruption of the faculty of speech, followed by dispersion, would, it is suggested, have been enough; diversification of languages would then have followed.

Introduction

Possibly one of the most unusual and most misunderstood event documented in the Bible is that of the Confusion of Tongues at the Tower of Babel. The misunderstanding results from a tendency to accept long-standing interpretations of the biblical account that have lost sight of what is actually stated.

Since at least as early as the time of Josephus, this account has been interpreted as describing an instant diversification of human language; i.e., the miraculous creation of new languages. In Josephus' words:

"... but he [God] created discord among them by making them speak different languages, through the variety of which they could not understand one another."¹

This idea still prevails—even among those who reject the factuality of the account—as evidenced in the Encyclopedia Britannica:

"The mythical story of its [Tower of Babel] construction... appears to be an attempt to explain the existence of diverse human languages."²

However, a careful examination of the biblical text reveals no indication that such a phenomenon occurred.

And the whole earth was of one language and one speech. Go to, let us go down, and there confound their language, that they may not understand one another's speech. Therefore it is the name of it called Babel; because the Lord did there confound the language of all the earth...

Genesis 11:1,7,9

No matter how long-standing, no matter how widely accepted, and no matter how popular, the idea of language diversification is not present in the account; verse one notwithstanding. Indeed, the statement in verse one possibly implies that what follows does *not* involve multiple languages; i.e., there was one language before, during, and after the catastrophe. Thus, its purpose is to provide an overall backdrop—the setting—rather than to announce a condition subject to change. (The first biblical recognition of different languages cites Joseph's use of an interpreter.)

So much for what the account does *not* say. It remains to determine what can be concluded from and about the information it does provide; including the reference to the "confounding" of the language.

Time of the Confusion

The biblical passage describing the Confusion stands isolated from all other parts of the Bible, making chronological placement difficult. It is frequently

ascribed to the time of Peleg because of the "division of the earth" in his day (Genesis 10:25). However, not only is this "division" a very ambiguous term (possibly describing a geological event³), the historical context of (presumably) similar towers seems to preclude this view, placing it at a much later date than Peleg. There is also a legendary association of Abraham with the Tower of Babel; this too arguing for a later period.

"And it came to pass that Abraham, who was then in his 48th year, heard of the mighty tower which was being built in the valley of Shinaar. He travelled to the valley and endeavored to make the builders desist from their sinful undertaking, but they refused to listen to him. Abraham thereupon prayed to the Lord of the Universe: 'God Almighty,' he prayed, 'confuse their language and scatter them over the face of the earth.'"⁴

Extent of the Confusion

Legends of a confusion of tongues appear to be few in number, but the geographical distribution of those extant is revealing.⁵ They span nearly the entire length of the North American continent, but other than that are limited to Mesopotamia. Such a distribution argues against its having resulted from diffusion; this implying at least two occurrences of the phenomenon in question. By the same token, each occurrence would have been limited in geographical range. The Bible neither supports nor contradicts the evidence for this contention. It merely documents the effects on a single group of people.

Nature of the Confusion

A straightforward reading of the biblical record negates the highly subjective (unfounded) *interpretation* suggesting the inception of "new languages" and provides a much more reasonable alternative.

The text states that the builders' speech was *confounded*. Judging from the name of the place (Babel), their speech became a babble. This was not just a "collective babble" of the individuals speaking different languages but a babble on the part of each individual affected. In other words, they apparently lost the power of coherent speech! They could only babble!

The oldest known nonbiblical account of this event conveys the same thought. "In his anger also the secret council he poured out to scatter (abroad) his face he set he gave a command to make strange their speech."⁶

Fortunately, this was only a transient effect, and, after some unknown period of time, those affected could again communicate in their original language. However, although not explicitly stated, the confusion and fear forced a dispersion—families remaining intact because of ties stronger than speech. Language diversifi-

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cation then proceeded after the recovery at its own (pardon the expression) uniformitarian pace—one consequence of the separation (but probably previously under way in different parts of the world).

Possible Cause of the Confusion

It is not uncommon for creationists to seek to ascertain physical causes for various biblically recorded upheavals attributed to God. There are presently several competing theories among creationists as to the cause of the Deluge. In all cases, it is accepted that God used some kind of physical instrument to bring about this most devastating of all ancient catastrophes. It is not unreasonable to surmise that God might have made use of another physical instrument to effect His Will at another time and place; e.g., the Tower of Babel. There are documented contemporary experiences that perhaps suggest the nature of a potential candidate for such an instrument.

Given the suggested nature of the Confusion of Tongues, it is entirely possible that it resulted from a physical disturbance of the brain. "Application of an electric current across a group of neurons elicits both excitatory and inhibitory effects . . . Vocalization can be evoked by electrical stimulation of the motor strip, but these vocalizations are never words. Spontaneous language has not been evoked from cortical stimulation. Rather cortical stimulation seems to act on such complex behavior as language as though it were introducing noise into the system. The brain apparently does not have time to compensate for this sudden burst of noise, so its introduction at any point in the complex system involved in language production may interfere with ultimate performance . . . The period of disruption of function is, in large measure, temporary."⁷ Similar conditions have been seen to result from exposure to electromagnetic fields.

" . . . diffuse behaviors, such as ambulation or emotional responses, which are controlled by a variety of environmental stimuli, have been reported to vary as a function of ELF [Extremely Low Frequency] electric or magnetic field applications."⁸

Aside from the familiar shock hazard, lightning is also a source of electromagnetic radiation. It is also the only possibility mentioned in any of the nonbiblical legends of the Confusion.⁹ An interplanetary discharge was cited by Dr. C. J. Ransom¹⁰ as a possible source of the postulated electrical disturbance in response to my original manuscript on this matter. He, in turn, ascribed this suggestion to Immanuel Velikovsky. Two such occurrences would explain the peculiar distribution of the legends.

Hebrew legend has it that the Tower of Babel experienced some kind of pyrogenic assault. "As for the unfinished tower, a part sank into the earth, and another part was consumed by fire; only one-third remained standing."¹¹ Thus, an objective reading of Scripture, legendary evidence, and contemporary experience together suggest that the manifestation of God's wrath loosed upon Babel was possibly in the form of a bolt.

Summary

1. The Bible states that the builders of the Tower of Babel spoke a common language.
2. It does not say that the builders were instantaneously given new languages.
3. Rather, it says that their speech was confounded; i.e., became a babble, incoherent.
4. The confused speech and accompanying terror forced a dispersion, but the speech difficulty was nevertheless a transient effect (suggested by contemporary experiences of electrical disturbances of the brain). It was only some (unknown) period of time until the victims' speech capability was regained, the original language being intact at this point in all groups. Families and family-based groupings would have held themselves intact.
5. Separation of the groups and their subsequent isolation from each other led quite naturally to language variations and independent language developments.

Footnote

In a recent publication, Velikovsky has cited a curious incident in the life of Nabopolassar as recorded by Berosus. "I was on the road to Til-Kunnu. Stormy weather broke loose, the god of Storm did thunder dreadfully. Inside my mouth the word became scarce, and the word came out somewhat stumbling. "And the years came and went and this condition began to play a part in my dreams. And god's hand stuck me in the time of a dream, and the ability of speech I lost entirely."¹² The king obviously suffered a stroke, but the reference to a thunderstorm causes wonder. Was it particularly severe to deserve written recognition? Of course the obvious question is "Was there a cause and effect relationship between the storm's electrical activity and the king's stroke?"

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THE BISHOP OF OXFORD: NOT SO SOAPY†

RICHARD WRANGHAM*

The great debate of 1860 is remembered chiefly for the victory of Huxley over Wilberforce. But does Wilberforce deserve to be remembered as a failure?

Bishop Samuel Wilberforce was nick-named "Soapy Sam" because of his slippery debating skills, and almost every biologist knows of one of the occasions on which he displayed them. It was in June 1860 at the Oxford meeting of the British Association for the Advancement of Science, seven months after the publication of the *Origin of Species*. Two of the listed papers referred in their titles to Charles Darwin's theory, and Wilberforce, the country's staunchest defender of Anglicanism against the Oxford movement, felt he must take the opportunity to confront the threat that evolution now posed to his Church. He did so in a half-hour speech following one of the Darwinian papers, and in it he attacked the whole basis of evolutionary thought. Near the end he put a question to T. H. Huxley. "If any one were willing", he asked, "to trace his descent through an ape as his grandfather, would he be willing to trace his descent similarly on the side of his grandmother?" When Huxley replied that an ape would be a preferable ancestor to man who twisted the facts and hid behind empty rhetoric, an era changed; biology had dared challenge religion, and biology had won. Wilberforce never entered the fray again, and Christianity shifted to accommodating rather than fighting Darwinian thought.

Today 'Soapy Sam' is ridiculed as a symbol of antediluvian intransigence in a thousand different accounts of the Oxford debate. But Wilberforce's reputation may be unfair, blackened to make an easy villain in the history of the search for truth. Remarkably, there are no contemporary accounts of what was said at the British Association meeting: all the speeches cited nowadays are quoted from the memory of those who attended, so accusations of the Bishop's ignorance and shallow thought are based on hearsay evidence, often from prejudiced witnesses. Unless new records are found we will never know how much of Wilberforce's notoriety was earned, or whether it has itself become a convenient and shallow orthodoxy.

But there is ample room for question. Several of the Bishop's sermons and essays show he was far from ignorant, and he was known to his peers as an ardent naturalist. More important, though, he wrote a long critical essay on the *Origin* for the *Quarterly Review*, which even Darwin acknowledged as "uncommonly clever: it picks out with skill all the most conjectural parts, and brings forward well the difficulties". The essay was published after the BA meeting but had been completed a month before, as the Bishop recorded in his diary. It seems likely, therefore, that his speech would have drawn extensively on this article. If so, our view of Wilberforce as an unreasoning bastion of prejudice is best judged from what he wrote.

The Bishop began his review with several pages of delightful praise for "Mr. Darwin's characteristic excellences". He loved the accounts of strange animals and plants. But the *Origin* was not only fact. "When we turn, with Mr. Darwin, to his 'argument', we are almost immediately at variance with him. It is an argument that the essay is put forward; as an argument we will test it."

The test began with a consideration of natural selection, one of Darwin's most revolutionary contributions. Here again, surprisingly, Wilberforce congratulates the author. "Now all this is excellent. The fact are all gathered from a true observation of nature, and from a patiently observed comprehension of their undoubted and unquestionable relative significance." He thought the discussion of natural selection "one of the most interesting parts" of the book, and except for carping that Lucretius had said it before Darwin, he found no problems: "The action of such a law as this is clear and indisputable." Where, then, did Wilberforce disagree?

The critical point was the next step. Darwin argued that natural selection was responsible for change: species were constantly improved, and thus evolved. To Wilberforce this was a double affront. It not only conflicted with the religious concept of creation, but it suggested that species were imperfect, and this was "a dishonouring view of nature". Arguing for natural selection solely as a stabilising force that would keep species perfect, therefore, Wilberforce took Darwin to task for his view that maladaptation was a common phenomenon. Here his arrow found its mark. Though modern biologists would hardly write so vividly many would have taken his side when the Bishop wrote:

Mr. Darwin . . . finds one of (his) "inexplicable difficulties" in the fact, that the young of the blackbird, instead of resembling the adult in the colour of its plumage, is like the young of many other birds spotted, and triumphantly declaring that "no one will suppose that the stripes on the whelp of a lion, or the spots on the young blackbird, are of any use to these animals or are related to the conditions to which they are exposed", he draws from them one of his strongest arguments for this alleged community of descent. Yet what is more certain to every field-naturalist than this alleged uselessness of colouring is one of the greatest protections to the young bird, imperfect in its flight, perching on every spray, sitting unwarily on every bush through which the rays of sunshine dapple every bough to the colour of its own plumage, and so give it a facility of escape which it would utterly want if it bore the marked and prominent colours, the beauty of which the adult birds needs to recommend him to his mate, and can safely bear with his increased habits of vigilance and power of wings.

Other examples were cited: the stripes on different

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species of horses, the fights between mother and daughter bees, the wasteful quantities of pollen produced by fir-trees. Apparently maladaptive, the existence of these and other characteristics was attributed by Darwin to the failure of natural selection, and Wilberforce's protests show clearly that he believed natural selection to be a more powerful force than Darwin allowed. To the Bishop natural selection maintained adaptation, and perfect adaptation reflected God's perfection. It was the imperfection of Darwinian natural selection, rather than its overwhelming power to affect species, which worried him.

There were other grounds for arguing that natural selection was conservative. Wilberforce drew attention to the fact that varieties produced under domestication tended continually to revert to type, and he argued that this was because any change from the type brings disadvantages as well as benefits. "Correlation is so certainly the law of all animal existence that man can only develop one part by the sacrifice of another. The bull-dog gains in strength but loses in swiftness; the greyhound gains in swiftness but loses in strength . . . hence it is that Nature, according to her universal law with monstrosities, is ever tending to obliterate the deviation and to return to the type."

The evidence fitted, and the argument seemed fair. Nowadays, of course, the fallacy is clear: although natural selection is often conservative it becomes a force for change when environments change. Wilberforce never discussed environmental change, perhaps because he saw the problem. But Darwin failed to stress its importance (though he clearly understood its significance), and some of his statements were confusing at the very least. Summarizing the *Origin*, for example, Darwin wrote: "As natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress toward perfection." This implied that species are continuously being modified, as unacceptable view today. Wilberforce's defense of species constancy forces a more critical approach.

Hitting hard at the admitted imperfections of the geological record, citing organs with no related forms, and arguing that the occurrence of sterile hybrids showed species to be truly independent, Wilberforce went on to claim that Darwin's theory was based on "the merest hypothesis", supported by the most unfounded assumptions". Ultimately, he contended, evolution was an intuitive idea which was attractive principally because it explained the puzzle of apparently unreasonable homologies, like the pentadactyl limb whose essential architecture does not vary from mouse to whale. As Darwin put it, "Nature is prodigal in variety, but niggard in invention. Why, on the theory of creation, should this be so? Why should all the parts and organs of so many independent beings, each supposed to have been separately created for its proper place in nature, be so commonly linked by graduated steps?" Darwin thought evolution the only reasonable answer, but Wilberforce had the Church's solution, one which he had outlined in a sermon to the Royal Society in 1856. For him, the marvellous intricacy of taxonomic relationships was designed by God as a demonstration of His power. Life was a massive jigsaw puzzle reflecting his

genius, and in particular, man "bears witness in his own frame to the law of order which pervades the universe . . . [passing] in the earlier stages of his being through phases of existence closely analogous, so far as his earthly tabernacle is concerned, to those in which the lower animals ever remain." With an answer like that up one's sleeve, who needs evolution to explain homology?

It was a narrow, anthropocentric argument, and it lost, but in making it Wilberforce faced the facts. "We have no sympathy with those who object to any facts or alleged facts in nature or any inference logically deduced from them, because they believe them to contradict what it appears to them is taught by Revelation." He took Darwin's arguments seriously, he correctly judged the power of natural selection theory, and he rightly pointed out that Darwin shifted unrigorously between adaptive and ancestral explanations of puzzling characteristics. Fighting for the view that species are perfectly adapted Wilberforce took a remarkably modern stance. Even if that view was forced on him by his Christian beliefs he deserves to be remembered as more than the broken pillar of the Church.

Still, he was on the wrong side, just as he was in several of his theological encounters, and history knows him as the loser. Did the defeat embitter him? His attitude is sometimes portrayed as pompous and rather ill-humoured, but there is little evidence for this and an entirely different picture comes from his delightful portrait of A. E. Knox. Knox was a naturalist who eulogised the joys of fishing in his *Autumns on the Spey*, published in 1872. Wilberforce wrote a long and friendly review of the book, and he showed his appreciation of Knox's enthusiasm for his sport with a charming idea surely recalling his question to Huxley of twelve years previous.

"If Mr. Darwin's theory should ever be established", he wrote, "there can be no doubt that Mr. Knox will be found to have descended, not from any prick-eared, tree-inhabiting monkey, but probably after the fewest interstitial gradations from some grand and venerable heron."

Perhaps the years had mellowed him but equally, perhaps this was his natural style, and he wasn't such a dinosaur after all.

Editor's note: Readers of the *Quarterly* may not agree with all of the conclusions of this article, but they will no doubt find the facts presented of much interest.

It is possible that Wilberforce really asked a serious question, which, as suggested, was garbled in the re-telling? Darwin, at times, made much of hybrids. Was the original question maybe something like: "Since so much is made of hybrids, is it maintained that man arose as a cross between an ape and something else? If so, what was the something else?"

This article points out the great importance assigned, in Darwinian thought, to changes in environment at the right time. Is that point one calling for critical examination? For instance, would animals really change under such circumstances, or would they either migrate or die out?

Incidentally, it is said that Huxley was not always so fortunate in his debates. In debating later with Kelvin, on the age of the Earth, he is said to have remarked: "You do not understand my geology and I do not understand your physics." Thereupon Kelvin replied: "On the contrary, I do understand the geology; and you could understand the physics if you would put your mind to it."

EVOLUTIONISTIC DEFENSE AGAINST THERMODYNAMICS DISPROVED

H. L. ARMSTRONG*

Evolutionists, when confronted with the principles of thermodynamics, and especially the second law, often resort to two defences: that increase of order goes on spontaneously in crystallisation; and that the receipt of energy from the Sun somehow changes the matter. It is shown here that neither of these contentions is valid. So it is impossible, in the light of established physical principles, that the order in the world around us could have arisen spontaneously from chaos.

Introduction

Creationists have often pointed out that, if evolution were true, order would have had to increase spontaneously in the world; but such an increase would be contrary to the second law of thermodynamics. Evolutionists try to meet that argument by two claims, in particular: that in certain cases order is seen to increase spontaneously; and that energy coming from the Sun makes a difference. An alternate argument, which shows on other grounds that order does not arise spontaneously from chaos, has been proposed¹ But the appeal to thermodynamics is still valid; and it is shown here that the objections which the evolutionists propose are nothing to the point.² Reference 2 also refutes the evolutionists' claims.

Crystallization

It is sometimes claimed that when a crystal forms, from a solution for instance, there is a spontaneous increase in order. In thermodynamic terms, the increase in order is associated with a decrease in entropy.³ This claim is investigated in Reference 3.

It must be pointed out that crystallization, as it commonly happens, involves irreversible processes. Now in thermodynamic calculations, it is risky, if not completely invalid, to calculate on the basis of irreversible processes.⁴ The best thing is to consider reversible processes which will give the same result, and to calculate from them.

How could crystallization (or its reverse, the solution of crystal) be carried out reversibly? Consider the arrangement suggested in Figure 1.

A cylinder is fitted with a moveable semi-permeable piston. Semi-permeable membranes, permeable to one material and impermeable to another, are experimentally possible. For instance, there is the well known experiment in which a cylinder with a membrane over its bottom, stands in a beaker of water, the cylinder containing also some sugar. The membrane is impermeable to the sugar, but permeable to the water, which goes through it by osmosis until it has climbed to a considerable height in the cylinder.

Since semi-permeable things are possible, then, it is legitimate to imagine one in a discussion, even though it may not be clear just how it would be prepared in practice.

Let the whole cylinder contain a solvent. To the right of the piston is a crystal; and the solvent on that side contains the material of the crystal as a solute, but is pure on the left. Conditions are such that the solute and crystal are in equilibrium.

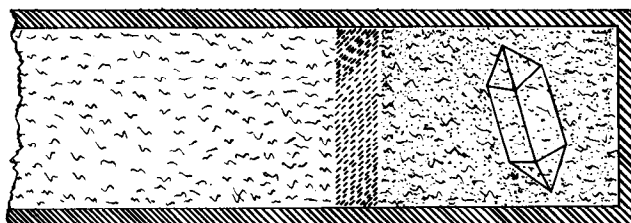


Figure 1. This shows the way in which, in which, in principle, solution or crystallisation could be carried out reversibly. The piston, shown by broken shading, is permeable to the solvent, which is on both sides of it. It is impermeable to the material of the crystal, which is on the right side only.

To get either growth or solution of the crystal reversibly proceed as follows.

Move the piston an infinitesimal amount to the right. The solute will be swept before it; thus the concentration of solute will become infinitesimally greater in the right part. So a little will crystallize out onto the crystal, which will thus grow infinitesimally, until matters are once more in equilibrium. And this process could be continued.

The relation of the solute and the crystal never departed more than infinitesimally from equilibrium. The process which happened were reversible, as desired; and so reliable conclusions can be drawn from them.

Likewise, by moving the piston to the left, the crystal could be dissolved away reversibly.

Suppose that the temperature remained constant. If material was being added to the crystal, heat of solution would be given up. To keep the temperature constant, that heat would have to be removed from the system. The amount of heat removed, divided by the absolute temperature at which it was removed, would give the decrease in entropy of the system. So the entropy would decrease; and, since the crystal and solute were the only things which changed, the entropy of the crystal is less than that of the dissolved material which crystallized out.

On the other hand, if the piston moved to the left, and the crystal dissolved, heat of solution would have to be added. And that would correspond to an increase in entropy.

Now, what would happen if the piston were let go its own way? The solute, on the right of the piston, would exert an osmotic pressure to the left. The piston would move to the left, and the crystal would dissolve away.

Thus the natural tendency is for the material to dissolve (or evaporate, or sublime), not to crystallize. And, as expected, that tendency is in the direction of increasing entropy.

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Reversible Cooling

In practice, often crystallisation is brought about by cooling the solution. But, in order to investigate what happens about entropy, the cooling must be reversible.

That is no problem. Reversible cooling or heating are standard notions in thermodynamics. They are brought about by bringing the system—here the solution—into contact with a whole series of heat sinks or heat sources, differing infinitesimally in temperature, one after the other. In particular, to dissolve the crystal, heat would have to be supplied to the system; the entropy would increase. To cause crystallization, heat would be removed reversibly, and the entropy would decrease. So the conclusion is the same as that reached previously.

A Possible Objection

It might be objected that crystals form from molten lava, for instance, upon cooling. So they do; but that has nothing to do with the present point.

For the situation in which the crystals precipitate from the lava already represents a complex system. There is the lava, of a composition which will lead to crystals. It is at some high temperature. But handy to it is some heat sink at a lower temperature. And, in practice, there are barriers to hold the lava in suitable amounts; and the situation is such that the cooling will not proceed too quickly. In other words, to have the crystals form, showing some order, it is necessary that the situation incorporate beforehand a considerable amount of order. So it is not true that order will arise spontaneously out of disorder. In particular, out of the utter disorder envisaged by those who maintain that the universe began with an explosion, the present degree of order could never have arisen spontaneously.

If crystallisation should seem to occur spontaneously, then, it is under conditions which themselves would never occur spontaneously. Likewise, it might be said that a cloud of gas would compress spontaneously, if it were surrounded by a larger cloud at a higher pressure. Maybe it would; but such a situation would never arise spontaneously in the first place.

Open and Closed Systems

The second common argument used by evolutionists is that the Earth, in particular, is an open system; and that in an open system strange things may happen to the entropy, and to everything else.

First of all, let it be noted that the Earth is indeed an open system: it is open to the action of the Creator. Creationists agree that the existence of life on the Earth is to be ascribed to that kind of openness. So in a sense the evolutionists, in appealing to an open system, are stating a profound truth. But that kind of openness is not what they mean.

An open system, in the sense in which the term is used in thermodynamics, means one which can exchange matter or energy with something outside itself—with the surroundings.

As for the matter, the evolutionists themselves would agree that, during the time in which they believe life to have developed, the only exchange of matter was represented by any meteors which struck the Earth. And

scarcely anyone proposes that they had anything to do with the origin and development of life.

(The notion that life was brought here from other planets by space travellers has nothing to do with the thermodynamic idea of openness. Besides, that notion is not a theory of the origin of life; it presupposes life.)

Well, then, if the openness has any effect at all, it must be through the receipt or exchange of energy.

It is just here that some very loose arguments are often heard. Some say that there was a great increase in entropy in the Sun, or in outer space, or somewhere; so that a spontaneous decrease in entropy on the Earth is not surprising. The idea seems to be that an increase in entropy in one place can atone, so to speak, for a decrease in another. It is rather as if one were to expect a small pot of water, put onto the fire, to freeze, provided a larger pot put beside it boil. Or, again, it is like saying that Niagara Falls a great amount of energy is being dissipated, so it would not be surprising if a perpetual motion machine were to work in the vicinity. But surely an increase in entropy in one place has to do with an (alleged) decrease in another only if there is some connection of cause and effect between them. And, needless to say, such a connection has not been demonstrated.

(References to be continued on page 206)

Theistic Evolution and the Biblical

(Continued from page 219)

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PANORAMA OF SCIENCE

Ice-Age Culture

The common view of the ice age, or of cave-man times, as a period of utter savagery, is contradicted more and more by archaeology. In fact, enough relics of art and culture were available to make it possible to have an exhibition of such things, at the American Museum of Natural History, New York, about the later part of 1978; and something was written about this exhibition in the journal *Archaeology*.¹

The exhibits were, by the conventional dating, ascribed to about 35,000 to 10,000 B.C., and included tools, jewellery, figurines, and other artifacts, as well as copies of the wellknown paintings in caves.

Some rather surprising things mentioned include: "... complex symbolic burials..."; "... a complex iconography of nonrepresentational signs, symbols, and notations..."; "... a bone flute... (having) four stops above and two below, documenting the presence of complex fingering to obtain tonal changes..."; and "... a percussion orchestra... of painted mammoth bones... in which each instrument provided a different timber and tone...".

Realistic pictures of animals have been known for a long time; but there have recently been found from these times pictures of the people, showing "... bearded and moustached men in cap and costume... women gowned and coiffed... some women are in prayer...".

What is a Creationist to make of this? These relics must date from after the Flood. For it would have destroyed the paintings, etc., in caves. Maybe, indeed, there were no caves before the Flood. These people must have dispersed from the landing-place of the Ark. Of course, the Creationist knows that the ages assigned to these things need to be reduced.

Plus ça Change

An item in a recent popular magazine reports that while only 25% of Canadians believe in ghosts and haunted houses, and only 17% believe in witches, 53% believe in extra-terrestrial beings.²

Is it not strange how one superstition replaces another? The evidence for ghosts is little enough, and poor enough. But I submit that there is more of it—and it is better evidence—than there is for the extra-terrestrial beings.

Of course, there are extra-terrestrial beings: angels, for instance. But they were not what was being considered in the item cited. There, it is plain, the extra-terrestrial beings were little green men, or something of the sort.

Insects can Affect Tree Rings

Some investigations have shown that attacks by insects may affect the growth of tree-rings.³ Apparently if the insects remove enough leaves, the tree is dormant for a while; and, of course, that dormancy has a similar effect to the dormancy in the winter.

This may be another reason for care in attempting to arrive at ages by counting tree-rings. It shows that the whole question of how many things there are which may influence the rings still needs more study.

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BOOK REVIEW

A Symposium on Creation VI edited by Donald W. Patten, 1977. Pacific Meridian Publishing Co., Seattle, Washington 98125. 154 pages. \$3.95.

Reviewed by Christopher Chui*

Let us welcome another Symposium on Creation volume six. The study of creationism has advanced by leaps and bounds since 1968. The sixth volume of the Symposium carries the message of creationism beyond the boundaries of biology. It brings forth six essays on climatology, astrophysics, creationist history and physical geography, each written by experts in their respective fields.

The first article "Paleoclimatology and Infrared Radiation Traps: Earth's Antidiluvian Climate" written by Dr. John Fermor deals with several models of the atmosphere and an alternative explanation of the ancient

canopy which takes the atmospheric circulations into consideration. The article is well documented. In my opinion, this article offers a best available dissertation on ancient climate.

The second article written by Donald Patten features a careful analysis of millennial climatology based on Biblical concepts. Therefore, this essay is mainly theological rather than purely scientific. However, it is extremely interesting in the sense that it *predicts* the climates of the coming millennium. If this alone arouses your interest, you should consult the book.

Dr. Charles McDowell contributed the third article entitled "Catastrophism and Puritan Thought: The Newton Era". This article mainly deals with the history of creationism and in particular catastrophism in Newton's lifetime. Written in an informative and entertaining style, the article also outlined the dark side of Issac Newton and some ills of the scientific era. Of special interest are the quarrel between Newton and Leibniz, Jonathan Swift's *Gulliver's Travels*, imported Chinese

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science in Europe and some other account. This article is highly recommended for people who would like to understand the pros and cons of scientific research in Newton's times.

The fourth article was contributed by William Thomston III entitled "Extra-terrestrial Origin of the Ice Age". This is a scientific paper based on up-to-date sources. The article is well documented. It logically speculates that the ice age on earth was most likely the result of repeated showers of large quantities of water ice which came to earth from outer space some time in the past. This idea is supported by extensive evidence in the article.

Dr. Bolton Davidheiser contributed the fifth article entitled "Louis Agassiz". Dr. Davidheiser not only narrates the life and time of the great biologist Louis Agassiz, he also compared Agassiz with Darwin. In spite of Agassiz' great knowledge of the living and fossil worlds, he openly opposed Darwin's theory of evolution. While Darwin and Agassiz were contemporaries, they differed in many respects. Darwin was a totally

atheistic evolutionist while Agassiz was a godly biologist. Agassiz looked at similarities in various embryos as the only evidence of the Creator's work—in his words, "All the facts proclaim aloud the one God, whom we know, adore, and love." The article was rendered in lucid prose.

The sixth article was written by Dr. C. E. Allen Turner, on "The Place of Trace Elements in the Creation". This article outlines the importance of trace elements mainly in life. Compounds of copper, iron, manganese, molybdenum, zinc, etc., are useful in trace quantities in plants and animals. Many others are also discussed. The essay is quite informative and introduces the reader to the values of trace elements in life. However, one drawback of this article is that it does not carry any documentation. Some readers may feel more comfortable if the facts are referenced and documented. Others may want to trace to the first source so that they may research the subject further in more technical details. Generally speaking, the article is clear and to the point.

NOTICES OF BOOKS

Fossils, Strata, and Evolution by John G. Read and Clifford L. Burdick, 1979. Scientific-Technical Presentations, P.O. Box 2384, Culver City, California 90230. 63 pages.

This work deals especially with the notion of the geological column, and the way in which, in many places, overthrusts have been alleged to explain away the fact that strata or fossils are in the wrong order. But in many cases there is no independent evidence of such overthrusts; moreover there are strong reasons to doubt whether they could ever happen, because of physical and mechanical limitations on the rock.

There are many excellent illustrations, which will help to make the subject clear.

Celt, Druid, and Culdee by Isabel Hill Elder, 1947. The Covenant Publishing Co. Ltd., London S.W.1. 168 pages.

This book, while not at all new, is mentioned because it contains information which, if it can be corroborated, would be of great interest.

It is maintained that in the British Isles there was a quite high state of civilization continuously from many centuries B.C. onward. This could fit in with recent

evidence about the megalithic monuments, and could be connected with the dispersion of an already civilized people from the landing-place of the Ark, and from Babel.

There is also some information about the early introduction of Christianity to Britain.

The Earthquake Story by Dr. Hilton Hinderliter, M.R. 10, Box 202, Apollo, Pennsylvania 15613. 31 pages.

In the spring of 1977 the author tried to attend a conference in eastern Europe on an unorthodox topic in physics, which had been announced a few months previously. When he arrived, the organizer could not be found; and everyone disclaimed any knowledge of the conference, or else gave the recent earthquake as the reasons for its cancellation.

After some adventures the author returned home. Subsequently it was found that the organizer of the conference had been imprisoned, for unorthodoxy in politics or in science, or both. However, he was later set free and is now in western Europe.

This little book could be recommended particularly to be read by anyone who is not thankful for living in a free country.

BOOKS PUBLISHED BY THE C.R.S.

Textbooks

Biology: a Search for Order in Complexity. (Revised Edition, 1974.) A textbook for high school presenting creation AND evolution. 595 pp., 436 illustrations, \$9.95.

Teacher's guide to Accompany Biology: a Search for Order in Complexity. Paperback, \$1.95.

Investigations into Biology: Student's Laboratory Manual. Paperback, \$1.95.

Investigations into Biology: Teacher's Laboratory Manual. Paperback, \$1.95.

The books listed above are all available from Zondervan Publishing House, Grand Rapids, Michigan.

Anthology

Why Not Creation?, an anthology of articles from the *Quarterly* for the period 1964-1969, is now available at

(Continued on page 206)

RECORD REVIEW

Bringin' a New Song, by various artists. 1978. Myrrh Records, Waco, Texas. Price not stated; free with the purchase of certain albums.

Reviewed by Jay Hall.*

A myriad of literature has been produced by the Creationist movement, including such anthologies as *A Symposium on Creation (I-VI)*, and *Speak to the Earth*. A similar trend may be noticed in Christian music. *Bringin' a New Song* is a compilation of tunes by various musicians with styles ranging from easy-listening-pop to progressive rock. The theme of Creation, occurring throughout the album, is noticed for instance in Gospel Seed's melody *The Singer's Song*, reminiscent of Calvin Miller's poetic narrative *The Singer*, which confirms that:

In the beginning
The Singer sang the song
He sang out the Earth
He sang out the sky
He sang out you and I

The works of the Singer are to give Him glory. Following this thought the Alwyn Wall Band of England proclaims a message (see Psalm 148: 3-5):

The Sun and Moon they are Your worshippers
They'll sing Your songs until they die
The stars will twinkle and they'll dance for you
Across that stage in the sky

Another tribute to the Creator is discovered in Farrell and Farrell's (a husband and wife team) song *Earthmaker*. Although the metropolitan Oklahoma City area has no official branch chapter of a major Creationist organization, at the time of writing, this Christian couple from one of its suburbs clearly state their views on the subject of origins:

Speak the word and set the elements in motion
Tell the rains when to fall
Tell the trees and flowers when to grow
Earth Creation never waits to do what You say
Seasons always change on time
Would that I might respond to you that way
You are Earthmaker
You made all the world I see
And my Earthmaker
You mean all the world to me

Nature's witness points to the Earthmaker, not to any alleged evolutionary scheme. We need to share this truth by way of music as well as through science, and to say to others, as Fireworks do in their section on this disc: "Open your eyes". Creationists with an interest in contemporary Christian music will especially enjoy *Bringin' a New Song*, which rightfully emphasizes Creation in a powerful way.

*Mr. Jay Hall's address is P.O. Box 19434, Oklahoma City, Oklahoma 73144.

LETTERS TO THE EDITOR

An Equal Rights Amendment for Giraffes?

In CRSQ recently was a reference to the "just so" story of how the giraffe got its long neck!¹

This issue came up on one occasion in a pre-meds class in the University of Toronto. The lecturer did not lack enthusiasm for his subject and I'm sure the students were duly impressed with this illustration of the power of natural selection.

But I asked the lecturer if there was any difference in height between the males and the females. He paused for a minute as the possible significance of the question seemed to sink in. After a while he said, "I don't know. I shall look into it". Then he explained to the class that if the difference was substantial, it could put a crimp in the illustration unless the males were uncommonly gentlemanly and stood back to allow the females to survive as well.

He never did come back with an answer to my question; but in due course I found it for myself. According to Jones² the female giraffe is 24 inches shorter than the male. This observation is confirmed by Cannon.³ Interestingly, the Reader's Digest publication, *The Living World of Animals* extends the potential difference to 3 feet.⁴

Yet *Life Magazine* a while ago, presented the giraffe story as a most convincing example of natural selection at work.⁵ It is certainly still true that a lie goes round the world while the truth is putting its shoes on.

References

- ¹Hedtke, Randall R., 1979. An analysis of Darwin's natural selection—artificial selection analogy. *Creation Research Society Quarterly* 16 (2):89-97, 131, 148. See page 94, the second and third paragraphs on the right-hand side.
- ²Jones, F. Wood, 1953. Trends of life. Arnold, London. P. 93.
- ³Cannon, H. Graham, 1958. The evolution of living things. Manchester University Press. P. 139.
- ⁴1970. The living world of animals. London. P. 102.
- ⁵Issue of 18 May, 1973.

Sincerely
Arthur C. Custance (Ph.D.)
P.O. Box 291
Brockville, Ontario, Canada.
Received 24 October, 1979.

Longevity and Diet

May I comment on the subject of longevity before and for a short time after the flood, which subject has been discussed from time to time in the *Quarterly*?

There were two factors mentioned (or suggested) in scripture that could have had a bearing on longevity one is the moisture canopy and the other is diet. The moisture canopy has been well discussed, so I wish to comment on diet.

In Genesis 1:29 (King James version) Adam and Eve were told that they were being given herbs and fruit for meat.

In Genesis 9:3 (King James again) Noah was told: "Every moving thing that liveth shall be meat for you".

It would appear that flesh was added to the diet of man immediately after the flood. The reason for this can only be conjectured, but certainly herbs and fruit would not be readily available for some time after the flood has subsided. Flesh may not have been intended as a dominant component of diet, but perhaps as a means of combatting famine. Nevertheless Numbers 11:13 suggests that it had become dominant by the time of Moses.

Adam and Eve were created with perfect bodies and perfect constitutions. I suggest that the combined effects of a herb-fruit diet and the environment provided by the moisture canopy allowed the maintenance of a near perfect constitution and its inheritance from one generation to the next. In the post-flood era, the removal of moisture canopy and the gradual adoption of a predominantly flesh diet, led to increased defects in the inherited constitutions of men and thus shorter lifetimes.

Long life is difficult to achieve today because of inherited constitutional defects, but there have been some outstanding recent examples. The most notable would be Li Chung Yun, a herbalist and vegetarian, who died in China in 1933 aged 256. Many others have reached the vicinity of 150 years. They have not used flesh at all or have used it very sparingly.

Yours sincerely
 Ronald H. Hill
 1 Magnolia Court
 Glen Waverly, Victoria,
 Australia
 Received 29 August, 1979.

Equating Species with Kind

I found David Paul Licata's article "A Unit on Biological Origins For the Secular Classroom"¹ timely and informative. Let us hope the day will come when such a dual approach to the teaching of origins becomes the rule rather than the exception.

In his Table 1 concerning "Mutation Theory" under "Data" he errs, however, when under Creation Comments he states that "No change between species ever seen. If different species mate, the offspring, if any, are sterile". There are many instances of crossbreeding between species in which the resulting hybrids are not sterile.

Some years ago, as chief of the Game Division in New Hampshire, I encouraged the release of 2000 mallards (*Anas p. platyrhynchos*) in the state where they were relatively rare. This proved a serious blunder, since they readily crossed with N. H.'s native Black Duck (*Anas rubripes*). The resulting offspring gradually dominated the wilder and sportier black ducks, polluting their gene pool.

When the Creator said that each created plant and animal would produce "after its kind", He established a fixity in "Kinds", a category not necessarily synonymous with "species".

Reference

¹Licata, David Paul, 1979. A unit on biological origins for the secular classroom. *Creation Research Society Quarterly* 16 (1):60-63.

Hilbert R. Siegler
 Box 241, Bangor, Wisconsin 54614.
 Received 17 October, 1979.

Comments on "A Unit on Biological Origins"

In the June, 1979 issue of the *Quarterly*¹ Mr. David Paul Licata published an article describing his approach to the teaching of creation and evolution in the secular biology classroom. Mr. Licata should be commended for his concern and interest in ensuring his students a balanced treatment of the subject of origins. However, I would like to express my disappointment with one particular aspect of his approach.

The publication of this article in the *Quarterly* constitutes, in my opinion, a setback in the efforts of today's creationists to obtain a fair hearing of the case for creation in educational and scientific circles. To be specific, I am referring to the author's inclusion of the biblical creation account in his classroom presentations. For example, he carefully and in detail exegetes Genesis 1:1-4, summarizes days 2-7 of the biblical account, and describes and discusses the flood (presumably the biblical account). He also suggests that some teachers may want to adapt the course to include such ideas as the "gap theory"¹! The religious nature of this presentation is further suggested by his capitalization of the word "Creation" while the word "evolution" is not capitalized.

Those in the vanguard of the modern creationist movement have been careful to emphasize that in the public school classroom the biblical account be excluded and that the case for creation be built strictly upon evidences gleaned from the various scientific disciplines.

"Therefore, we think a better approach is to teach *only* the *scientific* aspects of creationism in the public schools, keeping the Bible and religion out of it altogether . . ."²

"It is not the Genesis story of creation that should be taught in the schools, of course, but only creationism as a scientific model."³

Hence, the publication of creationist books in public school editions^{4,5} and books designed especially for use in public schools^{6,7} which specifically exclude discussion of the Genesis account.

A study of the Genesis account in the public school, and Mr. Licata's article, given credence to the accusations by evolutionists that creationists seek to include religion and Bible teaching in the schools.⁸ The legal complications and ramifications of such an approach should be obvious.

While I do not doubt Mr. Licata's sincerity and dedication to creationism, I believe the cause of creationism will be better served if biblical references are omitted from the public school classroom.

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¹Licata, D.P. 1979. A unit on biological origins for the secular classroom. *Creation Research Society Quarterly* 16(1):60-63.

²Morris, H.M. 1974. Director's column: the book of Genesis. *Acts & Facts* 3(8):2.

³Morris, H.M. n.d. Resolution for equitable treatment of both creation and evolution. ICR Impact Series No. 26.

⁴Morris, H.M. 1974. Scientific creationism (public school edition). Creation-Life Publishers, San Diego, Calif.

⁵Gish, D.T. 1977. Evolution: the fossils say no (public school edition). Creation-Life Publishers, San Diego, Calif.

⁶Bliss, R.B. 1976. Origins: two models. Creation-Life Publishers, San Diego, Calif.

⁷Bliss, R.B. and G.E. Parker. 1979. Origin of Life. Creation-Life Publishers, San Diego, Calif.

⁸Morris, *op. cit.*

Sincerely
Glen W. Wolfrom Ph.D.
(Research Nutritionist,
International Minerals and
Chemical Corporation)
P.O. Box 207
Terre Haute, Indiana 47808
Received 13 August, 1979.

Reply to Wolfrom's Comments

First I would like to thank Dr. Wolfrom for taking the time to read and critique the brief of my lesson plans on creation and evolution presented in a recent issue of the *Quarterly* (see his reference 1). It was my hope that by seeing one such format other teachers would be encouraged to share their lesson plans; and that other interested people might respond with suggestions and aids.

May I point out that the first day's lecture is devoted to explaining: 1) that creationist interpretation is possible, 2) what a creation interpretation is, 3) the fact that several different "creation" models may exist (in quotes here because we know that there is only one Creator—but that fact is not discussed in class)? 4) Then in order to best show how the evidence fits a creation model we will choose one—just as one of the many variations of evolution models was chosen, and 5) finally a choice of a particular model is made and defended (see referenced article, point V., C.)

It is very difficult to explain to students how the scientific evidence fits a given model, unless they know what the model is. The presentation could have been made showing all the evidence for a young earth, the mathematics of probability evidencing the impossibility of rapid evolution, etc. Developing the lectures from this standpoint, however, seemed to me to get too far afield from biology, and to take several days longer. Certain trade-offs are necessary in terms of time-frame vs. material to be covered. I couldn't justify taking more than six days on this subject.

It is not uncommon for text-books to give a typical evolution scenario. The Genesis account is one creation scenario, as presented. The exegesis was deep enough to point out the possible "gap" in Genesis 1:1, in which some Creationists do believe, and some do not.

Some students attempted to ask questions of a religious nature and it was tactfully pointed out that their questions were not of a scientific nature, therefore not subject to study in the science class. This afforded us an opportunity to discuss, as a review, the scientific method. Note that the fact that there was a legitimate scientific dispute led us to discuss the Copernican vs. Aristotelian (helio-vs. geo-centric) solar system, and the

spontaneous generation debates in science. Students understood that the "science" of one day may change with new discoveries.

The final day, Day 6, was explicitly devoted not to science, but to philosophy. We discussed the fact that belief in creation or evolution is not so much a matter of science, but ultimately of faith. The results, in terms of society's attitudes and values, are discussed by the class. Perhaps this discussion does belong to some sort of social science class rather than in a natural science classroom; but that does not relieve the instructor of the duty of discussing of all sides of an issue in a fair and objective manner.

Perhaps it is the major failure of modern science that too many scientists have NOT considered the social, philosophical, and moral aspects of their work. Perhaps if teachers were more concerned, and could teach their students to look not only at the surface, but behind an issue, perhaps if we were allowed to be more concerned with the moral climate and attitudes of our students, we would have less trouble with discipline, attitude, and moral uprightness than we do today.

I hope others will write. I believe many teachers have important contributions to this issue.

Sincerely,
David Paul Licata
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Ocean View High School
17071 Gothard St.
Huntington Beach, CA 92647
Received 12 September, 1979.

Theistic Evolution and the Biblical

(Continued from page 203)

III. Conclusion

It is obvious that the evidence presented here is cumulative and that the Bible and theistic evolution present two scenarios that are so entirely different that they cannot be harmonized by any hermeneutical sleight of hand. Luke 16:13 tells us that no man can serve two masters, for he will hate the one and love the other, or else he will hold to the one and despise the other. The immediate interpretation refers to serving either Christ or Mammon, but the application is clear: one will either ultimately embrace the Biblical account of creation or he will reject it in favor of non-theistic evolution. The two views cannot be held simultaneously.

QUOTABLE QUOTE

Another matter which must not be passed over without consideration is . . . whether the proper subject . . . is . . . what is the process of formation of each animal; or whether it is not rather, what are the characters of a given creature when formed. For there is no small difference between these two views.

Aristotle, in his *On the Parts of Animals*.

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CREATION RESEARCH SOCIETY

History The Creation Research Society was first organized in 1963, with Dr. Walter E. Lammerts as first president and editor of a quarterly publication. Initially started as an informal committee of 10 scientists, it has grown rapidly, evidently filling a real need for an association devoted to research and publication in the field of scientific creationism, with a current membership of about 500 voting members (with graduate degrees in science) and over 1600 non-voting members. The *Creation Research Society Quarterly* has been gradually enlarged and improved and now is recognized as probably the outstanding publication in the field.

Activities The Society is solely a research and publication society. It does not hold meetings or engage in other promotional activities, and has no affiliation with any other scientific or religious organizations. Its members conduct research on problems related to its purposes, and a research fund is maintained to assist in such projects. Contributions to the research fund for these purposes are tax deductible.

Membership Voting membership is limited to scientists having at least an earned graduate degree in a natural or applied science. Dues are \$10.00 (Foreign, \$11.00 U.S.) per year and may be sent to Wilbert H. Rusch, Sr., Membership Secretary, 2717 Cranbrook Road, Ann Arbor, Michigan 48104. Sustaining membership for those who do not meet the criteria for voting membership, and yet who subscribe to the statement of belief, is available at \$10.00 (Foreign, \$11.00 U.S.) per year and includes subscription to the Annual Issue and Quarterlies. All others interested in receiving copies of all these publications may do so at the rate of the subscription price for all issues for one year: \$13.00 (Foreign, \$14.00 U.S.).

Statement of Belief Members of the Creation Research Society, which include research scientists representing various fields of successful scientific accomplishment, are committed to full belief in the Biblical record of creation and early history, and thus to a concept of dynamic special creation (as opposed to evolution), both of the universe and the earth with its complexity of living forms.

We propose to re-evaluate science from this viewpoint, and since 1964 have published a quarterly of research articles in this field. In 1970 the Society published a textbook, *Biology: A Search for Order in Complexity*, through Zondervan Publishing House, Grand Rapids, Michigan 49506. Subsequently a Revised Edition (1974), a Teachers' Guide and both Teachers' and Students' Laboratory Manuals have been published by Zondervan Publishing House. All members of the Society subscribe to the following statement of belief:

1. The Bible is the written Word of God, and because it is inspired throughout, all its assertions are historically and scientifically true in all the original autographs. To the student of nature this means that the account of origins in Genesis is a factual presentation of simple historical truths.

2. All basic types of living things, including man, were made by direct creative acts of God during the Creation Week described in Genesis. Whatever biological changes have occurred since Creation Week have accomplished only changes within the original created kinds.

3. The great Flood described in Genesis, commonly referred to as the Noachian Flood, was an historic event worldwide in its extent and effect.

4. We are an organization of Christian men of science who accept Jesus Christ as our Lord and Saviour. The account of the special creation of Adam and Eve as one man and woman and their subsequent fall into sin is the basis for our belief in the necessity of a Saviour for all mankind. Therefore, salvation can come only through accepting Jesus Christ as our Saviour.

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