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EDITORIAL COMMENTS

Major articles in this December *Quarterly* cover a wide spectrum of creationistic subjects—geochemistry, historical geology, biological evidences, and design in human physiology. Mr. Clementson's geochemical study is a landmark in that it shows uranium dating to be invalid for recent lavas. This obviously undermines the assumptions required to use the same method on volcanic materials that evolutionists suppose to be of great age.

In his article, "The Structure and Fabric of Geology," Dr. Burdick shows that the flood geology view can explain data which are usually monopolized by the Uniformitarians. From a rich background in medical studies, Dr. Evan Shute points to "puzzling similarities" in many creatures that stand as hallmarks of the Creator's versatility. Dr. Brauer reviews the wondrous defense network of the human body and gives credit to God where credit is due.

Our continuing feature, "Comments on Scientific News and Views," by Professor Armstrong covers a wide range of current subject matter including bioengineering, continental drift, and the origin of the universe.

As Dr. Morris has stated so well in previous remarks, the Creation Research Society sponsors primarily publications of *Quarterlies* and textbooks rather than conferences or discussion of political questions. Two short contributions make it plain, however, that *individual members* of C. R. S. are quite active in conference speaking (see "Creation Outreach" by Dr. Tinkle), and in the educational world (see "Textbooks in Tennessee").

A major sector of this issue is devoted to reviewing the growing number of creationist books and pamphlets which have appeared in the last few years. We cannot list the book reviewers by name but we can say thanks to each reviewer for introducing us to current volumes. If creationist authors continue to write at the present rate, the December issue each year could well repeat this review of literature.

As indicated last December, the reviewers do not necessarily represent either endorsement or criticism of the particular volume by the Creation Research Society since the organization does not officially "approve" or "disapprove" of any book. Each review does represent the honest opinions of a specialist and should thus prove helpful.

Two reviews of articles are included along with some letters to the editor about thermodynamics and about articles previously published in C. R. S. *Quarterly*. While it will not be our policy to establish a regular "Letters to the Editor" feature, we are pleased that readers show both the interest and the acuity necessary to forward remarks pertinent to creationist themes.

The issue you presently hold is testimony to the fact that a workable creationism not only exists but that it serves as a splendid integrative framework for the data of natural science. Realizing the truth of Hebrews 3, verse 4, we would expect nothing less than this, "For every house is builded by some man, but he that built all things is God."

GEORGE F. HOWE,
Publications Editor

NEW BOOK ANNOUNCEMENT

Why Not Creation? Selected Articles from the Creation Research Society Quarterly, Volume I through V (1964-1968). Edited by Dr. Walter E. Lammerts. Published jointly by Baker Book House, Grand Rapids, Michigan, and The Presbyterian and Reformed Publishing Company, Nutley, New Jersey, December, 1970. 394 pp. \$7.50.

Many, many scientists with specialized training and experience in the biological sciences and physical sciences have published articles in the *Creation Research Society Quarterly* on a wide variety of topics from the creationistic point of view. Editor Lammerts has chosen very carefully the most outstanding of these articles to produce a symposium-type publication so that readers might know that scientific information,

so commonly given an evolutionary interpretation, may be explained still more adequately by means of the Genesis account of creation and origins.

Articles have been selected from 20 issues of the *Creation Research Society Quarterly* so that creationistic ideas on the following might be represented: origin of the universe, the time factor and radioactive dating, the origin of sedimentary strata, paleontological evidences, genetics and stability of kinds of organisms, biochemistry and the DNA, botanical and zoological evidences plus philosophical and social considerations of creationism and evolutionism.

This book should be a source of much needed reference material and will broaden even further the growing volume of creation oriented litera-

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COMMENTS FROM PRESIDENT MORRIS

One interesting side effect of modern concern over the evolution-creation issue is the emotional response generated by the very mention of either word. I have recently read rather carefully the science textbooks which are currently being used in the first six grades in the California public schools. It is remarkable how authors manage to weave the evolutionary approach throughout the entire presentation without ever once using the term "evolution." This can hardly have been accidental and undoubtedly reflects their fear that an open advocacy of evolution in the books would result in an undesirable confrontation with parents and pastors.

This situation is also evident in the increasing substitution of the term "progressive creation" to replace "theistic evolution" in evangelical and fundamentalist rhetoric. Constituents of Christian schools and institutions tend to react quite negatively when they hear that staff members at those institutions are teaching theistic evolution. Undesirable side effects also tend to develop among alumni groups, boards of trustees and supporting churches.

Therefore we hear frequent indignant denials that such people are really evolutionists and an insistence that they are strong creationists. They reject theistic evolution and vigorously resent the implication that they teach evolutionary philosophy. If pressed for a precise statement of their actual position, however, it will usually turn out to be so-called progressive creationism.

But progressive creation is merely a semantic variant of theistic evolution. Proponents of both positions accept the basic evolutionary framework of history instead of the Biblical framework. Spokesmen of both views reject the universal cataclysmic nature of the great Flood and accept the uniformitarian approach to the study of earth history. Both positions involve denial that there is any fundamental difference between God's processes of creation during the six days and His processes of conservation of the creation at present.

As a matter of fact, it would seem that if we had to make a choice, theistic evolution would be preferable to progressive creation, being less inconsistent with the character and purposes of God. Theistic evolution is creation by continuous evolutionary processes initiated and maintained by God. Progressive creation, on the other hand, is creation by discontinuous evolutionary processes, initiated by God but requiring maintenance by occasional injections of non-evolutionary processes. God becomes a "God of the gaps," presumably exerting creative power only where paleontological research has been unable to explain the gaps in the fossil records.

Some persons seem to assume that God's creative forethought was not adequate for the entire evolutionary process at the beginning, and therefore it has been necessary for Him to frequently interfere in the process to keep it going in the right direction. Perhaps this is a matter of personal taste, but I would feel much more comfortable, both scientifically and Biblically, as a consistent theistic evolutionist than as a sometime creationist.

But as a matter of fact, regardless of semantics, either theistic evolution or progressive creation is alien to the very character of God. The theistic evolutionist (or progressive creationist) presumably believes that God is omnipotent and omniscient, as well as a God of purpose and a God of love. But note:

(1) Evolution (or protracted creation) is inconsistent with God's omnipotence. Infinite power does not require infinite time to accomplish the creation of the universe. Only an instant is required, but He graciously used six days in order to provide the example of a six-day work week for man's good.

(2) Evolution (or occasional creation) is inconsistent with God's omniscience. The entire history of prehistoric life, as interpreted by paleontologists, is replete with misfits, convergences, evolutionary cul-de-sacs, extinctions, random variations, and other similar evidences of extraordinarily poor planning.

(3) Evolution (or cybernetic creation) is inconsistent with God's purposiveness. Assuming His purpose to be the creation and redemption of man, it seems incomprehensible that He would waste billions of years in aimless evolutionary meandering before getting to the point (for example, to what purpose was the supposed hundred-million year reign and then ultimate extinction of dinosaurs?).

(4) Evolution (or competitive creation) is inconsistent with God's love and grace. The fossil record "eloquently speaks" of billions of years of a groaning creation, storm and upheaval, disease and famine, struggle for existence, elimination of the unfit, and violent suffering and death. One would have thought that our God of all grace would have been more considerate of His creatures, especially before sin entered into the world, than evidenced in the fossil record.

The critical problem, of course, is the system of geological ages, to which both theistic evolutionists and progressive creationists feel Genesis must conform. The geological ages are in turn structured around the framework of evolution, each age being identified by the stage-of-evolution of the fossil contents of its sedimentary strata. The circularity of this type of reasoning

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A CRITICAL EXAMINATION OF RADIOACTIVE DATING OF ROCKS

SIDNEY P. CLEMENTSON*

Application of radioactive dating methods to sedimentary rocks is here considered. The basic assumption that radioactive disintegration starts when the minerals enter the host rocks is shown to be unsubstantiated. Recent research on young rocks discloses that disintegration in them is already at an advanced stage. The conclusion reached is that the theoretical ages calculated from isotope ratios are not the ages of the rocks, or of the earth but are simply ratios of the minerals themselves which originated in the crust of the earth.

The method employed to obtain the ages of sedimentary rocks using samples containing radioactive materials, is widely known. It rests entirely upon the basic assumption that when radioactive material enters the rock it consists solely of parent element, and the object is to arrive at a theoretical date when the daughter elements in the sample would be considered to have been all parent element. This date is believed to give the age of the rock.

Calculations are made from mass ratios of parent and daughter elements. When due allowances are made for known variable factors, such calculations are accurate enough to arrive at a theoretical starting point of the disintegration. But the basic assumption that this starting point corresponds to the time when the radioactive materials entered the host rock is of course fundamental, for if this is not true, then the theoretical age will bear no relationship to the age of the rock.

Facts to Be Considered

In order to establish the truth or falsity of this assumption the following facts should be considered:

Radioactive materials come originally from the crust of the earth, and with the flow of magma, sedimentary strata may be overlaid or intruded with igneous rock containing radioactive materials. No significance can be placed upon values from materials not associated with igneous rock as these must have been displaced at least once and possibly many times.

The basic assumption is built on the theory that while the radioactive material is in the earth prior to eruption, it is in a molten state. In this condition, daughter elements are constantly separated from parent elements by convection. It is also assumed that when magma flows, the parent element is separate and clean, ready to be used as a natural chronometer in regard to the rocks in which it is found. This should be carefully considered in relation to what is known about the earth's crust and in light of the evidence of the rocks themselves.

Below the granite basement of the crust of the earth there is the mantle. The crust is solid and

temperatures increase with depth. At levels of the mantle, the temperatures are considered to be so high that if it were not for the high pressure, the mantle material would be in a liquid state; "as it is, seismic evidence indicates that the mantle is solid throughout."¹

While the mantle has been called solid, views have been expressed, that due to vast differences of temperature and pressure, there are slow but massive movements of the mantle over continental areas. This is indicative of the kind of forces necessary to move mantle material. That the slight differences in specific gravity of parent and daughter elements could cause convection currents is highly unlikely.

It is more likely that the daughter elements, born within the depths of the earth have been held in "close custody," and when a fissure occurs in the crust, and the surrounding pressure drops, the local rock with its minerals, becomes liquid and issues forth-parent and daughter elements together. If this conclusion is correct, then the isotope ratios will in no wise indicate the age of the host rock.

This subject should be considered also in relation to concentrations of radioactive materials at various levels of the crust. The result of tests "forces us to suppose that radioactive elements are for some reason confined solely to the comparatively thin outer layer of the crust,"² and that it is usually assumed that "the concentration decreases by half for each kilometer in depth."³ On this basis we arrive at the conclusion that at a level which magma may flow, the concentration of radioactive material may be small.

If the upper layers of the crust through which the magma may flow have considerable concentrations of radioactive material, in view of the temperature of the magma, we would expect the surrounding rocks to be fused and the magma to carry with it upper subsurface rocks, together with any radioactive elements contained in them.

Specific Problematic Issues

These considerations give rise to the following questions. Does the evidence of the rocks confirm that in magma, parent element emerges alone, without daughter elements; or, does it in

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fact establish the reverse, that it is accompanied by daughter elements? Does the evidence of the rocks imply that radioactive elements laid by magma are usually from one level; or, does it rather show almost invariably that the elements in the lava stream are joined and enriched by upper subsurface elements?

The effect of enrichment can be understood in relation to the normal process of decay of a radioactive series. Assuming a given point in time with a known mass of parent element, for any predetermined period the relative mass of all the isotopes in the series can be calculated. For each length of time, the series of ratios is constant.

When in a sample the ratios of the isotopes are all found to be in accord with such a series, the isotopes are said to be in equilibrium, and it is accepted that they have developed together without disturbance. Should it be found, however, that the ratios of any of the isotopes are not in accord with a series, then the isotopes are not in equilibrium, and it is known that there has been disturbance resulting in some enrichment or fractionation of the elements.

In the use of the old lead uranium calculations any enrichment of the isotopes was not apparent for it is only when the ratios are all known that discrepancies appear. If the elements are in disequilibrium, enrichment to any extent might have taken place, and the age calculated would bear no relationship to the age of the rocks.

How many published ages of sedimentary rocks may come within this category is not known. If it were possible for research workers to make the isotope values available, there is no reason to suppose that any of the dates would stand, because (as it will be shown) there is evidence of disequilibrium and enrichment in all cases of recent research on young rocks.

Of even greater significance than the question of enrichment is the other matter raised, i.e. does disintegration commence when the minerals enter the host rock? It will be realized that if the disintegration elements are carried over into the host rock, then whether in equilibrium or not, the ratios will be in no way related to the host rock. There is one certain way of determining the truth of this matter, and this is by considering analysis of rock samples of known ages.

Research Results Analyzed

Research in the U.S.S.R. has been carried out on some 18 samples from 12 volcanoes containing radioactive materials in the U^{238} series, and the isotopes in the chain are said to be in disequilibrium. It is stated that "since the age of the rocks is small, the daughter elements U^{234} and Io^{230} must have entered the mineral bodies

at the time of their genesis instead of being formed on the decay of the parent material."⁴ (See Tables 1-3)

Figures are not given for some of the isotopes in the series nor for lead, and the reference to disequilibrium appears to be based largely on the U^{234}/U^{238} and the Io/U^{238} ratios. The U^{234}/U^{238} and Io/U^{238} ratios should be negligible quantities because of the relatively short half-lives for U^{234} and Io . But those ratios given are in fact appreciable. In a number of cases the U^{234}/U^{238} value is about 1.0, given in activity units. In mass units this represents approximately .000037, a ratio which would apply to an age of many millions of years. (See Table 2).

Here it will be seen that the authors are viewing the question of equilibrium from the aspect of ratios assuming the commencement of disintegration when the minerals enter the rocks. But as these rocks are young, they cannot account for the high intermediate ratios. This is of course a plain admission that these ratios are not consistent with the known age of the rock.

Research in the U.S.A. on ten samples from Faial Azores, Tristan da Cunha and Vesuvius supports this view. Here the question of the equilibrium of the isotopes is viewed frankly as based on an origin in the mantle before the flow of magma into the host rocks. It is said:

If a region of the mantle has remained a closed system for a sufficient length of time, the isotopes in the Uranium decay series will be in secular equilibrium. During the melting process which produces a magma, the condition of secular equilibrium will be upset by any chemical fractionations which take place involving the members of the decay chain. If co-existing phases are in isotopic equilibrium when a magma is formed from a region in secular equilibrium prior to melting, we may use any observed radioactive disequilibrium in the resultant igneous rock to study chemical fractionations.⁵

It is clear from this that any attempt here to calculate an age of the rock from isotope ratios, would result in a completely false answer. Since all radioactive materials that become involved in sedimentary rock, must similarly flow with magma, the answer in all cases would be equally false.

In this research, figures are given for lead in addition to the other isotopes and consequently it is possible to calculate a theoretical age from this. From the data given, the Pb^{206}/U^{238} ratios in mass units can be obtained. The minimum value is 0.84 which represents an age of over 5,000 million years. **This, it should be noted, is a calculated age for rocks which are known to be quite young.** (See Tables 2 and 3)

TABLE 1
Equilibrium Tables-Uranium 238 Series

YEARS	U238	U234	I230	R226	R222	R210	Pb206
100	0.9999999	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
200	0.9999999	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
400	0.9999999	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
800	0.9999998	0.0000001	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
1,600	0.9999997	0.0000002	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
3,200	0.9999995	0.0000004	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
6,400	0.9999990	0.0000009	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
12,800	0.9999980	0.0000018	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
25,600	0.9999960	0.0000036	0.0000001	0.0000000	0.0000000	0.0000000	0.0000000
51,200	0.9999921	0.0000070	0.0000006	0.0000000	0.0000000	0.0000000	0.0000001
102,400	0.9999842	0.0000127	0.0000021	0.0000000	0.0000000	0.0000000	0.0000008
204,800	0.9999685	0.0000211	0.0000059	0.0000001	0.0000000	0.0000000	0.0000043
409,600	0.9999370	0.0000302	0.0000120	0.0000002	0.0000000	0.0000000	0.0000203
819,200	0.9998741	0.0000359	0.0000169	0.0000003	0.0000000	0.0000000	0.0000726
1,638,400	0.9997482	0.0000372	0.0000181	0.0000003	0.0000000	0.0000000	0.0001960
3,276,800	0.9994965	0.0000372	0.0000181	0.0000003	0.0000000	0.0000000	0.0004476
6,553,600	0.9989934	0.0000372	0.0000181	0.0000003	0.0000000	0.0000000	0.0009507
13,107,200	0.9979878	0.0000372	0.0000181	0.0000003	0.0000000	0.0000000	0.0019564
26,214,400	0.9959797	0.0000371	0.0000181	0.0000003	0.0000000	0.0000000	0.0039646
52,428,800	0.9919757	0.0000369	0.0000180	0.0000003	0.0000000	0.0000000	0.0079688
104,857,600	0.9840158	0.0000366	0.0000179	0.0000003	0.0000000	0.0000000	0.0159292
209,715,200	0.9682871	0.0000360	0.0000176	0.0000003	0.0000000	0.0000000	0.0316587
419,430,400	0.9375800	0.0000349	0.0000170	0.0000003	0.0000000	0.0000000	0.0623676
838,860,800	0.8790563	0.0000327	0.0000160	0.0000003	0.0000000	0.0000000	0.1208945
1,670,000,000	0.7727400	0.0000288	0.0000140	0.0000002	0.0000000	0.0000000	0.2272168
3,350,000,000	0.5971271	0.0000222	0.0000108	0.0000002	0.0000000	0.0000000	0.4028394

Table 1. This table contains a rundown of the Uranium 238 series on the computer. These data are useful in calculation of the equilibrium ratios—see Table 2. If a certain crystal were all U-238 at time zero (formation of the crystal), each line in Table 1 indicates the fraction of each nuclide of the U-238 decay series that would be present after the given interval of time had elapsed.

TABLE 2
Equilibrium Ratios

YEARS	U^{234}/U^{238}	Pb^{206}/U^{238}	Pb^{208}/Th^{232}
100,000	.000013	.000000	.000000
410,000	.000030	.000020	.000002
1,690,000	.000037	.000200	.000008
6,550,000	.000037	.001000	.000032
26,200,000	.000037	.004000	.00130
52,400,000	.000037	.008000	.00260
104,900,000	.000037	.016000	.00520
210,000,000	.000037	.033000	.01040
420,000,000	.000037	.066000	.02070
840,000,000	.000037	.138000	.04100
1,680,000,000	.000037	.294000	.08300
3,360,000,000	.000037	.675000	.16600
6,710,000,000	.000037	1.805000	.33000

Table 2. Data such as those illustrated in Table 1 are here presented as ratios between the various nuclides in the U-238 decay series.

TABLE 3
Research Figures

U.S.S.R.		U.S.A.					
Sample	U ²³⁴ /U ²³⁸	Sample	Pb ²⁰⁶ /Pb ²⁰⁴	Pb ²⁰⁷ /Pb ²⁰⁴	U ²³⁸ /Pb ²⁰⁴	Pb ²⁰⁸ /Pb ²⁰⁴	Th ²³² /U ²³⁸
1	1.12	TR230	18.50	15.78	17.87	39.42	4.26
2	1.11	TR232	18.63	15.75	17.7	39.52	4.23
3	1.17	TR516	18.74	15.74	20.50	39.62	3.84
4	1.04	TR518	18.46	15.85	15.91	39.48	4.44
5	1.00	TR627	18.67	15.78	22.18	39.68	4.33
6	.91	VES	19.14	15.78	12.6	39.48	3.02
7	.49	MAF I	19.36	15.81	14.19	39.59	3.57
8	.45	MAF II	19.36	15.84	16.50	39.53	3.94
9	1.07	MAF III	19.41	15.87	15.31	39.72	3.59
10	1.0	MAF IV	19.36	15.84	13.21	39.67	4.04
11	1.35						
12	1.0						
13	1.36						
14	.97						

U²³⁴/U²³⁸ ratio from sample 5 above calculated:

Ratio in activity units = 1.0 multiply activity units by half lives to obtain mass units.

$$1.0 \times \frac{2.5 \times 10^5}{4.5 \times 10^9} = .000054 \quad (\text{See Tables 1 and 2})$$

This is higher than maximum equilibrium value at .000037 for approx. 100 million years.

$$\text{Pb}^{206}/\text{U}^{238} \text{ ratio from sample TR627 above calculated: } \frac{\text{Pb}^{206}}{\text{Pb}^{204}} \times \frac{\text{Pb}^{204}}{\text{U}^{238}} = 18.67 \times \frac{1}{22.18}$$

$$\frac{18.67}{22.18} = .84. \quad (\text{See equilibrium tables, Table 1 and Table 2})$$

Theoretical age over 5,000 million years. Minimum of all samples.

$$\text{Pb}^{207}/\text{Pb}^{206} \text{ ratio from sample MAF I above calculated: } \frac{\text{Pb}^{207}/\text{Pb}^{204}}{\text{Pb}^{206}/\text{Pb}^{204}}$$

$$15.81/19.36 = 0.81$$

Theoretical age over 3,000 million years.

Pb²⁰⁸/Th²³² ratio from sample TR230 above calculated:

$$= \frac{\text{Pb}^{208}}{\text{Pb}^{204}} \times \frac{\text{Pb}^{204}}{\text{U}^{238}} \times \frac{\text{U}^{238}}{\text{Th}^{232}}$$

$$= \frac{39.42}{17.87} \times 4.26 = 0.52 \quad (\text{See Table 2})$$

Using approx. Thorium age formula age = $2.01 \times 10^{10} \times (\text{Pb}^{208}/\text{Th}^{232})$

$$= 2.01 \times 10^{10} \times .52 = 10,500 \text{ million years.}$$

Table 3. Data are presented here from References 4 and 5. These calculations show that the radioactive materials in the U-238 series are in disequilibrium. Since these are known to be recent volcanic deposits, it is quite evident that samples may be contaminated with daughter elements from the very start and that the "ages" calculated from such ratios are open to serious question. Thus from these recent volcanic deposits one might variously calculate "ages" of anywhere from 100 million to 10,500 million years!

Values of Pb²⁰⁷ are also given and this provides the facility to obtain a theoretical concordant age, by the use of Pb²⁰⁷/Pb²⁰⁶ ratios. These are expected to be something like 0.05 for young rock, but to reach unity for rocks 3,000 million years old (See Table 3). In this case the values in the samples are all above 0.8, which confirms the conclusion: the ratios of the minerals are not those developed from the parent in the rock, but are the ratios of the minerals in the mantle of the earth.

Concordant Ages Misleading

Derivation of concordant ages is usually thought to be a confirmation of the reliability of the ages obtained for the host rock. But as it has been shown that the ratios are carried over from the mantle, it will be understood that instead of confirming the ages of the rocks, concordant ages provide a powerful confirmation that ratios are carried over from the mantle. Where samples are taken from common sources, the ratios of all the isotopes will of course give

concordant theoretical ages.

A further theoretical age can be obtained for these young rocks with the thorium ratio, i.e., Pb^{208}/Th^{232} (See Table 3). This gives an age of a mere 10,500 million years!

The same facts are derived from attempts to date rocks by the potassium-argon method. Research in this field has been carried out in Hawaii on volcanic rocks, and a number of comments are made about what are called "old age anomalies" caused by "excess argon." It is reported that many of the samples from the Hawaiian Islands contain excess radiogenic argon, and that the ages for rocks containing them "are apparent only, and not derived from potassium *in situ*. Radiogenic argon was incorporated either during primary crystal growth, or during secondary crystallization."⁶

G. H. Curtis writing on the same problem says:

On theoretical grounds one might expect to find many more cases of the presence of noticeable amounts of Ar^{40} in igneous rocks than so far have been detected. Magmas formed at depths of 50 to 100 kilometers are under sufficient confining pressures to keep significant quantities of old radiogenic argon in solution. ?? Argon that has been formed from K^{40} decay deep within the earth. Crystals growing in this environment should incorporate some of this argon into their lattices even though argon is inert.⁷

In the case of previously calculated ages, where the real ages were unknown, though presumed to be old, these anomalies apparently were not noticed. But in the case of rocks which were known to be young, it was very obvious that the ages calculated had no relationship to the true ages.

An article by P. M. Hurley⁸ is important as it is still used as an argument favoring great ages for earth deposits. The paper deals with dating by radioactivity in the usual manner but the whole conception of time clocks is based upon the assumption that the parent radioactive element enters the sample rocks alone—that it is not accompanied by any of the decay elements acquired in the mantle.

Recent research upon young rocks of known ages challenges this assumption. Isotopic ratios indicated that even "young" volcanic deposits are at an advanced stage of decay, giving theoretical "ages" of thousands of millions of years (Table 3). This refutes the basic assumption of Hurley and means that the dates are not just marginally wrong, but wrong *en toto*.

Conclusion

The conclusion which can be drawn from these facts, which applies equally to dating of all mineral bearing rocks, is that calculated ages

give no indication whatever of the age of the host rocks. In cases where calculated ages are millions of years, the rocks could be quite young.

Furthermore, these ages have no relationship to the age of the earth, because of course, the various ages computed have varied so widely. Consequently ratios of parent and daughter elements are merely ratios, and their use as a base for projecting "ages" of the rocks, or of the earth itself, is highly questionable and fraught with many assumptions that cannot be checked.

This conclusion would fit the concept of a young earth and a recent creation as deduced from the Bible.*

*EDITOR'S NOTE: The reader will find that a whole series of articles dealing with flaws in radioactive dating assumptions has been published in previous issues of *Creation Research Society Quarterly*. D. O. Acrey dealt with basic inconsistencies and unknowns in various radioactive methods [1(3):7-9, Jan. 1965]. Problems in radiocarbon C^{14} dating have been analyzed by several authors: Harry V. Wiant, Jr. [2(4):31, Jan. 1966], Robert Wood [2(4):24-27, Jan. 1966], Harold Armstrong [2(4):28-30, Jan. 1966], R. H. Brown [5(2):65-68, Sept. 1968], and two articles by Robert L. Whitelaw [7(1):56-71, 83, June 1970 and 5(2):78-831. In these last two articles, Robert Whitelaw establishes that radiocarbon studies actually confirm a Bible-based chronology rather than negating it. Melvin A. Cook has shown that the rate of formation of C^{14} is significantly greater than the rate of its decay—a disequilibrium which argues for a recent creation and a collapsed time-scale [5(2):69-77, Sept. 1968 and 7(1):53-56, June 1970]. Gross uncertainties and problems with the potassium-argon dating methods have been demonstrated by Robert L. Whitelaw [5(2):78-83, Sept. 1968, and 6(1):71-73, June 1969]. Diligent study on the part of these and other creationists had produced much ammunition against the evolutionary time-scale which so many people believe to be factual or unassailable. Thus the present paper by Sidney P. Clementson becomes an important treatise demonstrating that radioactive "dates" bear no relationship to the ages of rocks which are known to be quite young. Readers will find that back volumes of C. R. S. *Quarterlies* may be purchased from the Membership Secretary—Prof. Wilbert Rusch, Sr., 2717 Cranbrook Rd., Ann Arbor, Michigan 48104.

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THE STRUCTURE AND FABRIC OF GEOLOGY

CLIFFORD L. BURDICK*

This paper is not a complete summary of Flood Geology. It is rather an answer to some of the more common criticisms offered by such geological writers as Dr. J. R. van de Fliert of the Netherlands, and others. Dr. van de Fliert has written a critique of Flood Geology in the September, 1969 issue of the Journal of the American Scientific Affiliation, under the title, "Fundamentalism and the Fundamentals of Geology."

This present paper is written to show that imagined differences between Uniformitarian Geology and Flood Geology are based more on semantics than on actual evidence. The chasm of separation was greater a century ago when Lyell was taken too seriously. Now Uniformitarian geologists admit past periods of catastrophism, and while Flood geologists have always recognized cataclysmic tectonic events in the crust of the earth, including the Flood of Noah; they also recognize that the major portion of geologic time was not so much different from the present. However, Flood geologists contend that burial of fossil life required catastrophism.

Although biologists look to geology for evidence for organic evolution, according to the law of superposition, some Flood geologists reason in a circle; for when exceptions to the evolutionary order of fossils in the rocks do occur, they are inclined to doubt the physical evidence, rather than to trim the hypothesis to fit the facts.

Attempts to age-date the moon contend with the same difficulties that are encountered in radiometry with rocks from the crust of the earth.

Introduction

A critique of Flood geology by J. R. van de Fliert¹ in the September, 1969 issue of the *Journal of the American Scientific Affiliation*, contained the following statement, "If I had been told a few years ago that an apparently serious attempt would be made to re-introduce the diluvialistic theory on Biblical grounds as the only acceptable working hypothesis for the major part of the geological sciences, I would not have believed it".

Van de Fliert's basic assumption apparently is that the Flood of Noah as recorded in the Bible, is pure folklore, perhaps based on some local flood in the Euphrates River valley, as other "Theistic Evolutionists" have expressed it. Dr. van de Fliert seems to believe that the Flood Geology theory was exploded some 150 years ago and disproved scientifically. He appears surprised that competent scientists at this late date in the advancement of science would have the audacity to re-introduce it.

When van de Fliert saw photographs of dinosaur and giant human tracks together in the Paluxy river bed of Texas, in the Whitcomb and Morris book, *The Genesis Flood*,² he crossed this evidence off as "pretended but definitely not human footprints".

It is not clear how van de Fliert can be so positive that the prints are not human impressions without an on-the-site examination of these Lower Cretaceous formations of Texas. Dr. A.

E. Wilder Smith of the University of Illinois Medical College spent some time examining these tracks, and came away convinced, as can be ascertained by reading Dr. Smith's book, *Man's Origin, Man's Destiny*.

Dr. van de Fliert compares this find with the elephant bones of a few generations ago, thought by some at that time to be bones of human beings destroyed in the Flood; the inference being that present-day Flood geologists must be a throw-back to the Dark Ages. Such innuendo obscures the real questions under discussion and has no place in scientific literature.

In criticisms of Flood Geology the argument comes up that the Bible is not a book of science; the inference being that it is not dependable when dealing with the realm of science. Naturally if it were a textbook of science, it would have to be expanded to encyclopedic size. However, this fact does not detract from its authenticity when it does make a scientific statement.

One should not infer that the whole or entire faith in God's Word is based on the present state of science. Acceptance of Jesus, the Messiah, as a person He claimed to be authenticates the Mosaic accounts of Creation and the Flood because Christ corroborated them. In spite of all that, many are led to doubt because of the undermining influence of materialistic science. If and when scientists discover the assumptions in such claims and find corroborative evidence in new scientific discoveries, the publication of such evidence does a double service—to science and to faith in the veracity of the Bible.

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Catastrophism

Flood Geology certainly involves catastrophism, but that does not mean that our world has always been in a continuous state of catastrophe. Differences are often aggravated by overemphasis on semantics. New discoveries demonstrate that the discipline of geology embraces both catastrophism and uniformity.

Norman Newell³ of the American Museum of Natural History admits that newer ideas of cataclysmic events such as the "Big Bang" theory, disastrous earthquakes and floods force us to readmit catastrophism as a tectonic process along with uniformity.

Geology students are taught that the "present is the key to the past" and they too often take it to mean that nothing ever happened that is not happening now. But since the end of World War Two, when a new generation moved in, we have gathered more data, and we have begun to realize that there were many catastrophic events in the past, some of which happened just once.

Again quoting from van de Fliert's paper,⁴ he affirms (perhaps unwittingly) the essential harmony of present-day geology with the Flood Geology concept. He admits that geological thinking has changed from the time of Lyell.

Most present-day geologists do not accept this (uniformity) principle exactly in the sense as it was understood by Lyell, but use it in the sense of a constancy of physical and biological laws, which does not exclude for example, periods with climates differing from that which we know presently, or alternating longer quiet periods with shorter "catastrophic" or paroxysmal episodes.

Flood Geologists and Creationists could agree almost 100% with this modern concept of the union of uniformitarianism with catastrophism. As already mentioned, many assumed differences amount largely to a matter of semantics. A careful definition of terms often irons out many apparent differences.

Flood geologists are often accused of trying to abrogate well established laws of physics and chemistry. Few scientists or meteorologists would call for the abrogation of natural laws when weather changes from a gentle zephyr to 200 mile an hour hurricanes, or from a light drizzle to 12 inches of rainfall in 24 hours.

In like manner it is not apparent why an earth-covering prolonged rainfall would call for an abrogation of the laws of nature. It is known that all the moisture now held in the atmosphere at any one time would not raise the ocean level more than a few inches. Here Flood Geology alone does not clear up the scientific discrepancy but calls on Creationism for the answer.

The inspired historian, Moses, who explained in Genesis that when God made the world and created water, He separated it into two main bodies, the lower division comprising the seas, and the upper part above the firmament. Whether or not Dr. Newell will grant it, Bible believers realize that the Flood of Noah was a miraculous event not subject to repeated analysis.

This upper moisture blanket could well have provided a heat insulating layer that provided a relatively uniform climate over the earth. Before the Creator released the moisture canopy onto the earth during the Noachian Flood, very possibly the moisture blanket fostered rich vegetational cover even in the earth zones that are presently covered with ice. The Almighty is not limited to the use of the few natural laws that man has been fortunate enough to discover.

Vast coal measures in Antarctica yield valid evidence of a mild climate on a world-wide scale, which explains the presence of vast herds of mammoths, mastodons, rhinoseroses, ground sloths, and other creatures found in fossil graveyards. The sudden extinction of so much biological life has always been a puzzle to scientists, and their best explanation seems to have been a change of climate. Since this explanation happens to coincide with the Bible account, scientists and others can thus place more confidence in the scientific accuracy of the Scriptures. That the climate did change, and suddenly, is evidenced by the perfectly preserved mammoths and other beasts dug from the arctic ice.

If in 1845 someone had predicted that the World War of the 1940's would be decided by the explosion of atomic bombs, some scientists would doubtless have derided him. Following Dalton's ideas, the critic would have called it an abrogation of the laws of physics to split the atom, since the atom was assumed by some to be the smallest division of matter. Since those early days man has discovered previously unknown laws of nature. This same principle may be applied to God's dealings in the past. During the Flood, God may have released forces and factors that are not observable or clearly understood at present.

The Scablands of Montana

Norman Newell began the process of softening Charles Lyell's hard line on uniformitarianism, and started a drift back toward catastrophism. J. Harlen Bretz,⁵ of the Department of Geophysical Sciences of the University of Chicago, added evidence to the catastrophist cause with his outstanding paper in the September, 1969 issue of the *Journal of Geology*, concerning the Montana Scablands.

Bretz is a recognized authority on the scablands, having spent years studying and writing concerning the geology of the region. Other geologists have followed the standard uniformity line in explaining the fossil river gorges cut deep into the basalt.

In 1938, Flint argued that the scablands were made by "leisurely" streams during the removal of the fills. The term "floods" was repugnant to him. On the other hand, Bretz declared that

Only extraordinary flooding could have crossed the violated pre-glacial divides, and only extraordinary velocity (from huge volume) could scarify the bedrocks so tremendously.⁶

Eyebrows were raised by this interpretation. A storm of protest arose. But Bretz did not back-track for he was fortified with facts. Bretz (1969), described the bursting of the Lake Missoula glacial dam as follows:

When it burst, the nearly 2,000 foot head of impounded water was free to escape from the Clark Fork River valley system of western Montana and across northern Idaho. It catastrophically invaded the loess-covered Columbia Plateau in southeastern Washington and reached Pacific Ocean levels via the Columbia River, 430 or more miles from the glacial dam. So great a flood is unknown at present elsewhere in the world. It has been estimated to have run two weeks. It was 800 feet deep through the Wallula Gap on the Oregon-Washington line.

Bretz was here describing a cataclysmic upheaval in nature; very likely an aftermath of the Noachian Flood though on a smaller scale. He says the upper Grand Coulee was 25 miles in length, while the greatest cascade was nine miles wide.

The flood rolled boulders many feet in diameter for miles and subsiding, left river bars now standing as mid-channel hills more than 100 feet high. Current ripples 10 feet and more in height diversify some bar surfaces. A gravel delta 200 square miles in area was built at the junction of the Willamette and Columbia river valleys.

In 1963 Trimble⁷ had written of "flood waters of almost unbelievable proportions" along the Columbia Valley.

Bretz also refers to the time when former Lake Bonneville in Utah burst through a new-formed trench, and 482 cubic miles of water escaped down into the Snake River valley. "Like the Scablands," he says, "they can be accounted for by the passage of a catastrophic flood."

The International Association for Quarternary Research held its 1965 meeting in the United States. Among the many field excursions was one

in the northern Rockies and the Columbia Plateau in Washington, studying the Scablands phenomena. Bretz, who was unable to attend received a telegram of "greetings and salutations," which closed with the sentence, "We are now all catastrophists."

Flood Geology and Fossil Record

Van de Fliert refers to R. H. Rastall⁸ of Cambridge University who admitted that from a philosophical standpoint geologists have been arguing in a circle.

The succession of organisms has been determined by a study of their remains embedded in the rocks, and the relative ages of the rocks are determined by the remains of organisms that they contain.

Thereupon van de Fliert wrote that Rastall is all wrong. To elucidate: biology, per se, has no compelling evidence for organic evolution; comparative anatomy and recapitulation do not prove a thing. So men turn to geology. In an undisturbed geologic column, they reason, if there has been evolutionary progression through the ages, then—assuming long ages for the deposition of the sediments—simple biologic forms should be found on the bottom of the rock pile, and higher, more advanced life forms should be near the top.

If the fossil record always proved true to that generalization, evolutionists would have a good argument, but in numerous places in the world a reversed order exists, as in Glacier National Park, Montana; in Banff, Canada; Wyoming; Arizona; and the Alps. These anomalous fossil orders should be sufficient to scrap the hypothesis, but men do not do so because they resort to circular reasoning by saying that the evolutionary fossil order in the rocks must be maintained even at the expense of turning the rocks upside down, or assuming that some great tectonic event in nature has previously turned them upside down, or slid "older" strata over "younger" ones. The present author remembers Dr. Leith of the University of Wisconsin, wondering what giant lubricator greased the rock layers so that thousands of square miles of rock strata could slide over other beds without crumbling!

Van de Fliert answers by contending that in every case where fossils are in the wrong order, there are physical evidences of overthrusting. It is correct that where one finds overthrusting, he should also find physical evidences, such as tectonic breccia, gouge, slickensides, etc. Space forbids going into detail on the subject of thrust-faults, but reference is made to former issues of *Creation Research Society Quarterly*,⁹ in which the present writer finds some structural exposures marked as thrusts, showing typical physical signs of thrusting, while other exposures also

marked as thrust-faults show no such physical evidences.

Work done on the Lewis overthrust 1968 showed a startling lack of physical evidences of thrusting, as found in studies in Arizona.⁹ If studies on more exposures are like the Lewis thrust-fault study, evolutionary geologists will be in deep trouble. In the past, geologists have been over-confident on the order of the rocks based on fossil evidence. So much has this been so that checks of physical evidences have been largely neglected.

Referring once more to uniformity and the fossil record, van de Fliert asserted that "uniformity is written down in the fossil records themselves." This we would stoutly deny. Charles Shuchert¹⁰ of Yale has admitted that for fossils to be preserved at all they must be buried quickly, not by the slow accumulation of sediment in the sea.

Rodgers and Dunbar¹¹ refer to the buried trees still standing upright in Nova Scotia. If they had been buried at slow uniform rates, the tops would have disappeared long before there was time to bury the tops.

Referring again to the sudden entombment of vast herds of mammoths and other beasts in Alaska and Siberia, J. D. Dana,¹² one of the leading geologists of the past century, said,

The encasing in ice of huge elephants, and the perfect preservation of the flesh, shows that the cold finally became suddenly extreme, as of a single winter's night, and knew no relenting afterward.

Whitley adds that,

On Kotelnoi Island neither trees, nor shrubs, nor bushes exist, and yet the bones of elephants, rhinoceroses, buff aloes, and horses are found in this icy wilderness in numbers that defy all calculation.

How could one harmonize the extinction of such vast herds of beasts with uniformity? Most fossils, it appears, point toward catastrophism rather than uniformity.

Age-Dating the Earth

This subject has a direct bearing on Flood Geology and Creationism. Since the discipline of dating is yet in its infancy, dogmatic conclusions must be postponed.

It was Arthur Holmes,¹³ the eminent British geologist, that reminded us that although radiometry had the appearance of mathematical accuracy, one step in the equation was a pure assumption (an educated guess)—that the half-life of radioactive elements has been the same throughout geologic time. In other words it is assumed that the rate of radioactive decay has been constant throughout the ages. This is of course not amenable to scientific verification.

One barrier to assigning billions of years to earth-age is the inability to find all the radiogenic helium that should be present in the atmosphere and lithosphere from so many years of radioactive decay. Only about one one hundred thousandth of the assumed helium production can be found. There is no evidence that appreciable quantities of helium could have escaped from the earth, especially when helium has been found on the moon which has much less mass than the earth. The only plausible explanation would appear to be that the earth and the moon are much younger than previously thought.

Due to lack of atmosphere and shielding, the moon is being bombarded with "solar wind," consisting of rare gas concentrations, such as hydrogen, helium, neon, argon, krypton, xenon, argon, etc. In fact such argon contamination from the sun has presented an acute problem for use of the potassium-argon dating method on many of the moon samples.

Argon contamination in some samples has amounted to a million-fold. Contaminant lead constitutes another problem in dating, and scientists in different laboratories who test moon samples have not used the same contaminant lead factor.¹⁴

The presence of gases on the surface of the moon would seem to indicate some build up of an embryonic atmosphere on the moon, which observation in itself would appear to indicate a young moon.

Dr. Melvin Cook told the writer recently, in personal correspondence, that a study of all the data so far from the moon rock samples would seem to indicate only a few thousand years since the moon has attained its present surface condition.

Cosmic Radiation

Cosmic radiation consists of atomic nuclei traveling with speeds so great that they approach the speed of light. The energies are enormous, running from a billion to a billion billion electron volts. Samuel Glasstone¹⁵ describes the energy of cosmic rays:

The extraordinary penetrating power of cosmic rays is shown, in the first place, by their ability to pass through the earth's atmosphere, the absorptive power of which for ionizing radiations is approximately equivalent to one meter thickness of lead. But that is not all. The rays have been detected underground and under water at distances equivalent to 1,400 meters of water below the earth's surface. Only particles with many billions of electron volts of energy could have penetrated to such depths.

Dr. James Van Allen¹⁶ was the one chiefly responsible for the discovery of the radiation belts. He found the counting rates of radiation more than 1,000 times the theoretical expectation for cosmic rays. He has this to say:

The postulated environment would probably produce a variety of nuclear transmutations in addition to accelerating the disintegration of uranium, thorium, etc. The various elements in the decay chain would also be affected . . . the net effect is namely, an increase in the ratio of "daughter" to "parent" elements in each series.

There is evidence that the earth's magnetic field has changed polarity more than once; and as Dr. John Grebe pointed out, in personal communication, during polarity reversal, there is a period of no magnetism, during which cosmic radiation would bombard the earth with greater force. High-powered radiation, then, is a possible means by which the decay rate of uranium, thorium, and perhaps other radioactive elements has been accelerated. This possibility casts suspicion on all age-dating involving radioactivity.

Certain iron meteorites have appeared to be hundreds of millions of years old, while stony meteorites are considered only tens of millions. Why the difference? Dr. Harold Urey¹⁷ explained it by saying that the stony meteorites were buried deeply under the surface of the parent body. They were thus shielded from the highly energetic cosmic rays; therefore *appeared* younger. The iron meteorites came from the surface of the mass where the intense radiation "aged" them more rapidly. One may well wonder if, in computing earth-age in billions of years, we are merely seeing the appearance of age?

Perhaps Curt Teichert¹⁸ best summed up the situation when he said, "At present no coherent picture of the history of the earth could be built on the basis of radioactive dating." Dr. James B. Conant,¹⁹ president emeritus of Harvard, had this to add:

More than one physicist has expressed grave doubts as to whether over such enormous intervals of time one can assume uniformity as to the behavior of matter. What does the concept of time mean when we appeal to thousands of millions of years? Just as the physicists found it necessary to rewrite some ideas about space and time when very high velocities and small distances came to view, so it is possible that common sense notions of time cannot be carried over into cosmology.

The tree ring laboratory at the University of Arizona has received a National Science Foundation grant of \$45,000 to continue Dr. Charles W. Ferguson's research on the discrepancy be-

tween Carbon-14 dates for California Bristlecone pine and tree-ring dates. The following newspaper account provides detail:

Scientists have speculated that the radio-carbon dating scale deviates from the tree-ring chronology because of heavy cosmic bombardment of the atmosphere which dwindled to the present level about 2,000 years ago. The oldest known living bristlecone pines are found in the White Mountains of eastern California. Discovered in 1956 by the late Dr. Edward Schulman and Dr. Ferguson, the bristlecone pine tree was growing high in the dry White Mountains of east-central California millennia before the Egyptians began building pyramids. This was about the time that the famed Hammurabi ruled the western Semitic kingdom of Babylon and compiled his great code of laws.²⁰

The assumed cause of the Carbon-14 unreliability is the variation of cosmic radiation and consequent fluctuation of Carbon-14 formation. This fluctuation certainly conflicts with the concept of uniformity and is tantamount to the admission that the Carbon-14 content of the atmosphere has not remained constant in ages past. Such an admission undermines the accuracy of such dates generally.

Conclusion

The deep opinions of scientists change very slowly when confronted with fresh evidence that calls for re-alignment of theory. Startling and revolutionary facts have come to light in recent years that call for a revision of evolutionary theory in the field of geology, such as the discovery of human fossil tracks along with dinosaur in the Cretaceous, human shoe-prints amongst the trilobites in the Cambrian of Utah, and the finding of conifer, gymnosperm pollen in the Cambrian and Pre-Cambrian formations of the Grand Canyon.

In his article, "The Case for Hierarchical Cosmology," G. de Vaucouleurs wrote:

The history of Science, of course is full of examples of stubborn "ugly" little facts that destroy "beautiful" theories . . . above all I am concerned by an apparent loss of contact with empirical evidence and observational facts, and worse, by a deliberate refusal on the part of some theorists to accept such results when they appear in conflict with some of the present over-simplified and therefore intellectually appealing theories of the universe.²¹

If new field evidence were incorporated into scientific theory this would be a big step toward the demonstration of the contemporaneous existence of the main types of biological life from

the days of Creation. The mass-extinction of ancient life by some catastrophic calamity would go far toward recognition of the Flood of Noah as one of the major tectonic events of all geologic time.

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PUZZLING SIMILARITIES

EVAN V. SHUTE*

Many resemblances between animals and plants of different genera, families and orders defy evolutionary explanation. There are both differences and similarities between creatures of different kinds. The evolutionist must decide what features are useful as true species criteria and what features are spurious or misleading. A small but interesting sampling of strange similarities between widely diverse living forms is given here, from a study of spinal tracts, ears, placenta, electric organs, kidney function, fern vessels, milk, brown fat, sweat glands, and other systems: It is asserted that these puzzling resemblances are best explained by special creationism rather than by evolutionary convergence.

Introduction

The eye of a human being has a strange but unmistakable resemblance to that of a squid. Evolutionists have classified this as a case of "analogy" because the squid has obviously no close relationship to the backbone or vertebrate creatures.

An evolution theorist then attempts to explain such puzzling resemblances by divergent and convergent evolution. He imagines first (many million of years ago) that the squid ancestor "diverged" or differentiated from the presumed ancestor of the vertebrates. The squid type developed in one way in evolution, quite distinct from the vertebrate types. This is what is meant in evolutionism by "divergent evolution."

Many millions of years later, it is supposed,

both the squid group and the vertebrates evolved eyes and each changed independently to yield a similar type of eye. This is called "convergence" by the evolution theorist in that two obviously different stocks are supposed to have converged to form a similar eye. Such resemblances are also said to be "analogous" or misleading rather than "homologous" or true indicators of relatedness.

If this fascinating phenomenon of analogy occurred only once or twice in biology, perhaps a non-biased observer could reasonably assume that it was a simple case of chance convergence from different groups. Consider the ponderous weight of evidence here, however, and note that *many strange and baffling analogies* exist. Then ask yourself if these data fit best with evolution of one kind from another kind or with the creation of distinct, functional types with similar structures resulting from design.

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The Corticospinal Tract—An Anomaly

The Malayan Tree Shrew (*Tupaia glis*) has long been regarded as a lowly primate. But its corticospinal tract, which controls movement of the body muscles, is located in the base of the dorsal column of white matter, and in all other primates studied it is in the lateral column of the spinal cord.¹ Is a cord tract of basic functional significance critical in phylogeny? If so, how can this anomaly be understood?

Human Embryo and Whale's Ear—Similarity

The human embryo has a solid cord in the external ear, in place of a "canal," until the seventh month of its nine month gestation. In whales a similar condition exists and is highly functional in echo location.²

Placentae—Puzzling Patterns

The placenta is a fundamental organ and should help taxonomists. Yet the study of placentae yields some baffling analogies. The outer envelope or membrane of the fetal sac is called the chorion. It becomes anchored to the uterus by little processes called villi that grow into the uterine wall. These villi of the fetal sac develop over all the chorion (*placenta difusa*) in the pig, horse, porpoise, and the mole, *Scalopus*. The villous area forms a band about the equator of the chorionic sac (*placenta zonaria*) in many Carnivora, *Sirenia* (manatee and dugong), and the aardvark. Commonly the placenta or after-birth forms a round plate or disk. But such a placenta (*discoidalis*) can be doubled in many monkeys and the simpler tree shrews (*Tupaia*).

Epitheliochorial placentae, in which there is mere geographical apposition between the chorion and the uterine lining (*endometrium*) and no erosion of the endometrium by villous processes, are seen in the pig, horse, cow, deer, cetacean (whale), lemur, and the mole, *Scalopus*.

Syndesmochorial placentae, where the chorion snuggles close to *eroded* endometrium and so is intimately apposed to connective tissue of the uterine lining, rather than to the more superficial epithelial layer of the endometrium, are seen in sheep and goats.

Endotheliochorial placentae, where the erosion eats away both epithelium and underlying connective tissue (sparing only the endometrial blood vessels) are found in insectivores, bats, carnivores, beaver, sloths, the aardvark, elephant, dog and raccoon.

Hemochorial placentae in which the endometrial erosion is complete, and even the vessels have been penetrated and broken into (and as a result the chorion membrane is bathed in maternal blood), are seen in most rodents, higher primates, the armadillo, some insectivores.

Hemoendothelial placentae develop where the total uterine lining, the endometrial wall, and the invasive chorion are both destroyed, leaving only fetal capillary walls separating the fetal and maternal circulations. These are seen in certain rodents—and the insectivore, *Echinosorex*.

Endothelioendothelial placentae, where the integration is almost ultimately intimate, the vessels lying side by side together, appear in the Indian shrew, *Suncus*—perhaps in the marsupial, *Perameles*.

Wimsett³ concludes that the variety indicated above is far from showing that species repeat or "recapitulate" their evolutionary origin! By recapitulation one refers to a supposed tendency among embryonic animals to re-live and re-display possibly the processes and certainly the forms of their evolutionary ancestors.

In many species such as pigs, horses, sheep, and whales, only patchy capillary invasions of the uterine lining by the erosive outer layer of the placental villi known as the "trophoblast" occur. In others, such as bears, seals, hyenas, molossid bats, there is more diffuse invasion of the endometrium by the trophoblast.

In many animals the outer layer of the placenta (trophoblast) spearheads fetal invasion of the uterine wall, and is the source of placental hormones. In pregnant mares, however, the opposite occurs in that such hormone stimulus and secretion arises from the *uterine* side in the so-called "endometrial cups."

Only monotremes among modern mammals have an egg with a large yolk, but all mammals at some stage have a yolk sac. In Ungulates (horses, etc.) this vanishes early during the time of implantation or attachment of the embryo to the uterus. In man it disappears gradually.

Various quotations from Wimsett³ are instructive: "Despite the best efforts of many able scholars, the placenta's evolutionary history remains obscure—it is unlikely that certainty—will ever be achieved in this area." Any proposed schemes are not very believable, indeed, and often arise only from "logical necessity." No final evidence remains. "The course of placental evolution may remain forever inscrutable."

Here is an organ which is the literal foundation of life. The lack of correlation between similar forms, and the irrelevance of placental relationship to other major anatomical features, leave the evolution theory in chaos at this point.

Seal Ears Like Whale's Ears

Two widely different mammalian forms, the pinnipeds (seals) and the cetaceans (whales) have members with the same mechanism for pressure regulation in the middle ear. It consists of distensible venous sinuses which function to

maintain the tiny, bony, auditory ossicles in an air-filled space whose pressure equals that outside the tympanum or drum. And yet the bone structure of the base of the skull and ear in the two types of seals, for example, differs widely. This is an example in which the cases of the "watch" are different but the "works" are similar!

True seals and sea lions resemble each other less than each resembles some other carnivorous group. Seals are closer to mustellids (weasel family) and sea lions are closer to bears.⁴ Nothing could be more disconcerting to logical evolutionists.

Independent Echo-location Systems

Sonar is used by the South American oil birds, south-east Asian swiftlets, porpoises, dolphins, the fish *Gymnarchus* and bats.⁵

Electric Organs and Creation

Lissman discusses weak electric charges used for locating prey by not only the fish, *Gymnarchus*, but by a similar mormyrid fish and a quite different fish, a freshwater South American gymnotid. Here are both constant electrical frequency and changing electrical frequency appearing independently in these two families, one in Africa and one in South America.

Seven families of fish have electric organs. In some, the nerve source (innervation) is established indirectly through one or several stalks emerging from one of the surfaces of the "electroplaques" which are complexes of cells designed to shock and transmit shock when touched. Only one surface of each electroplaque is innervated except in certain aberrant knife fishes.

This system of innervation includes such unrelated forms as the African catfish and the mormyrids and one of the American knife fishes. Bennett and Grundfest⁶ found that both the giant ray, three species of skate on the U. S. Atlantic coast, a South Atlantic ray (*Narcini brasiliensis*) and the bony fish, *Astroscopus*, had electroplaques which had no intracellular connections and no conducting mechanisms. Therefore these were paradoxically electrical shockers which are electrically inexcitable!

Grundfest concludes that the zoological and physiological relations among electric fishes are curiously confused. Convergent evolution is obvious here to the convinced evolutionist, of course. The electric skates are most troublesome, as their tiny charges are probably useless. Why then can they be held to be adaptive? The creation point of view presents a better *raison d'être*.

Lungs—Strange Resemblances

The lungs of the dog, cat and monkey are widely different anatomically from that of man.

Man and the horse have very similar lung structure and both have a bronchial artery supplying the walls of the tiny air sac constituents of lung tissue, the alveoli. This implies a nutrient function for the tiny muscle bundles in the walls of those sacs. Shall I insist that these relationships are phylogenetic?

Urine Concentration Analogies

The mountain beaver, *Aplodontia rufa*, has been called the "oldest living rodent." It can scarcely concentrate its urine⁷ for example. Like birds, it does not have thin segments in its kidneys of looped *vasa recta*. Birds can concentrate their urine only slightly. The beaver and certain squirrels are similar in a poor ability to concentrate urine. But other squirrels concentrate their urine quite well!

Vascular Ferns—A Problem for Phylogeny

In flowering seed plants there are cellular tubes known as "sieve tubes" which carry sugar foods around the plant. Most non-seed plants such as ferns do not have such sugar tubes, yet cells resembling true sieve-tube members have been found in the phloem of three species of the heterosporous fern, *Marsilea* (*M. quadrifolia*, *M. drummondii*, and *M. hirsuta*)⁸ See Figure 1. Here is a case in which sieve-tubes or sieve-tube-like structures must have evolved independently in *Marsilea* ferns and in the flowering plants. The creationist objects and asserts it more reasonable to believe in creation by design.

On the other hand, most ferns have water conducting tubes (xylem vessels) in their underground stem (rhizome) **and** in their leaves (fronds). *Marsilea*, however, are peculiar in that all of them have vessels in their rhizomes



Figure 1. Note the leaves of *Marsilea* fern that are shaped like a four-leaved clover. The leaves both rest upon and stand above the surface of the water in which the fern grows. Unlike other ferns, *Marsilea* plants contain cells that resemble sieve-tubes. Also, *Marsilea* plants have xylem vessels in their rhizome stems but none in the leaves whereas other ferns have xylem vessels in stem and leaves.

alone but none in their fronds. This is unique among ferns (Filicales), or elsewhere outside the flowering plants for that matter.

Reproductive bodies of *Marsilea* ferns are large spores and small spores borne in complex spore cases known as sporangia. Based on this complex sporangial type, *Marsilea* is the most specialized of the Marsilaceae, but on the basis of frond or leaf form, it is the most primitive genus! This poses an odd puzzle for evolutionists. *Pteridium*, the bracken fern, has vessels also, not solely confined to the roots, and less specialized than those of *Marsilea*. *Pteridium* is terrestrial; *Marsilea* is aquatic.

Using the evolution theory then, one would be forced to believe that vessels evolved independently in the water fern (*Marsilea*) and in the bracken fern. This too is a preposterous conclusion.

Water Content of Milk

The dairy cow gives milk which is 88 per cent water. Camel milk is also 88 per cent water. Collared peccary milk is about 84 per cent water.

On the other hand, the kangaroo rat's milk averages only 50 per cent water. The only other organisms as low are the harp seal, 44 per cent; the hooded seal, 50 per cent; the California sea lion, 47 per cent; the blue whale, 47 per cent; and the fin whale 54 per cent.⁹ Here are basic divergences and curious relationships surely. How could they possibly be phylogenetic?

Brown Fat—An Amazing "Omission"

Brown fat is an important site of heat production during exposure to cold in most newborn mammals—except the pig.¹⁰ From the standpoint of evolution this is a peculiar omission?

A Copepod Eye—Design in Nature

The minute copepod, *Copilia*, has two eyes with a pair of lenses in each.¹¹ There is one retina, but the posterior lens moves continually. This animal measures 3 mm. x 1 mm. x 1 mm. It actually has an optic nerve. The microscopic structure is very much like that of a conventional compound eye, as seen in insects. The eye parts move independently. Do copepod eyes give evidence for design and creation, or evidence for evolution and natural selection?

Apocrine Sweat Glands—Human, Sheep

Welsh mountain sheep spontaneously develop a mass discharge of their apocrine sweat glands, followed by a rest period as they recharge. Apocrine glands are skin glands which disintegrate superficially as they discharge, but soon are reconstituted. The corresponding human glands react very similarly.¹²

Once again, it is odd that man finds particularly close structural similarity to a certain single animal species far removed from him on any phylogenetic tree that the most ardent transformationist could imagine.

Midventral Gland in Unrelated Organisms

A gerbil is a small burrowing or jumping rodent as large as a rat, found in Egypt and S. Africa. Various species of gerbils have a specific midventral gland, its secretions probably used to demarcate territory. Curiously, other animals systematically removed have one like it, e.g. *Blarina* (an American shrew); *Neotoma* (wood rat), *Peromyscus* (deer mice); *Cricetus* (American rats and mice), *Sigmodon* (cotton rats), *Martes zibellina* (martins and fishers), and *Rattus exulens* (another of the rats).¹³

Chromosomes—A Primate Puzzle

Man has 46 chromosomes, but the gorilla, chimpanzee and orang-utan have 48. Four species of gibbon have 44 and the siamang (a Malaysian ape with exceptionally long limbs) has 50.¹⁴

The chimpanzee is most like man in karyotype or chromosome picture. It has 17 metacentric (chromosomes with two arms equal) and two small acrocentric (asymmetrical) pairs of autosomes (non-sex chromosomes)—as we do—but four in place of man's three large acrocentric (asymmetrical) pairs. The X-chromosome (shared by male and females) is similar among primates, but the Y (male) chromosome is variable.¹⁵

We are alike but different—something that fits with creationism and something that children in zoos realize at a glance.

Giant Pandas—Where Do They Fit?

Is the Giant Panda a bear or a Procyonid (a group close to the bear-like dogs)? Placing it in the Procyonid group must undo the foundation classification of a large group of carnivores, for bears of the Miocene and Pliocene left skeletons like that of the Giant Panda. But by custom the Giant Panda is placed among the Procyonids for lack of a better classification.

On serological grounds and in brain configuration Giant Pandas seem to be bears, but in chromosome structure and with respect to their remarkable genitalia they resemble raccoons (Procyonids). However, bears roar and Giant Pandas bleat. Bears are carnivores and Giant Pandas herbivores. The Giant Panda is an awkward animal for evolutionists.¹⁶

The Dubious Hyrax

Is the rabbit-sized hyrax the nearest relative of the elephant? It was first regarded as a rodent like the guinea-pig. Then Cuvier related it to

the hippopotamus. Milne-Edwards and Huxley put it with the elephant. Now it is placed in a separate order, the Hyracoidea, next to the Proboscidea (order of elephants).

Hyrax toes have hoof-like nails, like those of such South American rodents as the agoutis. It has a gland in the mid-back like that of the South American rodent, the capybara. However, the hyrax appears in the Oligocene for the first time, later than the "earliest elephant," the *Moeritherium*. This is a bit awkward chronologically, of course, if one approaches the problem from the uniformitarian framework of long time periods.

The hind feet have three toes with hoof-like nails, resembling those of modern tapirs and extinct horses. The hoof-like nails of the front feet are on five toes. The two outer toes are small or "vestigial"—intermediate between those of the tapir and rhinoceros and those of the elephant and hippopotamus. The skeleton of the feet is like that of the elephant and hippopotamus.

The teeth are in hippopotamus pattern and the cheek teeth are nearly exactly in the rhinoceros pattern. The brain is like that of hooved animals rather than that of rodents. The stomach resembles that of horse and rhinoceros. The placenta is hemochorial, as in most rodents, but in elephants the placenta is endotheliochorial while in the horse and hippo it is epitheliochorial (as discussed above). The truth is that the hyrax is unlike any other living thing.¹⁷

Prostaglandins Distribution

Of the seminal fluids examined to date, only those of man, monkey, sheep and goat contain prostaglandins¹⁸ This relationship would certainly defy evolutionary explanation.

Special Nostrils of Antelopes

In each nostril of an antelope (*Saiga*), there is a sac lined with mucous membranes. These appear in no other mammal but the whale.¹⁹

Summary

Are the spinal tract, or the placenta, or the sonar, or the apocrine sweat glands, or the mid-ventral gland sufficient criteria to establish phylogenetic relationship? Shall we heed the lesson read to us by the vessels of ferns? Does a copepod's eye on the surface of the sea, make it our cousin? Is there really such a phenomenon as "convergence"? Is convergence perhaps a part of neo-Darwinian ratiocination, or an instance of the Creator's humor?

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(Continued from Page 135)

ture. The book will be especially important to students and parents faced with dogmatic teaching of evolutionary thinking, and to those interested in challenging evolutionary textbooks used in public and private school science classrooms.

Articles in this book provide further evidence that qualified specialists in various fields of science are convinced that special creation affords a more reasonable and satisfying philosophy of origins than evolution.

—THE EDITORS

ONLY GOD COULD HAVE MADE THE DEFENSE SYSTEMS OF THE HUMAN BODY

OSCAR L. BRAUER*

Belief in God is the greatest need of the peoples of the world today. There are many things in biology for which evolutionists have no explanations. One of these, that demands the infinite intelligence of God, is how the human body defends itself against germs.

The skin, the tears, mucous in the nose, the saliva, and digestive juices all contain antiseptics against germs.

Breaks in the skin are a common place for germs to enter the body. One of our greatest defenders are the leucocytes, which surround and kill germs. Another line of defense involves the macrophages.

In addition to leucocytes and macrophages, the human body opposes germs by antibodies. By means of antibodies a person can gain immunity against germs.

Such wonderful defenses for our bodies could not have come about by evolution. Only God could provide them.

Introduction

Everybody knows that Communists all over the world have rejected God. Sad to say, and far more than we realize, the intelligentsia of the Western world have also rejected God although they are not so vocal about it as the Communists. Evidence of this is beginning to appear in the magazines. One of the most thorough discussions of this point is a main article in the March, 1970 issue of *Reader's Digest* entitled, "Is There a Substitute for God?"¹ This article demonstrates man's unsuccessful attempts to remove God from his consideration.

The evolutionary theory has caused many educators in biology, geology, and related subjects to reject the Bible along with its author, God. Anyone who understands biology realizes that it is extremely complicated. Evolutionists, in their arguments, simplify biological phenomena grossly. If one looks into the various sciences related to the study of life, he will realize that life could not possibly exist without the infinite intelligence of God.

This article is an attempt to show that the defenses of the human body against disease germs could not possibly have evolved by unguided evolutionary processes.

Many Advances in Last Century

Although men have studied the ailments of the human body for millennia, only in the last 100 years have they made any appreciable advancement. In fact it is only in the last 50 years that spectacular progress has been made.

Most of the progress in studying the body's natural defenses has to do with things invisible to the unaided eye. Until the invention of the microscope and the wonderful work of Pasteur in the middle of the 1800's, the basis of most diseases was not known. Germs and viruses were

not recognized, and were beyond the reach of real study. Pasteur laid the foundation upon which much of modern medical research has been built.

Although there is very much to be learned yet about the physiology of the human systems, what we know already should convince us that no one but God with his infinite wisdom could have planned it, let alone have brought it about. It is unthinkable that the human body could have come about by evolution, that is, by chance.

Since germs are invisible to the unaided eye, we have no empirical knowledge of how many of them might contact the body both externally and internally in a given interval of time although the best estimates indicate at least a billion daily. Of course only a few of these may cause disease in humans. However, the defenses of the human body are prepared for them all.²

Portals of Entry of Bacteria

Let us begin with those germs that make contact with the outside of the unbroken skin. One would not think of the human skin as being to any extent antiseptic, but it is. For instance, the virulent dysentery germ can live for hours on a microscopic slide yet on the palm of the hand it lives only 20 minutes. Of course not all germs are equally vulnerable, as some can live indefinitely on the skin surface.

On the second trip to the moon, two of the astronauts in the capsule got very minor scratches on their skin. On earth these small scratches would not have been noticed, but on the trip the scratched places became infected, and one spot developed a severe itch. The unknown factor here is probably the atmosphere. Evidently, in the different atmosphere of the capsule, the body systems did not function as usual.

Tears, that keep washing the eyes, contain one of the body's simplest defenses. Suppose a fleck of dust carrying a disease germ enters the eye.

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In the tears there is a powerful antiseptic named lysozyme. Believe it or not, this antiseptic is so powerful that one tear drop in a half gallon of water will still kill some kinds of bacteria.

One of the commonest places where germs can enter the body is by way of the mouth. The saliva is the first line of defense. In the saliva there is also lysozyme aided by three other antiseptics named leukins, lysins, and plakins. These have not been well studied as yet. Those bacteria that pass through the mouth and reach the stomach are mixed with digestive juices. These juices are destructive of most bacteria so that very few reach the intestines.

Another avenue of entrance into the body is the nose. The mucous fluid attracts germs similarly as flypaper attracts flies. Thus bacteria are likely to be sneezed out or running mucous secretion may wash them out. Tiny hair-like fibrils are constantly moving in the mucous so that germs go toward the stomach where they are destroyed.

Even a break in the skin can admit germs at a fantastic rate. A given germ doubles every 20 minutes and this would multiply it to a million in seven hours and several quadrillion by the next day. To offset such an increase, inflammation occurs and involves a release of chemicals throughout the body. Then these chemicals cause relaxation in the blood vessels which allows plasma to seep out. This attracts the leucocytes, white corpuscles, that constitute one of the greatest defenses of the human body. Also there come certain chemicals which retard bacterial growth.

Internal Body Defenses

The leucocytes are the body's greatest "police-men" against germs. They are somehow attracted to the point of infection. Researchers report that it is exciting to watch under the microscope as leucocytes come up to an invading bacterium, push it against some solid surface, flow their jelly-like mass around the bacterium to kill it and then move on to attack another germ. Millions of leucocytes are assembled to the point of invasion. Not only do "active" leucocytes arrive but "reserves" also move into the fight.

Some of the chemicals released during the battle enter the blood stream and stimulate release of leucocytes. Within minutes millions of added leucocytes enter the blood stream. Usually when a physician suspects a serious infection inside the body, he counts the number of white cells in the blood. If the count is abnormally high it proves that leucocytes are being released to fight a concentration of germs somewhere in the body. Bone marrow is stimulated to speed up synthesis of leucocytes.

Fibrinogen, the blood clotting material of the plasma, quickly solidifies into a network of strands which gathers the leucocytes into a wall around the "battlefield," thus localizing the struggle and forming pockets of pus in boils and abscesses. Perhaps if the human mind had planned the body defenses it would have been satisfied at this point, but the battle of the germs would not necessarily have been victorious at this stage. The God-planned defenses have further provisions.

Additional defense is needed since some germs are coated with a repellent which keeps leucocytes away. Some even have power to kill the leucocyte that envelopes it, but *even in death* the leucocytes continue to release chemicals injurious to germs.

Leucocytes, Macrophages Are "Defenders"

To handle these bacteria that are harmful to the leucocytes God has planned another line of defense. Such cells are larger than leucocytes, but are still microscopic. Known as macrophages, they can eat any bacteria and may also consume the leucocytes that contain live bacteria within them. But some bacteria can survive even in the potent macrophage cells.

God has planned yet another defense against this source of danger to the body—the lymphatic system. It is a network of filters that removes germs from the blood, and carries them to glands in the neck. The lymph glands discharge the macrophage, bacteria, and infected leucocytes into the blood stream at a point where the blood enters such disposal organs as the liver and spleen.

God's wonders to protect the human body are still not exhausted. One may well wonder how the leucocytes and macrophages are able to distinguish invading germs from the cells of your own body. Mysterious as this may seem, God has given the body a way of labeling invading particles. These labels are called antibodies. Recognizing the labels the leucocytes and macrophages rapidly attack the labeled germs.

In cases of germs never previously encountered by our bodies, it takes the body a little time to develop suitable labels for the new germs. In such a case the patient may get worse while the invading germs multiply. But, in a short time, when the body produces a suitable label (antibody) for these germs, leucocytes and macrophages then attack the new germs, and the patient begins to improve and usually gets well.

In cases where antibodies have been produced for a particular kind of germ, the ability to produce these labels remains in that patient. If those same germs enter the body a second time,

body defenses are available immediately. In this case the individual may not even be aware of the attack and rapid conquest.

Immunity Can Be Produced

Vaccination is a method of causing the body to prepare specific antibodies before a person contracts a disease. These antibodies can keep his "defenders" alerted for the germs of that particular disease so he may never become ill. Newborn babies are protected by antibodies of the mother until the new individual is able to produce antibodies. There are many kinds or "strains" of virus which cause influenza ("Flu"). Antibodies against one strain do not protect a person against the virus of another form.

Antibodies circulating in the blood are in that part of the blood plasma called gamma globulin. Gamma globulin can be extracted from donor individuals who have developed antibodies for certain disease germs, and when injected into other persons it gives them immunity to those diseases.

The various means of body defense function together. It would be difficult if not impossible to imagine how each one might have developed

by evolution because each is inadequate by itself.

Since gene mutations are notoriously harmful, it is obscure just how such gene changes might have originated and coordinated these fascinating safeguards.

On the other hand all of these separate but interacting lines of resistance give clear testimony of the Creator's provision for man's well-being. Although we may only speculate about the balance of nature before man's Fall, it is clear in the Bible that God did not intend that man should live forever on the present sin-cursed earth. But it is also obvious from biology that, in the meantime, God has equipped man with intricate defenses against invading micro-organisms—defenses which defy evolutionary explanation.

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COMMENTS ON SCIENTIFIC NEWS AND VIEWS

HAROLD ARMSTRONG*

Dr. Shute Against Evolution

Many readers will doubtless be familiar with the work of Dr. Evan Shute of London, Ontario, Canada, who has published papers from time to time in the *Quarterly* of this Society. Recently some of his work appeared in a publication devoted mainly to medical matters.⁴ The report is based on a paper which he gave at the Bible-Science Seminar held at Hamilton, Ontario, Canada, on June 14, 1969. The paper contains a wide range of facts which may be used against the dogma of evolution.

Bats and Bioengineering

It is reported that Mexican free-tailed bats have muscles in the middle ear to dampen the stapedius muscle attached to the stapes. This muscle contracts before each of the bat's own squeaks, thus turning off the ear for a short time and avoiding confusion between external sounds and the sound made by the bat.^{2,3}

This is remarkably similar to the "T-R" and "anti-T-R" switches used in radar for the same purposes: to avoid overwhelming the receiver with the transmitted signal. The application

to radar was invented about 1940; now it turns out that the bats have been using the same principle for thousands of years.

It would be a useful work if some one were to compile a book of as many of these wonders of nature as possible. There is a precedent for such a work; that is, an ancient book of marvels of nature ascribed to Aristotle. If such a book should be compiled, it might be a most useful thing for engineers and inventors. It happens over and over that some problem arises in technology which has previously arisen in nature. (Aristotle, indeed, remarked that art—or technology—imitates nature.) Thus imitations of nature might provide good solutions to many technological problems.

And the obvious question: How could anyone believe that this arrangement of muscles just happened to evolve at the same time as the other characteristics that the bat needs for navigation appeared? This is an engineering solution to an engineering problem, and only the great Engineer of the universe could have designed it.

More About the Cony

A matter which has been much discussed is the true identity of the hare, which is said in

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the Mosaic law to chew the cud.^{4,5} Those who oppose Scripture have used the (supposed) fact that the hare is not a ruminating animal as an excuse for attacking the Word. Those who defend Scripture have usually either denied that the Hebrew word really means "hare" (Scofield did this), or else have explained that it seems to chew the cud, and that that fact makes a good identification.

It has been suggested, in fact, that the hare does chew the cud. That is, it regurgitates food and chews it again.⁶ This, most people would agree, is what is meant by "chewing the cud"; whether or not there is a mechanism of several stomachs involved, as with animals commonly thought of as ruminates, is immaterial.

If this is substantiated, it illustrates a most important point. That is, it is wise to expect Scripture to be true to a more literal extent than we might at first have expected. Most creationists, I suppose, hold some doctrine of plenary or literal inspiration.

But of course we know that in Scripture, as in every thing written or spoken, there are such things as figures of speech, which were not intended to be understood literally. It is practically impossible to say or to write anything without using them. Nevertheless, where a literal construction will work at all, it would seem wise to take the literal meaning, that is, take what is stated as the fact, not just as the appearance.

In the Bible, we might expect at least the degree of literalness which we should expect of a conscientious witness testifying in court. He, too, might use figures of speech, but an ordinary man would have no trouble in knowing what are the figures and what is to be taken literally. The difference is that the human witness, with the best intentions in the world, might be mistaken. But surely anyone who believes in God at all would not suppose that He could be mistaken about anything.

Design in Insect Eggs

Problems solved in the structure of the shells of insects' eggs are discussed in a recent article.⁷ The problem, which occurs in other eggs also, is: the shell must keep water in, or else the egg would dry out; but at the same time oxygen must pass through the shell.

Since the *Scientific American* is so generally available, there seems to be no need of reproducing any of the discussion here. But a few comments may be in order.

The author mentions evolution several times, but really, evolution has nothing to do with the matter. No evidence is presented to show that the insects, their eggs, or anything else, ever evolved. Indeed, the matters considered could

provide an objection to the usual theory of evolution: the objection that the action of the shell had to be about perfect before it would work at all, so how could it have evolved?

Again, it seems rather surprising that insects and birds (not to mention other creatures), should independently have evolved somewhat similar methods. Once more, the conditions on the shell make it even harder to see how reptiles, which produce eggs that have leathery or horny shells, could have evolved gradually into birds that produce eggs with quite a different kind of shell.

Is it not clear that a belief in evolution comes from a rather superficial (wide, maybe, but still superficial), view of living creatures, which makes them seem simple enough that they might, perhaps, have come about by chance. Close examination shows that there is nothing simple about them; even their smallest features are marvels of complex design. And for the source of such design we can only look to the Designer.

Scientists Uncertain on Universe Origin

Sir Bernard Lovell, the director of the radio-astronomical observatory at Jodrell Bank, England, speaking at Queen's University, Kingston, recently, expressed his opinion that the origin of the universe is a thing beyond man's reach, and that it will forever remain a mystery.⁸ He added, "The situation now is that any model of the universe is possible." He added further that we have no idea of how our galaxy evolved.

One might add to this that if there are several theories (models) of the origin of the universe, and if it holds that any of them may be true, then clearly any one may be false. In fact, in so far as there are several, any of which may be true, the probability must be that any one is false. Considerations such as these make theorizing about the origin of the universe seem a rather futile business.

If we have historical information about what really happened, that is another matter. That is exactly what we have in Scripture. The Scriptural account is the only true, unchanging, and hence unambiguous account of origins.

Continental Drift Questioned

It is our belief that the Flood must be considered as the cause of many things that are important in geology and geography. Thus we must view with some suspicion any theory which tries to give another explanation of things which, we believe, might have to do with the Flood.

On the other hand, we hope to show that things which are explained by these theories are explained even better by the Flood. One such theory, surely, is that of "continental drift."

The things which many profess may be there-

by explained can, we believe, be explained better by the Flood and things which happened after it, such as, perhaps, the division of the earth in Peleg's time (if Scripture means here a physical division).

It is proposed in a recent article that, because of the peculiarities of the elastic—or inelastic—behaviour of the materials concerned, continental drift would not, in fact, work.⁹ The whole article, which is not very long, should be read if possible; it raises a number of points which might be of especial interest to creationists.

To mention just one thing, the author raises the question why so many of the major mountain chains are in western China or near its borders. Is it possible that this was the part of the earth first raised out of the water at the end of the Flood, and then a little later such places as Ararat?

The Oxygen Problem

It has often been supposed that at one time there was little oxygen in the Earth's atmosphere. Such a condition, some maintain, was necessary for the supposed beginning of life by chance combinations in the water. It is reasoned, that had oxygen been present, the organic (or, better, "quasi-organic"?) material which was supposed to have been formed by chance would have oxidized before it could accomplish anything. Oxygen was supposed to have been formed later, perhaps by the action of the living things themselves.

Recently this theory has been challenged, especially by Brinkmann.^{10,11} He argues that the process by which the oxygen was supposed to have been formed later, while it might work on a small scale in the laboratory, would not work on a planet-wide scale. The amount of oxygen, he suggests, may have been something like at least half of what it is now—almost from the beginning.

If this is true, it would make many of the theories of how life arose by chance untenable. The *New Scientist* contains the comment that it "... precludes biological evolution as presently understood ...".

A Young Universe

Although not often mentioned in the uniformitarian writings, there are various pieces of evidence from astronomy to show that the universe can not be billions of years old.

Some of this evidence, such as the fact that the comets should have disappeared in billions of years, has been mentioned from time to time in the Creationist literature; some of it, such as the observation that the rings of Saturn could hardly be so very old, has been noticed in these pages.

Another piece of evidence, which may be of some use to creationists, has recently been dis-

cussed.¹² The author pointed out that the arms of the spiral galaxies should, it would seem, have "wound up" in 10^8 years or so. So it is difficult to see how they could be ten or one hundred times as old as that, as is so often supposed.

Therefore, the author proposes to avoid the difficulty by considering the arms to be, not so much regular parts of the galaxies, but rather as the tracks of material ejected from the galaxies. Of course we can not observe the behavior of the arms long enough to see directly whether or not that suggestion is true. It might be said, however, that here is another case in which proponents of uniformitarian theory finds themselves in trouble, and can maintain their theory only by introducing some new hypotheses. But no such difficulties at all are encountered upon acceptance of the truth of Creation.

Comets: Something Old or New?

We are told that comets, at one time, were looked upon as harbingers of disaster. Maybe there is something to that, after all; maybe they do mean disaster to something; to the usual uniformitarian, evolutionary theory of the universe. For comets are one feature, although by no means the only feature, of the universe which simply could not be untold billions of years old. This point has been made before and a recent article gives some more information to same purpose.¹³ (Although that is probably not the purpose of the article.)

Behaviour of short period comets is studied. (Incidentally, the word "evolutionary" in the article title has nothing to do with Darwinian evolution; it just means "having to do with development.")

It appears that short period comets evaporate; at least, the volatile material, which seems to be a large portion of them evaporates. The author suggests that such comets may lose from 0.1 to 1 per cent of their total mass per revolution.

Their ultimate fate may vary; it is suggested that they may become, or be counted as, asteroids. Presumably this happens when the volatile material, which caused the peculiarities commonly associated with comets, is all gone. But it is also true that, even within the last several hundred years, some comets have broken up into swarms of meteorites.

In any event, it seems clear that comets cannot be particularly old things; certainly not billions of years old. They would all have vanished long ago. Nor is there any evidence at all for a reservoir of comets, on the edge of the Solar System, to "save the situation." On the other hand, an age of a few thousands of years is quite reasonable; indeed we have records of some of them for maybe half of that time.

Is the Sun Young, Too?

There was occasion, some time ago, to note in this column that the rotation of the Sun about its axis is quite complicated. Recently the matter has been discussed in another place.¹⁴ It is pointed out that:

The Sun rotates in some complicated way, turning faster through its equatorial belt than at the poles . . . the upper solar atmosphere . . . is rushing forward substantially faster than is the lower visible surface . . . one would think that the viscosity between the layers of gas should quickly reduce all parts to some constant speed. There must exist tremendous forces acting within, or maybe from outside. . . .

It is surely especially hard to see how such a state of affairs could have existed for untold ages, without having everything brought to a common velocity by friction. If, on the other hand, the differences in speed were once much greater, surely as they changed they would change the mixing of the inner and outer layers; and such changes in composition would surely have changed the output of heat. Yet it is believed, according to uniformitarian theory, that the output of heat from the Sun has been about the same as it is now for ages.

It would seem much easier to believe that the present state of affairs, in the Sun as on the Earth, has continued for only maybe a few thousand years. And that is just the Creationist view.

Incidentally, it might interest some to recall that Aristotle, in his book, *On the Heavens*, seems to have suggested that the heat of the Sun was sustained by friction. The friction arose, in his view, from the actual motion of the heavens.

It is easy now to say that such a theory is fantastic, and moreover inadequate. But if the differential motion of the Sun, sustained by the "tremendous forces," has something to do with the processes going on in the Sun, it would appear that here, as so often, an old notion did contain an element of truth.

On Deceptive Theories and Fruits

Readers who have access to the *New Scientist* might be interested in looking at a recent account of a reported discovery which had the scientific world agog in 1903 and 1904.¹⁵ One laboratory reported the discovery of "N-rays," something like X-rays but with peculiarities of their own. Apparently what may have started as an honest mistake became either a deception, or a self-delusion, or maybe a bit of both, which continued for about two years. I can remember, as a boy, reading in an old encyclopaedia something about N-rays, which presumably the authors believed to be genuine phenomena. It was only through a trick, on the part of a visitor to the

laboratory, that the truth came out. The present author remarks:

The total number of level-headed scientists involved is one of the more astonishing parts of the story. Once caught in the trap of publication, it is difficult to retract. And where faith and honor are at stake within an institution, it may be the better part of valor to go on, trusting that all is well. But no less extraordinary was the constancy of the observations. . . .

It is true that such things have not been very common in physics. Yet, in the sciences involved with evolution, it would appear that deceptions, of self if not of others, have been only too common. One can think of Huxley's bathybius and Haeckel's tampering with the facts concerning embryos. And W. R. Thompson has suggested that the Piltdown man was not, as is usually said, an honest mistake, but rather a deception. (But probably not by Dawson, who seems sometimes to receive an undue share of the blame in this matter.)

If scientific theories, like other things, are to be evaluated by their fruits (and how better can one know them), the theory of evolution is certainly weighed and found wanting.

Scriptural Basis for "Carrying On"

In a book of Scripture, which is perhaps not studied as much as should be, we read, "... who hath despised the day of small things?"¹⁶ The implication being, that whoever does despise it is wrong. And in another place we read "... precept must be upon precept, precept upon precept; line upon line, line upon line; here a little, and there a little . . .".¹⁷ Such, it would seem, is often God's way.

In view of the above, let us not become discouraged if our work of sanctifying science (I do not think that that is too strong a way to put it), seems to be "here a little, and there a little." We should like, of course, to find some one demonstration which would once and for all persuade everyone of the truth of God's account of His Creation of the universe. But our Lord said, "If they hear not Moses and the prophets, neither will they be persuaded though one rose from the dead."¹⁸ And the same, it seems likely, might be said about any other argument or demonstration.

We may remind ourselves that it is the same in other endeavours of science. In physics books, authors like to talk of "crucial experiments" which settle a question once for all. But in fact there are no such experiments.

Measurement of the velocity of light in water, for instance, was supposed to be the crucial experiment to show that light consisted of waves, not of particles, as Newton had proposed. But in less than one hundred years, the particles were back again, as photons. (Actually, the photon

theory is often badly misinterpreted; but that is not to the present point.)

Again, Michelson's failure to find an "ether drift" (this, again, is a more complicated matter than text books would make it seem; but again that does not affect the present argument), was supposed to show that Einstein's special relativity must be true; but the result would fit in just as well with Ritz's electrodynamics.

No, it is by "here a little, and there a little" that a physical theory is firmly established. Let us, then, continue to put "precept upon precept, line upon line" until the message is clear to everyone.

Trinitarian Bible Society

Most of the people who will be reading this are, no doubt, creationists; and they are creationists because they believe the Bible. Moreover, not only do they accept the Bible as an authority themselves, but they believe that it is a good work to help to make it available to others.

There are, of course, several organizations through which one can help to do something about making Scripture more widespread. Readers might be interested in an organization, which until recently was confined largely (as far as the organization goes—not so the work) to Britain, but is now doing more and more on this continent.

The organization is the Trinitarian Bible Society. It began over one hundred years ago, by separating from the British and Foreign Bible Society. The reason for the separation was that those concerned wished to take a stronger stand on inspiration. The Society holds the same doctrine today.

For this reason, members have not looked very favourably on the various modern translations, of which there have been so many lately. Some of the translators have made no secret of the fact that they held only the weakest of doctrines of inspiration. Moreover, it is maintained, there has been too much tendency to rely on special old manuscripts, which, while they are old, may be bad, and to fail to admit that God, Who gave the Scriptures, has been active also in preserving them, through regular use in the church.

The Society provides Bibles and parts of Bibles in a number of foreign languages, especially some which might otherwise be neglected. As might be expected of a small organization, this work is done very efficiently, in terms of the number of Bibles actually put into people's hands for a certain outlay of money.

In Canada, information may be obtained from the Honorary Secretary, The Rev. G. D. Mellish, 26 Gracey Blvd., Weston, Ontario, Canada. An office in the United States is under consideration;

meanwhile requests from the United States can be handled at the Canadian office.

Millennial Biological Conjectures

In a number of places in Scripture we find the words, "times of restitution of all things."¹⁹ This is generally understood to refer to our Lord's return. Most commentators have concentrated on the theological aspects of the restitution; might we, however, consider another aspect of it?

Many Christians believe that the times include not only a short time during the actual return, but a period of one thousand years, the millennium.²⁰ During that time, Christ will reign on the Earth, and matters will be restored, to some extent at least, to what they were before the fall. Conditions of life will be greatly improved, the desert will blossom as a rose, and much more might be said. It is interesting, at this point, to speculate on just how far the restitution will go.

Will some of the animals, which have been exterminated or nearly so by our folly, be restored? Will there once again be flocks of passenger pigeons in the sky, and will herds of mammoths be found again? Will the redwood forests be restored from their present remnant to what they once were? All these conditions would be small matters to God.

All Christians, it may be supposed, hope for our Lord's return. Yet some have not been able to avoid the feeling that such an event would end what must be admitted to be a rather interesting experience here on Earth. But if the speculative inquiries mentioned above come to pass, even approximately, quite the reverse would obtain. So one may feel an additional reason for fervor in saying, "Even so, come, Lord Jesus."²¹

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¹⁷Isaiah 28:10.

¹⁸Luke 16:31.

¹⁹Acts 3:21.

²⁰Revelation 20:2-7.

²¹Revelation 22:20.

CREATION OUTREACH

WILLIAM J. TINKLE*

As we have stated previously, the Creation Research Society is primarily a publication group. Original articles that are accurate, have scientific value, and are true to the Bible are published quarterly. Various inquiries arise as a result of the *Creation Research Society Quarterly* and we are glad to answer them.

One of our most ambitious projects is the high school textbook, *BIOLOGY: A Search for Order in Complexity*, published by the Zondervan Publishing House, Grand Rapids, Michigan, in October, 1970. The book was priced at \$7.95. Biologists with the highest degrees devoted much time to this work. It is notable that men and women with scientific training from different universities worked in harmony, while a similar attempt by another group of scientists (even financed by the federal government) resulted in a splitting of ranks.

Another publication should be mentioned. During this very month, December, 1970, a special collection of articles will be released under the title, **Why Not Creation? Selected Articles from the Creation Society Quarterly, Volumes I through V (1964-1968)**, edited by Dr. Walter E. Lammerts, founder and first president of the Creation Research Society. The book contains a total of 394 pages and will sell for \$7.50.

Articles by specialists in the physical sciences and biological sciences are related to the following topics: origin of the universe, the time factor and radioactive dating, origin of sedimentary strata, paleontological evidences, genetics and stability of kinds of organisms, biochemistry and the DNA, botanical and zoological evidences plus philosophical and social consideration of creationism and evolutionism.

Articles in this book provide further evidence that qualified specialists in various fields of science are convinced that special creation affords a more reasonable and satisfying philosophy of origins than evolution.

Individuals of the Creation Research Society also write for other publications, including the

Bible-Science Newsletter, *Journal of the American Scientific Affiliation*, *Christianity Today*, and various church journals.

As the name indicates, members of the Society conduct research. To date sponsored work has been in geology and botany, but wider projects are contemplated. Findings sometimes are not in agreement with widely accepted theories, but sponsored investigators endeavor to be true to the facts of nature.

Often, in addition to publication activities, members of the Society are called upon to speak to various groups and are glad to do so as they have time. One of the most effective ways by which interested individuals can help the cause of true science is to arrange a meeting which is well advertised to gain broad attention.

In recent years members have spoken to service clubs, church groups, Sunday School rallies, teachers' groups, and school science clubs in many states of the nation. School science clubs are very important, being made up of young people who investigate and think for themselves, and doing more than is required by the teacher. An example is the Sky Pilot Club of a school in Australia, from which we have received two reports. Along with current science, the sponsors help students locate research results that agree with the Biblical account of creation.

A student group, The Defenders, of the Ozark Bible College of Joplin, Missouri, has sponsored a three-day convention for six years. Two speakers are invited: a theologian and a member of the Creation Research Society. These men speak in chapel, to various classes, and present evening lectures open to the public. Leaders of other colleges could consider following this example.

Creation Research Society members have participated in a number of seminars held in several of the United States and in Canada. In addition to local sponsors such seminars have been held in cooperation with the Bible-Science Association. Besides appearing before several general public meetings, the speakers have addressed various churches, clubs, and schools in the particular city where seminars have been held.

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TEXTBOOKS IN TENNESSEE*

Dr. Russell Artist, Ph.D., Professor of Biology at David Lipscomb College, Nashville, Tennessee, appeared before the meeting of the Tennessee State Textbook Commission on July 13, 1970. This group of seven people (one of whom is the Commissioner of Education for the State of Tennessee, Mr. J. Howard Warf) met in the Cordell Hull Building in Nashville.

Dr. Artist made the following statement to the commission regarding ten textbooks which had already been adopted:

All of these books are evolutionary oriented; that is, they come from the standpoint that evolution is the only explanation, not only for the diversity of life upon this earth, but for the history of man. Some press it more belligerently than others, and I would like to take just a moment to mention the fact that three of them, the BSCS series, I am diametrically opposed to. These are the so-called Biological Sciences Curriculum Study textbooks known respectively as the Green, Yellow, and Blue Versions. The title of the Blue Version is *Molecules to Man*, and that's exactly what they teach—that man is simply a fortuitous concourse of atoms. Now, that's not why my Bible says, and I don't think yours says it.

Dr. Artist continued by maintaining that not all scientists accept evolution as the only explanation of origins. He quoted Dr. R. V. Gentry, scientist at Knoxville, Tennessee, as stating, "I will be glad to work with you in any way to show you that I do not accept it." (Evolution, that is.)

Dr. Artist claimed that the BSCS Blue Version (Second Edition of *Molecules to Man*, Houghton-Mifflin, 1968, pp. 109-210) presents evolutionary assumptions and speculations about the origin of the first living cells. By way of contrast, he quoted the following excerpt from Dr. Duane Gish, creationist biochemist,

As a scientist, I cannot and do not go along with these proponents of this theory. As a scientist, I can only see that the living cell, inconceivably complex, demands a Planner, that this tremendous organization requires an Organizer! The physical and chemical laws operating today which must have been operative since the days of creation, are completely incapable of giving rise to the unique, specific, and purposeful structures and organization that we find in the living cell. (from *Behind the Dim Unknown*, G. P. Putnam's Sons, Inc. 1966, p. 43)

*This news item is prepared by George F. Howe, based upon a letter from Dr. Artist dated August 15, 1970, and upon a copy of Dr. Artist's speech to the Tennessee State Textbook Commission.

Dr. Artist mentioned the creationist publications of Dr. Harold G. Coffin and the anti-evolutionary "Introduction" which Dr. W. R. Thompson (noted Canadian entomologist) wrote for a re-publication of Charles Darwin's *Origin of Species* (No. 811, Everyman's Library, Dent: Dutton, New York, pp. vii-xxiv). Dr. Artist read several paragraphs by W. R. Thompson to the commission members, indicating that it is scientifically right and proper to discuss objections to the evolutionary theory.

Artist continued by citing the statement of the British scientist, Dr. G. A. Kerkut, that the seven basic assumptions of evolutionists ". . . are not capable of experimental verification." (*Implications of Evolution*, Pergamon Press, 1960, p. 7)

Concerning creationist societies, Dr. Artist described the membership criteria, beliefs, and goals of the Creation Research Society. He read excerpts from the *Bible-Science Newsletter* article, "Equal Status for Creation Study," which he had previously mailed to each member of the commission along with a copy of Dr. Harold Coffin's paper, "Creation—The Evidence from Science."

In suggesting that Tennessee might follow a similar course to that recently taken by the California State Board of Education, Artist said,

But I believe that it is time now for Tennessee to again make history by reversing this trend toward the acceptance of only one point of view—evolution, and follow the lead of many of her scientists who are returning to a biblical creation viewpoint!

Dr. Artist spoke in detail about specific statements in the 1965 edition of *Modern Biology* by Otto and Towle, a book which he reported had been adopted as a "basal" text by 43 of the 91 counties in Tennessee. To their statement, ". . . gaps that we know were once filled with now-extinct organisms, biologists use these gaps in establishing classification groups," Artist said,

This is pure assumption; guesswork!; an appeal to a non-provable extinction of creatures to explain the "gap" in the fossil record! Simpson, the great paleontologist, admits that the major groups appear suddenly and are not led up to by any intermediate forms. The gaps are real!

Concerning Otto and Towle's assertion about chordates, that ". . . all have paired gill slits that form openings in the throat," Artist countered by stating, "Yet the great Anatomy text, Gray, denies this completely."

Dr. Artist asserted that there is another biology textbook available, the Creation Research Society text, *BIOLOGY: A Search for Order in Complex-*

ity, published by Zondervan Publishing House, Grand Rapids, Michigan. He shared his hopes for its adoption as follows:

Now, you can well imagine what a singular victory it would be for those of us who believe that the wisdom of God ought to be put back into our schoolrooms for this book to be placed upon the State's adopted list! I do not know, of course, how many schools would use it; I do know that Harding Academy in Memphis has already contracted with Zondervan for 100 copies to be used this fall when the book appears in October. Mars Hill Bible School at Florence, Alabama, has agreed to use it; David Lipscomb High School is considering using it, and there is one high school in Indianapolis, where Dr. Otto, one of the writers of the Modern Biology series is teaching, has used it as a pilot text.

After comparing the BSCS texts with the CRS book, Dr. Artist closed his remarks to the Commission with these words:

God is the Creator, and the Sustainer and the reason for the variety and diversity of

life as we see it today, as well as for the origin of man as a special act of creation! Many brave and capable scientists are rising up all over this land to maintain that this is the only logical and reasonable point of view! In closing, let me say that the scientists of this state, as well as other interested people, are demanding that evolution be taught as a *science*, not as a religion or a philosophy. Then both sides will have to be mentioned, both the accomplishments and the difficulties of evolutionary theory and the creation account will be considered as a thorough-going, scientific alternative to evolution! The idea that evolution is science and creation is religion is now no longer true, as many men of science are saying today.

In his letter of August 15, 1970, Dr. Artist indicated the following result of the meeting: "... the Commission, through its secretary, Mr. Warf, named above, has given us the privilege of submitting the book, *BIOLOGY: A Search for Order in Complexity*, BEFORE the date when it would normally be open for adoption."

BOOK REVIEWS

The Peter Principle: Why Things Always Go Wrong by Lawrence J. Peter and Raymond Hull. 1969. William Morrow and Co., Inc., New York, N. Y. 13th printing. 179 pp., \$4.95. (Bantam paper back edition \$1.25.)

AND

"The Contributions of Edsel Murphy to the Understanding of the Behavior of Inanimate Objects," by Dr. L. Klipstein. *Electronic Equipment Engineering*, pp. 91-92, August, 1967.

Reviewed by Charles W. Harrison, Jr.* and Elva L. Rose.**

The Peter Principle: Why Things Always Go Wrong was recently brought to the reviewer's attention¹ in abbreviated form.² The principle is this: Given enough time—and assuming the existence of enough ranks in the hierarchy—each employee rises to, and remains at, his level of incompetence.

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**L. Rose (Mrs.) is Head of Circulation for the Albuquerque Public Library. She is on the executive council of the Albuquerque Christian Business and Professional Women's Club.

Peter's Corollary states that in time every post tends to be occupied by an employee who is incompetent to carry out its duties. Although the principle was specifically enunciated for hierarchies, it applies in a sense to individuals. The reader should remember that any lost motion in carrying out one's assignments represents an unrelenting increase in entropy.

Space will not be devoted to a consideration of the Peter Principle itself. For example, anyone who has spent time at the Puzzle Palace—the fountainhead of all knowledge—has observed that most employees have reached their level of incompetence.

The principle is correct because it is in essence an exceedingly interesting specialized restatement of the generalized second law of thermodynamics known by physicists for more than 100 years. This fact was not recognized by Professor Peter. No exceptions to the laws of thermodynamics have yet been discovered, so the Peter Principle is on a solid foundation.

The Peter Principle explains why Murphy's Law is true. (See article by Klipstein.) Murphy's Law states that if anything can go wrong, it will. Several examples of Murphy's Law not related to the Peter Principle follow:

(a) In a mathematical calculation any error that can creep in, will. It will be in the direction that will do the most damage to the calculation.

In any given computation the figure that is most obviously correct will be the source of error.

(b) Butter a piece of toast over an expensive carpet. The toast will slip, (always “inadvertently”) out of the hand and land on the carpet buttered side down. This phenomenon is known as selective gravitation.

Returning now to the Peter Principle, the author proposes it as “the key to understanding the whole structure of civilization.” This appears to be a brash, arrogant, egotistical remark, but the statement is true! Professor Peter’s Principle is a segment of a specialized form of the second law of thermodynamics.

The curse God invoked on earth as a result of man’s sin was nothing more nor less than imposition of the second law of thermodynamics (Hebrews 9:27). Had there been no fall of man there may have been no civilization at all—certainly there could not have been a civilization in any way comparable to the presently existing one.

Little did Adam and Eve realize what havoc would be wrought by their sin—how profound and catastrophic the changes that would occur throughout the universe because of the curse—the introduction of the second law of thermodynamics. By the same token, the imagination of man is completely inadequate to comprehend what our Lord will do for those who belong to Him (I Corinthians 2:9)!

Again, the statement is made by Book World³ that Dr. Peter’s formulation of a fundamental principle of the universe ranks with the work of Copernicus and Newton, etc. (paraphrased by the writers). This statement is also true in the sense that the Peter Principle is basically a specialized corollary of generalized thermodynamics. God reveals these laws in Scripture—they were rediscovered by Carnot and Helmholtz. Who is to say that the principles of thermodynamics are not of comparable importance to the law of gravitation?

The writers found the book stimulating, thought provoking, hilarious and not anti-Christian in tone. There are a number of profound contributions in this book. For example, Dr. Peter demonstrates that communism (and socialism) cannot work (p. 68). Communism is based on the rationale that work must be obtained “from each according to his ability.”

To accomplish this every employee must be kept permanently at a level of competence, which involves a violation of the Peter Principle. The employee must rise to his level of incompetence and, once there, will not be able to produce according to his ability.

Even in Russia the hierarchy complex is found. Scientists and engineers there are in a class all by themselves. Hence there is great fanfare and

special treatment for the men who control the sputniks and nuclear detonations! The authors are of the opinion that when equilibrium has been reached in a society, i.e., the entropy death has occurred, no contribution of significance will emerge from that society.

“Woman’s work is never done” is a sad commentary on the high proportion of women who reach their level of incompetence as housewives (p. 66). The writers know several ladies who do not appreciate this statement! The suggestion has been made to them that possibly the reason the above comment is true is because the woman sinned before the man—thereby reaching the level of her incompetence first (Gen. 3:16). Women won the race of incompetency—a dubious honor!

There are competent housewives, of course, and the reviewers are not implying that all homemakers are in a position of incompetence. A Biblical position is seen in Proverbs 31.

Several of Professor Peter’s hilarious comments should be mentioned. In connection with the well known statement, “you have to be a good follower to be a good leader,” Dr. Peter asks why the ability to lead should depend on ability to follow. He states one might as well say that the ability to float depends on one’s ability to sink. Again, an employee who has reached his level of incompetence may lead only in the sense that the carved wooden figurehead leads the ship.

Another corollary to the Peter Principle should be brought to the reader’s attention: Man should stop playing God. Long before he bridges the infinite gap between himself and Deity, man has reached his level of incompetence. By this very token, man can never verify that God does or does not exist. One must walk by faith and not by sight.

Demonstration that the Peter Principle is true presently rests upon observation alone. The reviewers believe that principle has both a Biblical and scientific basis. The principle is given a sound analytical foundation by invoking the powerful second law of thermodynamics and is thus validated in complete generality; Dr. Peter’s proof is based on a limited number of observations and thus rests on experiment.

It is remarkable that both Scripture and mathematical physics can be employed to prove the same principal! But this should always be the case because the author of Scripture is also Chief Scientist. The writers were startled by the congruence between a Biblical understanding of the universe and the second law of thermodynamics (I. Cor. 13:12).

Suffice to say the Bible is about Christ from cover to cover—and repeatedly asserts creation, not evolution within the same covers (not just in the book of Genesis alone). When the second

law of thermodynamics is set aside by our Lord, the Peter Principle will vanish like vapor. Everyone should read and understand Ecclesiastes 1:9c, "There is no new thing under the sun." However, much remains to be uncovered by Peter and other investigators!

C. De Beccaria wrote, "The history of mankind is an immense sea of errors in which a few obscure truths may here and there be found." How true this quotation is with regard to "religion" in general, as opposed to Christianity!

References

¹Private Communication, Mr. Allen Stecker, CPA, Albuquerque, New Mexico.

²The Peter Principle. Medical Economics. pp. 273-286, Nov. 10, 1969. Litton Industries, Oradell, New Jersey:

³"Stimulating, amusing reading . . . The authors embark on one of the noblest endeavors of the human intellect: the search for and formulation of a fundamental principle of the universe. There have been few others who have successfully made this voyage, and history remembers them gratefully—Copernicus, Newton . . . etc., etc." —Book World.

* * *

The Encounter Between Christianity and Science. Richard H. Bube, Editor. William B. Eerdmans Publishing Company, 1968. 318 pages, \$5.95.

Reviewed by Bolton Davidheiser.*

Beliefs concerning scientific problems that have been based on misconceptions of the Bible are especially vulnerable, and must be carefully examined, preferably with the help of a scientifically competent person who is also a competent Bible student without preconceived ideas about specific Biblical interpretations.

So writes one author in this book on page 238. Beliefs *known* to be based upon misconceptions may be discarded rather than examined. But for help in examining beliefs that may need examination, how is it possible to find a "competent Bible student without preconceived ideas about specific Biblical interpretations"? A competent Bible student *must* have some preconceived ideas by the time he is called upon to be of help. Otherwise he is just wishy-washy and is not competent.

Evidently the editor, who also wrote the first 108 pages, should meet the required qualifications. But he expresses the preconceived idea that "there is no information in the Bible, for example, that is either in favor of or opposed to theories of organic evolution" (page 97). We would be utterly amazed at this statement but we are not because we already had some preconceived ideas about his view.

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Editor Bube begins his second chapter with the sentence, "If the goal of science is the dispelling of ignorance through the acquisition of knowledge, the goal of Christianity is the restoration of broken relationships between persons." We respectfully point out that this is not the goal of Christianity. The goal of Christianity is to build the church by ministering the gospel of salvation by grace through the atonement of our Lord Jesus Christ.

On page 61 Editor Bube describes himself as a theistic evolutionist as he says, "If we suspect that God worked through processes interpreted as evolution by biologists to accomplish His purpose in creation, we have not minimized the creative power of God."

He states on page 46, "The revelation of God in nature cannot contradict the revelation of God in the Bible." This is the "double revelation theory," which apparently was originated by the liberal minister Henry Ward Beecher, himself a theistic evolutionist.

In practice those who promote this view put their faith in the "revelation of God in nature" and not in the "revelation of God in the Bible" when the two seem to conflict. This is well illustrated by passages in this book. For example, Dr. F. D. Eckelmann, beginning on page 166, says,

If one wishes to insist on widespread instantaneous creation of life, he must do it on the basis of Biblical interpretation, and not on the basis of science. In fact, science provides no basis for instantaneous creation of life. . . . If one wishes to insist on the creation of a literal Adam and Eve, he must do it on the basis of Biblical interpretation and not on the basis of science. Like it or not, the scientific record clearly points to man developing by successive evolutionary stages from early anthropoid stock. . . . Nothing in the fossil record of man even remotely suggests an abrupt change to modern man. If one wishes to account for man's present spiritual propensity by an abrupt event in the past, he must do it on the basis of Biblical interpretation alone. The scientific record of man's past not only lacks support of such a view, but points to a quite different explanation, namely the gradual development of man mentally, culturally, and spiritually. . . . The truth or error of evolutionary theory must be based upon scientific investigation alone, and should not be prejudiced by prior interpretations of the Biblical record.

We would like to write a longer review of this book but we do not believe it deserves more space. The book teaches evolution outright, and the only good thing we can say about this is that

it is better than some previous books on science and the Bible which were filled with doubletalk and authors claimed not to be teaching evolution when they were.

* * *

Four Book Reviews by Bolton Davidheiser.*

1. *Evolution and the Modern Christian* by Henry M. Morris. 1967. Baker Book House, Grand Rapids, Michigan. (Also published by Presbyterian and Reformed Publishing Co., Philadelphia, Pa.) 72 pages. Paperback. \$1.00.

The manner of the origin of man is of vital importance because his destiny is dependent upon it. The Gospel is the "good news" of salvation by grace, while evolution is "bad news," a delusion "offering an illusionary Utopia for the race in some long-distant age, but only meaningless existence and imminent death for the individual in the present." Various evidences of evolution are discussed and refuted. Of particular value is the treatment of the fossil record (the other evidences are admittedly circumstantial) and the problem of geologic age.

2. *A Christian View of Modern Science* by Robert L. Raymond. 1964. Presbyterian and Reformed Publishing Co., Box 185, Nutley, N. J. Booklet. 30 pp. \$0.50.

This is one of the best treatments of the problem of the relationship between Christian faith and the philosophy of science that we have seen. Many evangelical leaders today are saying that there is no problem here. Furthermore, they seem to be disinterested and do not care to consider the matter when it is pointed out that there is a very real problem.

As Dr. Raymond points out, the goal of science is to "explain everything." The operation of the supernatural in the universe is excluded as a possibility. Thus the philosophy of science is anti-God and anti-Christian.

The points of view of several representative evangelical leaders, themselves not scientists, are given. Bernard Ramm represents "progressive creation" and the late Edward John Carnell presents his "threshold evolution," which really is the same thing. Carl F. H. Henry repeats favorably the possibility that the "dust" from which Adam was made might have been in the form of an animal ancestry which only at the beginning was actual dust. It is to such compromises that the "evangelicals" are now leading the confused Bible-believing Christian public.

3. *Why We Believe in Creation, Not Evolution* by Fred Meldau, Editor of Christian Victory Magazine. Second Edition, 1961. Christian Vic-

tory Publishing Co., 2909 Umatilla St., Denver, Colorado 80211. 348 pp. Cloth \$3.95, pb. \$2.75.

Charles Darwin found his greatest difficulty in trying to explain such things as the development of the eye, the peacock's tail, and the ability of bees to construct honeycomb cells with mathematical precision. He said that the thought of these things made him sick and put him in a panic.

Mr. Meldau has collected many cases of marvelous phenomena in the world of nature which defy an evolutionary explanation. The book is particularly recommended for parents who do not have a background in science and who have problems because of the evolutionary teachings their children are receiving in school.

4. *WH₂O Will Tell Him?* by Gordon L. Ginn. 19—. Pique Publications, Box 5012, Berkeley, Calif. (or through Bible-Science Association, Box 1016, Caldwell, Idaho 83605). \$0.75.

This readable and logically presented discussion of evolution is recommended for both adults and young people who desire knowledge of basic arguments against evolutionary theory in a short treatment of the subject.

There is an interesting discussion of chemical evidence of evolution. Two researchers working at the University of California in Berkeley concluded that man and yeast are shown to have a common ancestry because of similar cytochromes. They say that the more nearly similar cytochromes c are in various creatures the more closely related these creatures are.

But Dr. Duane Gish, a Christian biochemist, points out that when "chemical classification" agrees with the generally accepted classification based on morphology, evolutionists accept it; but when it does not agree, the evolutionist "simply invents a subsidiary hypothesis to explain the difference." He gives examples of a chemical sequence which is identical in two species of whales of the same family. He also gives an example of chemical classification which, if taken seriously, would place yeasts closer to man than the rhesus monkeys would be to man. Finally, chemical tests would indicate that some yeasts are more distantly related to other yeasts than man is to a tunafish.

The booklet is slightly marred by the author's misunderstanding of the nature of mutations.

* * *

The Monkey's on the Run by D. Lee Chesnut, author and publisher, 2301 West Shadyglen Avenue, Phoenix, Arizona 85023. 1969. 52 pp. \$0.75. Reviewed by Rita Rhodes Ward.*

Written for the high school student, this captivating little book approaches the creation-

*These reviews are also by Bolton Davidheiser, Ph.D. They are reprinted by permission from various issues of his publication, "News and Notes," Box 22, La Mirada, California 90638.

*Rita Rhodes Ward is a biology teacher in the El Paso, Texas, Public School System.

evolution controversy from several angles. First, the author establishes that there is a controversy, even among biologists, and that there should be an honest presentation of facts regarding the theory of evolution. Then he clarifies the difference between limited variation and total evolution.

Mr. Chesnut uses a hypothetical court setting to present his points. The evolutionist, as the defense, presents his two approaches: that new species are known to have arisen in nature, and that they constitute proof of total evolution. The creationist, as the prosecution, proceeds to show that limited variation does not explain or prove total evolution, and he presents the Bible as evidence of special creation.

The author considers such diverse fields as sex and its relation to evolution, fossil evidence, embryology, and the origin of life. As a physicist, Mr. Chesnut writes very well in the section on the atom in which he shows that atomic structure and energy relations uphold scripture. Thus facts known to scientists provide one basis for faith in creation.

This is a unique booklet which should be in the hands of all high school students and their parents as well.

* * *

Evolution on Trial by Cora Reno. 1970. Moody Press, Chicago, Illinois. 192 pp., cloth, biblio., index, 6 figures, \$3.95.

Reviewed by George F. Howe.*

This work is an attempt to present evidence for and *against* the evolution theory. It is also the author's stated purpose to demonstrate that creation is as good as or superior to the evolution theory. Written by one who is a careful scientist and a concerned Christian teacher, the treatise has 19 chapters which are clear, readable, and geared to the intended high school age group.

The book also contains a list of texts commonly used in high school biology courses. Pages of each biology text that deal with a particular topic are noted so that a student may compare the evolutionary argument in each case with the creationist view. Certain portions of *Evolution on Trial* could thus serve as resource material for students who are using evolutionary textbooks in their biology classes.

The book has certain assets and shortcomings which shall be evaluated.

1. Strengths

a. The author upholds special, miraculous creation "after their kinds" as recorded in the Bible. This volume is anti-evolutionary and presents many profitable biological units.

For example, in her various chapters on homology (Chap. 3), taxonomy (Chap. 6), embryology (Chap. 9), and supposed "vestigial organs" (Chap. 19), Miss Reno takes the so-called "classical evidences" for evolution and demonstrates that they fit with and actually favor creationism.

While covering the topics of genetics, chromosomal structure, DNA, and mutations (Chapts. 17 and 18), she asserts that some changes (usually harmful ones) may occur within the kinds but no actual evolution of the kinds takes place.

b. Her book succeeds in showing that high school books now in use are completely evolutionary and she arms the student with evidence favoring creationism.

c. Her volume recommends decision on the part of the young reader. A non-Christian high school student might very well experience salvation by careful reading and reception of the potent Bible truths detailed in Chapter 19. Here Miss Reno recommends personal faith in the risen Christ and acceptance of the Bible as the Word of God.

2. Weaknesses

a. The author holds to the "day-age" interpretation of Genesis chapter 1—suggesting throughout that each "day" of creation is best understood as representing a long age of geology or perhaps a day sandwiched between long ages. In Chapters 1, 4, 5, 8, 11, and elsewhere in the text, she is apparently attempting to convince the high school reader that long-age geology is valid.

Little impartial analysis of the "young earth" view is given excepting the one paragraph on page 144 entitled, "Creation at about 6000-15,000 B.C." This omission was in keeping with the purpose which was to emphasize the long-age concept without dwelling to a great length on any of the other views—gap theory, ice canopy, etc.

Although dating techniques are explained in some detail (pp. 31-39), problems inherent in each dating method are largely ignored and the student is steered toward the vast ages concept in earth history. From a biblical and scientific standpoint, this is a defect in the book.

b. Miss Reno champions a uniformitarian view of fossil genesis—suggesting that coal beds and other fossil strata developed gradually across great epochs of time. Her only real evaluation of the global flood comes in one unsatisfactory page on flood geology (p. 145) in which she does not do justice to this important topic. Her work thus suffers from the same weakness which is apparent in my own portions of the book, *The Bible, Science, and Creation* (Moody Press, Chicago, 1965)—not enough discussion of catastrophism or the young-earth principle.

c. In analyzing the fossil horse, Chapter 5, she is willing to grant a complete transition between

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all the fossils that biologists claim are ancestral to the modern horse from *Eohippus* to *Equus*. This is more "change" than the present reviewer and many other creationists envision based upon the Bible "kinds."

Conclusion

The work might have been profitably produced as two separate, smaller volumes. One booklet could have dealt with the classic issue of creation versus evolution, and the other might have contained the author's day-age view of geology and the Bible. The book on creation biology could have been recommended, for the most part, while the volume on geology could have been labeled as unbalanced in its strong uniformitarian bias.

The chapters on creation biology will certainly be of some resource value to young students and could serve as an auxiliary source on a more comprehensive library shelf. Furthermore, the unit on personal faith in Christ would be of undoubted help to a non-Christian reader.

Yet, if one is searching for a high school book that supports creationism and *at the same time* gives balanced presentation of catastrophism and young earth ideologies, then *Evolution on Trial* is not that book, nor was it intended as such a book.

* * *

In the Beginning by Rita Rhodes Ward. 1965. Baker Book House, Grand Rapids. 110 pages. Paperback. \$1.25.

Reviewed by Peter A. Steveson.*

This book contains twelve lessons designed to give "young people . . . a basis for resisting evolutionary philosophy and holding firmly to their faith in God and the Bible." Lessons are devoted to a variety of topics. Included are such items as the difference between a theory and a hypothesis; secular theories for origins of the universe, solar system and life; fossils; methods of determining ages: the "evolutionary tree"; attempted harmonizations of science and Scripture; and biological arguments bearing on the theory of evolution. A host of other areas are included also.

Mrs. Ward has done a fine job in her effort to prepare young people to stand against theories of evolution. Necessarily, a book of this size can only serve to whet the appetite of the serious student. Undoubtedly, many young people will be encouraged to undertake additional study in this area. But the material which has been given is well-documented and organized in a way which should be helpful. Illustrations in the book are well done and suggested activities at the end of each chapter are generally clever and worthwhile.

*Peter A. Steveson is the Principal of the Christian High School of San Diego, 2716 Madison Ave., San Diego, California 92116.

One of the strong points of the book lies in the author's ability to set forth alternate interpretations of observed facts. Thus, while the evolutionist considers gaps in the fossil record to be "missing links," the creationist sees this as a distinct discontinuity to be used in argument against evolution. Or, while the evolutionist sees similarities of body structure in man and the higher animals as evidence that one changed into the other, the creationist sees this as evidence for a master designer, God. Through her discussion, readers are given reasonable alternatives to the theory of evolution.

In the reviewer's opinion, the book will serve admirably for groups on either the upper high school or college levels. A quarter in Sunday School devoted to this study, or a home Bible study group, would be a profitable investment of time in looking into an area where emotions often run high and facts are overlooked.

* * *

Evolution and the Reformation of Biology (A Study of the Biological Thought of Herman Dooyeweerd of Amsterdam and J. J. Duyvené de Wit, late Professor of Zoology at the University of Bloemfontein, South Africa) by E. L. Hebden Taylor. 1967. The Craig Press, Nutley, New Jersey. 92 pp. \$1.50.

Reviewed by Rousas J. Rushdoony.*

The subtitle of this study describes to a degree the contents of the work; it is also perhaps a serious limitation in this book, and a misleading one. The school of thought represented by Dooyeweerd and de Wit is associated in the minds of many with a loose view of Genesis 1 and creationism, whereas Taylor represents a markedly more strict interpretation.

Perhaps it can be said that J. Lever represents one direction of development in this school, a growing accommodation to evolution, whereas Taylor represents an attempt to restore a strictly Biblical sense to this tradition. Certainly Taylor does not agree with Lever's views and criticizes them sharply (p. 35f.). The framework of the study thus is to a degree a handicap to Taylor as well as a real asset.

For Taylor, mega-evolution is a humanist doctrine "radically opposed" to the biblical account of creation (p. 1). Taylor holds that "the universe derives its existence from Almighty God who created for his own glory all things out of nothing and with the appearance of age" (p. 2). The conflict between evolution and creationism "is not only a conflict between two kinds of faith

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but also between two kinds of science, the one Christian, the other apostate" (p. 5).

Taylor's thinking can be assessed in part by his favorable reference to Dr. Evan Shute's *Flaws in the Theory of Evolution*, and the Whitcomb and Morris book, *The Genesis Flood*. His analysis of "The Church's Accommodation with Secular Natural Science" (pp. 29-37) places him firmly against all "attempts at synthesis between the scriptural and humanist conceptions of reality" (p. 34).

This brings into focus the central thesis of his book, and the point of his title. For a true reformation of biology, it is important that we do more than oppose mega-evolution. We must recognize that mega-evolution rests on a humanistic and anti-biblical view of reality; it is not enough to oppose evolution if our thinking remains humanistic. Moreover,

Only by accepting God's Word as the ordering principle of our scientific work can we hope to make sense of the vast array of so-called "facts" around us. God's Word alone can provide us with the ordering principle which gives us our true frame of reference and only sure point by working in us a true knowledge of God, of ourselves, and of the law-order of the creation. The Word of God is the power by which the Creator opens our hearts to "see" things as they really are.

After Van Til, Taylor summons us to recognize the faith behind the facts, i.e., that all the facts presented are always interpreted facts, interpreted either in terms of the sovereign God or in terms of autonomous man (p. 38).

With this in mind, Taylor applies Dooyeweerd's theory of the modal spheres to the problem as the means of reforming biology. It is at this point that some will disagree, but a discussion here of this theory would require at least as much space as Taylor gives it.

However, Taylor is clearly right in requiring that we "make the Word of God alone the great ordering principle of both our theoretical as well as practical activities since God's word alone can redeem and renew our life in its entirety, including the life of scholarship and science" (p. 78). His use of Dooyeweerd represents a denial of the loose views unfortunately too common in this school of thought.

Taylor has been one of the most capable of all Dooyeweerd's followers; his thinking reflects the insights of this school. But he is more than a pupil. Perhaps his greatest contributions will come when his thinking is less derivative and more developed in terms of his own insights and re-examinations.

Briefly, however, the heart of the problem is the question of law. Taylor states very ably that

Law is the boundary line dividing God from the cosmos. God alone is above law; everything else is subject to law. The idea of law can thus never be separated from the idea of the source of law in God's sovereign will and the idea of the subject of law. Law and the subject are therefore correlative terms (p. 42).

Taylor definitely rejects natural law for God's law. But does not the development of the "cosmonomic law-order" in the hands of many members of the school constitute a form of natural law? And is not "common grace" now a variation, in many neo-reformed circles, of the scholastic natural law philosophy?

Taylor rejects all such departures. Whether he can move this cosmonomic philosophy towards a firmly Biblical concept of law remains to be seen.

* * *

Maps of the Ancient Sea Kings. Evidence of Advanced Civilization in the Ice Age, by Charles H. Hapgood. Chilton Books, Philadelphia and New York. 1966. 315 pp. \$14.50.

Reviewed by Rousas J. Rushdoony.*

The data supplied by Dr. Hapgood are beyond the technical competence of this reviewer, but implications of his study require the attention and study of creationists.

Hapgood and his associates began their research with an analysis of the ancient map of Piri Re's, with its knowledge of an ice free Antarctica, its excellent charting of America, and its "detailed and accurate knowledge of the latitudes and longitudes of coastal features throughout a large part of the world." Other ancient maps likewise indicated an amazing knowledge of the world, and an accuracy believed impossible before the invention of the chronometer.

Hapgood's study indicates a warm Antarctica 4000 B. C. (p. 98), "the existence in very ancient times of a worldwide civilization, the mapmakers of which mapped virtually the entire globe with a uniform general level of technology, with similar methods, equal knowledge of mathematics, and probably the same sorts of instruments" (p. 145), cites "the discovery of a computer built in ancient times," found by divers off a Greek island (p. 198), and suggests an "original common language, ancestral to all the groups of languages" (p. 204).

Creationists have reason to believe that Noah and his family brought the technical competence of the doomed world to the post-diluvian era. The Minoans of ancient Crete had flush toilets and a sewage system (see R. W. Hutchinson;

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Prehistoric Crete and Friedrich Matz: *The Art of Crete and Early Greece*), and the closer we get to the flood, the higher the culture. A decline followed an early advance.

Creationists should therefore pursue the leads provided by men like Professor Hapgood. For those who may wonder at Hapgood's credentials, his earlier work, *Earth's Shifting Crust* (1958), carried a foreword by Dr. Albert Einstein.

* * *

Creation—Accident or Design? by Harold G. Coffin. Review and Herald Publishing Association, Washington, D. C. 1969. 512 pp. Illus. \$7.95.

Reviewed by Harold W. Clark.*

The author is well qualified to discuss questions implied by the title of this book. He earned the Ph.D. degree in marine zoology in 1955 from the University of Southern California at Los Angeles. For eight years he taught in the biology department of Walla Walla College in Washington, six years of which he was head of the department and director of the Biological Station at Anacortes.

Since 1964 he has been a member of the Geoscience Research Institute, affiliated with Andrews University at Berrien Springs, Michigan, and he is also Professor of Paleontology, a line in which he has specialized in recent years. His studies have taken him widely over North America and Europe. Besides this book, he has written numerous journal articles, mostly in the field of creationism.

Creation—Accident or Design? was originally planned for use in classes in "Philosophy of Science" or "Science and Religion." The author's objective was to present scientific evidences for literal creation and the Biblical Flood as a universal catastrophe. It is of general interest to anyone seeking the latest information in this field of study.

During preparation of this book, Dr. Coffin solicited the cooperation of several creationists, who contributed chapters on special topics, as follows: Ernest S. Booth, on the Genesis record of the Flood; Robert H. Brown, on radioactive age-dating; Harold W. Clark, on the fossils and the Flood; Ariel A. Roth, on Limitations of the Scientific Method; and Edward E. White, a historical survey of evolution and its conflict with creationism.

In the first section the reader is introduced to scientific aspects of the creation record, and cites Scriptural references to this record. It is a key-note for the whole volume.

The next four sections discuss the Flood, and the geological evidences supporting it, dealing with such topics as the formation of mountains, vulcanism, glaciation, and the nature of the fossil deposits. A number of perplexing problems are discussed.

"The development of the horse," Coffin asserts, "is allegedly one of the most concrete examples of evolution." (p. 193) He then proceeds to show the weakness of the evolutionary argument. "There is . . . a definite question about the validity of *Hyracotherium*, or *Eohippus*, as it is often called."

Another problem that has given much confusion is the "riddle of the frozen mammoths." "Popular literature on mammoths," we read, "has given the impression that vast numbers of intact frozen elephants have been found in the North. This is far from the truth. Not more than three dozen frozen mammoths have been found, and most of them were fragmentary." (p. 202)

Dr. Coffin visited Alaska a few years ago, investigating this problem, and he concluded that the mammoths were not buried by the Flood, nor by any cataclysmic action. Rather, they lived in the northern lands several hundred years after the Flood, and were trapped in bogs or peat of northern meadows. "Peat bogs are noted for the marvelous preservation of plant and animal materials that fall therein." (p. 207) Furthermore, the food contained in the stomachs of these animals was not semi-tropical vegetation, as some writers have claimed, but was composed of plants from northern or alpine habitats.

Prehistoric man is thoroughly discussed, difficulties of interpretation pointed out, and weakness of the evolutionary view of man's origin plainly shown. Whether *Australopithecus* was a group of ape-like creatures, whether they were actually men, and whether degeneracy rather than evolution occurred are considerations that must be taken into account. And as for Neanderthal and Cro-Magnon man, the conclusion is that they are "not a very useful support for evolution, for they are so much like modern human beings." (p. 218)

The discussion of glaciation should be read by both evolutionists and creationists, for both are guilty of gross misunderstanding of the subject. Evidence presented shows clearly that great ice sheets did once cover portions of Europe and northeastern North America; on the other hand, the hundreds of thousands of years assigned to the glacial period are unwarranted. The advent of glaciation is correlated with conditions following the Flood, such as interior basins filled with water and vast amounts of volcanic dust in the air.

The question of age-dating is one that has given creationists much concern. But while it

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must be admitted that it is difficult to prove that the data from the radioactive substances such as uranium do not indicate long periods of time, yet it is suggested that this is not necessarily the only possible answer. "There is need of extensive research by adequately qualified geochemists who recognize the complementary testimony of the book of nature and the written Word," (p. 205)

The chapter on radiocarbon dating is especially illuminating, giving, as it does, much data that can be interpreted in terms of a comparatively short period of time since the Flood rather than the 50,000 or more years so commonly accepted.

A considerable portion of the book is devoted to the problem of speciation. Various methods of change, such as mutations, chromosomal aberrations, etc., are discussed. Darwin's finches and other forms on the Galapagos Islands, honeycreepers of Hawaii, and other examples are given to show how extensive changes have taken place in living types. Creationists admit of such change, for the evidence is unanswerable, but, as Coffin says: "Changes involved in speciation are small; hardly even changes from one species to another. This is microevolution." (p. 333)

On the other hand, he points out that known changes do not explain the origin of major categories. "Evolutionists are eagerly seeking for mechanisms that will provide for macroevolution from one basic type to another, or from a common ancestor." (p. 333) This problem is one on which science offers only very meager information. In spite of the fact that evolutionists face serious difficulties, the author is honest enough to admit that creationists also have their unanswered problems:

The creationist with his belief in a fiat creation, the Flood, and a short earth history, is not without problems. Information regarding speciation rates required in the short span of post-Flood time, radioactive dating results, supposed growth position of plants and animals in sedimentary beds, the stratification of fossils in the earth, *et cetera*, is needed. Unfortunately, very few competent scientists with a creationist orientation have been doing research. (p. 460)

The relation between faith and science is concisely stated in these words:

One faith holds to a theory that permits him to trace his descent "from germs and mollusks and apes," whereas the other entitles him to a part of the genealogy that traces his ancestry back to "Adam, which was the son of God. (p. 463)

A check on the names of the publishers and the colleges mentioned will immediately appraise the reader that this book comes from Seventh-day Adventist sources. This volume was written pri-

marily for Seventh-day Adventist readers and for use in their educational institutions.

Regardless of this fact, non-SDA readers will find this book a refreshing insight into the conservative creationist philosophy, and a sincere and honest attempt to orient scientific data in terms of the Genesis story of creation and the Flood.

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Fossils, Flood and Fire by Harold W. Clark. 1968. Outdoor Pictures, Escondido, California. \$6.00.

Reviewed by Robert F. Koontz.*

Professor Clark taught geology for twenty-five years in the biology department of Pacific Union College, Angwin, California. In pursuit of his work he traveled over most of the USA and Canada.

He was a pupil of George McReady Price and has carried the banner of "Flood Geology" or "Diluvialism." He has published nine books and a filmstrip *Evolution and the Bible* which was listed in *Bible-Science Newsletter*, Jan. 15, 1970. The present book is an enlargement of his book, *The New Diluvialism*, published in 1946 in a small edition, now out of print for a long time.

A noticeable feature all the way through the book is the author's kindness. So many writers on controversial subjects become sharp in criticism of opposing views. While he does not agree with conclusions based on uniformitarian beliefs, he gives geologists a great deal of credit for the facts they have accumulated. He also does not argue with the "validity of the sequence of formations" but equates them to life zones rather than a time sequence.

Several short histories in the first chapters make excellent reference material. Chapter one is a summary of the development of the scientific view through history. In chapters two and three the main events in the rise of modern geology are set forth. Chapter four gives the history of the flood theory of geology. Chapter five treats the flood legends of the ancients. Chapter six explains the idea of ancient life zones instead of consecutive ages, and also contains historical accounts of arguments on this subject among early geologists that are seldom mentioned in modern literature.

A condensed but comprehensive picture of geology over most of the globe is presented in the longest section of the book. The author gives a very clear explanation of how the various formations are correlated with each other and arranged in the overall geological sequence. Atten-

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tion to various phenomena that are hard to explain by uniformitarian principles is included in the general discussion.

His position on man favors the view that there is only one species of human being, whether ancient or modern, and that differences between skeletons have been over emphasized. Other more "primitive" skulls he classified as ape. Mention is made of the fact that a modern type skull called *Homo habilis* by Leakey was found below *Zinjanthropus* in Olduvai Gorge.

All through the book Clark upholds the position that the Genesis flood and subsequent changes resulting from it could have produced the geological features and deposits found on the earth.

Little is said about continental drift and nothing about radioactive dating. He explains the absence of a bibliography on the grounds that to be complete it would be too bulky for this type of book.

This is a good book to have in the library of any creationist.

* * *

Fossils, Flood, and Fire by Harold W. Clark. 1968. Outdoor Pictures, Escondido, California. \$6.60.

Reviewed by Clifford L. Burdick.*

Dr. Clark has been a devoted advocate of "Creationism" all his life and a prolific writer in the fields of biology and geology from the anti-evolutionary point of view. *Fossils, Flood, and Fire* represents his most recent and perhaps one of his best efforts to date. The book is strictly high class, printed on heavy, glossy paper, and profusely illustrated, mainly from photographs which the author and Dr. Ernest Booth have taken.

Dr. Clark begins by outlining the modern development of geological science upon the foundations of uniformity, long ages, and the demonstration of biological evolution through the geologic ages. Then the author tries to show that geologic data can better be explained through a shorter earth age climaxed by catastrophic events, such as the Flood at the time of Noah, with a gradual "tailing off" of tectonic activity for centuries after the Flood. Clark attempts to weave in as much detail in these catastrophic phenomena as possible without delving too deeply in speculation.

Dr. Clark then deals with the geologic eras, periods, and epochs with their characteristic life zones, as identified by their index fossils, some-

what in line with standard historical geological practice, but he argues for short ages. He shows how the coal measures can be explained better by water concentration than by growth *in situ*. He has a very fine chapter on glaciation, which ends with a demonstration of the improbability of the evolution of man from lower forms of life.

Perhaps the review should stop right here, but I feel that one of the purposes of a book review is not merely to praise the work, where praiseworthy, but also to suggest possible variant points of view; not to try to prove the author wrong, but to point out alternative explanations if such exist, that the reader may better form his own opinion. The suggestions to follow are offered from that point of view and not to necessarily say that the author is wrong, for many propositions in geology are subject to more than one explanation.

Some readers might be a bit confused in Dr. Clark's descriptions of historical geology with the physical and biological characteristics of each period. It sounds a bit like orthodox "geological ages" science. For example, on page 91 the author refers to "crustal disturbances, even as early as the Ordovician deposition." The Tectonic upheaval was early in the history of the Paleozoic era, some 500,000,000 years ago by orthodox chronometry, but not by Creationist computations.

I feel that book could be strengthened by the use of references.

On page 34, we read, "Alternating layers are characteristic of Pennsylvanian deposits." My experience would indicate that this phenomenon is not restricted to that period. We find the same alternation of strata in the Permian Kaibab limestone and Supai formation in the Grand Canyon of Arizona, just to mention a couple.

I appreciate Dr. Clark's recognition of Professor Price's contribution to Flood Geology.

On page 55 Dr. Clark states, "By the middle of the century, the validity of the (evolutionary) sequence of formations has been established beyond any serious question." Actually I have yet to find a stratigrapher who can point to any place on earth where the entire geologic column is in evidence; it is a composite column—the Precambrian and Paleozoic from the Grand Canyon for instance, with the Mesozoic from Eastern Arizona and the Tertiary from New Mexico.

There are numerous places in the world where undisturbed strata can be observed that the fossils are not in the standard evolutionary sequence. These discrepancies are usually explained by thrust-faults, where lower, older rocks have been faulted and supposedly have been thrust over younger rocks. A generation or two ago paleontologists were so sure of their evolutionary

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sequence in the rocks that they did not feel it worth the effort to see if the physical evidence matched the fossil evidence. They reasoned in a circle—theoretically the biologists went to the rocks to see if the fossil sequence in the rocks proved evolution; and when at times the rocks did no such thing, they said there must be something wrong with the rocks, such as overthrusts.

There certainly have been numerous overthrusts, but that does not mean that all those so mapped are actual overthrusts. For example Professor Harold Slusher of the University of Texas, at El Paso, and I did some mapping of a fossil sequence in the Empire Mountains in Arizona that had been mapped as an overthrust because Permian fossils in a blue-gray limestone overlay the Cretaceous. Our tests showed conclusively that in that instance overthrusting was a physical impossibility. During the same investigation I showed Professor Slusher two separate cases of actual overthrusts, easily identified by physical criteria.

I see some light in Dr. Clark's ecological explanation of *zonation* to help explain why we so often find Paleozoic formations "at the bottom of the pile," as in the Grand Canyon. Many of the Paleozoic fossils are marine, and during the Flood they would be the first to be buried. However I feel there is a limit to application of *zonation*. The capping stratum in the Grand Canyon is the Permian Kaibab limestone with marine fossil brachiopods. Down near the bottom, in the Cambrian and younger Precambrian we find Conifers.

Angiosperms are considered higher in the evolutionary scale than the gymnosperms, but conifers are found at timberline zone.

The Cetaceans (whales, etc.) are mammals, and, according to Colbert originated in the Tertiary, yet fossil whales have been excavated from the Michigan Paleozoic deposits.

On page 97, Clark describes the mantle as *glassy*. The term glassy refers to a texture rather than mineral composition. Effusive rocks or lava coming quickly to the surface, or under water harden quickly, before having time to crystallize, and form a glassy texture such as the obsidian of Yellowstone Park. On the other hand the rocks down deep within the mantle are denser, believed to be partly peridotite, a highly mafic material.

Dr. Clark places the main extinction of the mammals in the Arctic some time after the Flood. He may be right but, if the earth experienced a second catastrophe comparable to the Flood, I wonder why the Bible does not mention it? Scientists from the University of Alaska and the University of New Mexico have written of frozen muck deposited;

under catastrophic conditions. Mammal remains are for the most part dismembered and disarticulated, even though some fragments yet retain, in their frozen state, portions of ligaments, skin, hair, and flesh. Twisted and torn trees are piled in splintered masses.¹

The New Siberian Islands to the north of Siberia have been found to have many mammal bones. D. Gath Whitley has written, "The soil of these desolate islands is absolutely packed full of the bones of elephants and rhinoceroses in astonishing numbers."² How did the beasts get to the islands? As the flood waters were rising, there possibly was a land bridge connecting the mainland with the islands, which were higher ground, toward which the animals fled.

There must have been a vast amount of mammoths to supply the ivory traders for many centuries. Removal of a possible vapor canopy overhead, plus the cooling effect of precipitation, with subsequent evaporation, with volcanic dust in the upper atmosphere during the flood period seem to some at least the most logical cause and time of the mass extinction just described. It seems doubtful that after the flood the climatic conditions would have been favorable enough to support hungry herbivorous beasts in the arctic. A gradual approach of the ice age would hardly seem to account for the mass destruction of animals and trees.

These suggestions have been offered as possible variant explanations, and we would not wish to be dogmatic as to their validity.

All in all, Dr. Clark did a fine piece of work in writing *Fossils, Flood and Fire*.

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A Symposium on Creation II by Donald W. Patten and Others. 1970. Baker Book House, Grand Rapids, Michigan. Paperback. 151 pp. \$1.95.

Reviewed by Charles McDowell.*

A Symposium on Creation II is a collection of well-written essays which jointly undergird the dual concepts of creation and catastrophism. Six authors present materials which largely probe weak spots of the structure of evolution and enhance the view of creation. For example, Dr.

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Donald E. Chittick presents evidence that radiometric means of dating fossils and the rocks of the earth do not show any consistency nor do they necessarily show that the earth is of great antiquity. Stuart E. Nevins shows the superiority of a single flood catastrophe over evolution to explain the basic problems of geology.

In one of the most lucid and interesting essays, C. E. Allan Turner pastes the label of mythology over the desperate efforts of evolutionists to allow fiction to evolve into fact. He identifies alleged evidences and alleged laws of evolution as the work of modern mythographers. We live in an age of myth, and Turner's article clearly shows the contribution of evolutionists to the irrational.

Dr. R. Clyde McCone presents an exposition of the genealogical records of Genesis which alerts us to a principle of historiography which is necessary to understand sacred history. Time in the Genesis records is associated only with the main line of witnesses which uphold the proclamation of the name of the Lord. Time, then to God, is related to the redemptive process alone.

In the last article of the series, W. Hewitt Tier does not use the written record but only the catalog of nature, and concludes that the only reasonable explanation of nature involves a Creator. Tier is not concerned alone about the grandeur of space but the coordinated functions of the sun, the moon and the earth as they unitedly support a delicately balanced possibility for life on the earth. Regarding the behavior of animals, Tier directly shows instance after instance of instinctive behavior can point only to a Creator and scarcely to evolution.

The lead article of the symposium entitled, "The Pre-Flood Greenhouse Effect," is written by Donald W. Patten, the editor. Patten's purpose is to establish a model of the pre-flood atmosphere and illustrate how this model is verified by evidence from geology, the Scriptures, and how aspects of the model could have affected plant, animal, and human life, and radio carbon dating. I will devote the major emphasis of this review to this article because of the importance of the model.

Although Patten is an imaginative intellectual pioneer and, in his earlier writings, has given us extremely important bases for mountain building and continental glaciation, I am in basic disagreement about the pre-flood greenhouse effect or the antediluvian canopy.

This is not to say I dispute that the atmosphere affected the length of life of men on earth. I would support here his understanding of the effect that ice from space had in causing the flood of Noah: "The source of the rain was not atmospheric condensation primarily, but rather low latitude slop-over of the ice dump" (p. 25).

And who can resist the air tight logic with which he establishes an inner canopy, by which he postulates that the earth is uniformly heated, and an outer canopy by which the earth is shielded from dangerous short wave solar radiation? The model is ideal. But I do not believe the Scriptures indicate an antediluvian canopy.

My own understanding of the firmament of Genesis I is that it is the physical location of luminaries consisting of a great one and a lesser one plus stars (verses 14-18). *Notice that the sun and the moon are not designated as the luminaries and that the luminaries are for seasons.* Seasons are incomprehensible to those who support an antediluvian canopy.

Regarding *raqia*, the Hebrew word for firmament, I note that equivalent forms are found in several other languages including English. Words which began with *r* presented special linguistic problems for a number of ancient peoples but noticeably the Greeks. In Greek, save for the Aeolic dialect, initial *r* was rendered *rh*; thus our many familiar English words such as rhapsody, rhetoric, rheumatic, rhyme, etc. To indicate the regular *r* the Greeks added preformative letters before an initial *r*.

A common preformative was *t*. Now by this principle we recognize *raqia* in other languages: (1) Greek *trochiá* = "wheel track" or "round of a wheel" and *trochós* = "a wheel" or other round objects; (2) Latin *torqueo* = "wreath", "ring", and "collar" but also "to twist", "turn", or "rotate"; (3) Sanscrit *tarkus* which is parallel to *torqueo*; and finally (4) English torque has the meanings to twist, turn or rotate.

Is it not quite conceivable then that the firmament was a ring, a ring made of water, frozen of course, like the orbiting rings of Saturn? It was the ring upon which the Lord sat and scanned the earth (Isaiah 40:22). The ring or circle made up the heavens which he *arched out* (not stretched) as a curtain. Further exposition of such concepts are, of course, not appropriate here and I hope to soon publish a detailed analysis of the Hebrew firmament with both its geological and historical significance.

I have made these brief remarks in order to show why I take exception to *any* canopy theory even though I am thoroughly impressed by Patten's exceptional ability to marshal facts to show logically why it may have existed. Indeed, I am indebted to Patten, for his book, *The Biblical Flood and the Ice Epoch* (Pacific Meridian Publishing Co., Seattle, Washington, 1966), inspired me to re-read a wide array of Old Testament passages in the Hebrew on the subject with close scrutiny. Patten perceived that space was a common source for the ice for the continental ice sheets and the water for a global downpour. The

number of times that this is confirmed by the Old Testament is indeed impressive.

This reviewer, so far as he is able to assess, believes each of the writers is competent in his field and abreast of recent developments. Moreover, Patten makes an exceptionally fine editor in view of his abilities as a generalist over and above his speciality of geography. His recent writings exhibit keen perspectives in several fields of which we can mention here astronomy, biology, geography, geology, and history.

Nevertheless, I would hope that future *Creation* essays would be previewed by a specialist in Biblical texts inasmuch as the several writers appear to base their results upon the King James Version. For example, as I understand Dr. McCone's use of Hebrews 11:3, namely "the worlds were framed" rather than "the ages were planned," we are bound to arrive at separate conclusions (see p. 114). Space limitations here preclude several other examples upon which I could elaborate.

I believe the great value of *Creation II* rests upon its potential contribution to theology. Patten states, "Theologians need to recognize their great lack of cosmological thought" (p. 41, my italics). By being linked to catastrophism, the *Creation* series has thus far provided a basis for a veritable renaissance in theological thought in conservative schools.

Little do many theologians therein realize how the insidious doctrine of uniformitarianism has permeated their thoughts and writings and robbed them of a really Biblical perspective. Not the least of the studies which should be affected by catastrophism is prophecy. An understanding of eschatological events is necessarily related to future catastrophism. But other theological studies should likewise be affected.

In noting what I consider the most important value of *Creation II*, I do not mean to disallow its values otherwise. It is an important contribution to the fields of meteorology, chemistry, biology, geology, and history. Specialists in any of these studies will find much intellectual food for thoughtful reflection.

* * *

Rock Strata and the Bible Record, Edited by P. A. Zimmerman, 1970. Concordia Publishing House, St. Louis, Missouri. 209 pp. \$5.95.

Reviewed by Duane T. Gish.*

The book opens with the editor's statement in the Preface, "This is a book written for the man who in the last third of the 20th century continues to be concerned about the relationship of

the truths of the Bible to the truths of science." Some of the problems discussed are: the relationship of the theory of evolution to the Genesis account; deductions from the fossil record; the validity of geologists' conclusions concerning the ages of rock strata; fossil evidence of human origins and the Biblical record; literary genre of the creation account, of the fall of man, and of the Flood; and geological evidence related to the Flood.

This book is the work of a seven man study committee, appointed by The Lutheran Church-Missouri Synod, to probe the relationship of science and the Bible. Chapters of the book constitute a summary of committee discussions concerning the more prominent issues.

Members of the committee were: Kenneth L. Currie, Ph.D., Geological Survey of Canada; John W. Klotz, B.D., Ph.D., Professor of Biology, Concordia Senior College, Fort Wayne, Indiana; Fred Kramer, D.D., Professor of Theology, Concordia Theological Seminary, Springfield, Illinois; Robert D. Preus, Ph.D., Professor of Theology, Concordia Seminary, St. Louis, Missouri; Wilbert H. Rusch, M.S., Sc.S., Professor of Biology, Concordia Lutheran Junior College, Ann Arbor, Michigan; Paul C. Tychsen, Ph.D., Professor of Geology, Wisconsin State University, Superior, Wisconsin; and Paul A. Zimmerman, B.D., Ph.D., President, Concordia Lutheran Junior College, Ann Arbor, Michigan.

It is stated that while each author is responsible for his own material, in the main, the answers do represent the consensus of the scientists and theologians who probed these questions. In his Epilogue, the editor states that study committee members engaged in long and repeated dialogue, that they hurled conflicting ideas like thunderbolts, and wrestled intellectually with no holds barred.

As the book appears, however, there is little evidence of conflict, and it is apparent that what is presented more closely represents a consensus than actually existed. The editor did state that every member of the committee agreed that the modern Christian can be thoroughly faithful to Christ and to the Holy Scripture as God's verbally inspired, inerrant Word, without compromising his position as a knowledgeable, competent scientist.

Dr. Preus authored a chapter entitled, "Guiding Theological Principles." He sets forth the basic hermeneutical presuppositions of the Lutheran Confessions and procedures for understanding the Scriptures. What is presented here is indeed very sound. Some of the fundamental premises accepted are that the Scriptures are the Word of God, the Holy Spirit is the True Interpreter of Scripture, and that the Scriptures are

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the best commentary on the Scriptures. The Genesis account is accepted as a plain historical descriptive account. The creation story and the account of Adam and Eve and their Fall are accepted as historical facts. No hidden, mystical, or allegorical meanings or genres are sought.

Dr. Klotz's very worthwhile contribution was an essay on "Assumptions in Science and Paleontology." Klotz concerns himself particularly with assumptions that are made relative to the theory of evolution. He states, "It is clear that much of the structure of modern evolutionary paleontology rests upon assumptions which are by their very nature not capable of verification."

These assumptions include the doctrine of uniformitarianism; that absence of a fossil form from rocks of a given geological period is evidence that the organism did not exist at the period of time when the strata were laid down; that the fossil record is representative and that a representative sample of the organisms that existed during a given geological period has been preserved; and that similarity is a function of descent and that degree of similarity is a measure of the closeness of the common ancestor.

Klotz points out that catastrophism is being reintroduced today in modern form, the pendulum having swung away from strict uniformitarianism. In regard to the second assumption listed above, Klotz mentions the discovery of a number of "living fossils," some of which disappeared supposedly from the fossil record several hundred million years ago.

With respect to the alleged relationship of similarity to descent, Klotz points out that here the evolutionist wants to eat his cake and have it too. Where similarities fit within his preconceived ideas of relationships, such similarities are taken as proof of these relationships. Where they do not, as with the duck-billed platypus, a mammal, and the Anatidae (ducks), similarities are not taken as proof of relationships but are said to be due to convergent evolution.

Dr. Currie contributed three chapters on the subjects of "Uniformity, Uniformitarianism, and the Foundations of Science," "Scientific Methods of Determining the Age of the Earth," and "Overview of the Geological Record." In these chapters Currie has included a good review of scientific principles and practices; the history of geology; and a good, though necessarily brief, review of the principles of historical geology. Currie is cautious and careful in his appraisals, but being a product of the system, or a member of the "establishment," his conclusions are, of course, in general agreement with those of other uniformitarian geologists.

Currie points out that geologists have always had available a wealth of observational facts but

that geology has been retarded by the meager theoretical frame on which all of this data must be hung. Three distinct models are in use today: (1) those based on an observed analogue, (2) those based on an extrapolated analogue, and (3) those based on scale models. Extrapolation and laboratory evidence is gaining greater acceptance in geology today, and Currie rightly emphasizes that if one accepts the evidence that geologic time extends over billions of years, proper extrapolations cannot be made over this period from contemporary evidence.

With reference to laboratory evidence, the reviewer has recently encountered the extreme in which a geologist stated that perhaps the soundest evidence relative to the atmosphere of the primitive earth might be gained from laboratory experiments allegedly related to the origin of life! That Currie is at ease with current geological thinking is evidenced by his statement, "The conceptual frame of geology is firmly established, and by close adherence to the actuality principle we can be assured that it will not shift very greatly." (p. 50)

Currie, after discussing the various dating methods that have been used, states,

In conclusion, the Phanerozoic time scale (the time since the appearance of abundant fossils) rests on (a) radiometric age dating, (b) stratigraphic dating, a relative scale but one of great accuracy, (c) geological "clocks" (sediment accumulation and the rest), and (d) astrophysical theory. Agreement between these four is sufficiently good to justify the conclusion that it is extremely unlikely that the time scale will change by more than 10 percent," (p. 85)

But one may ask, what is the basis for this agreement? Stratigraphic dating is asserted to be of great accuracy, but doesn't stratigraphic dating rest heavily upon evolutionary assumptions?

As far as geological clocks are concerned, Currie cites application of these "clocks" by a number of investigators which supports the data derived from radioactive age dating methods. He also mentions, however, several computations using geological clocks which resulted in gross error, according to present day thinking. In other words, the citation of such data in support of conclusions based on radioactive methods is highly subjective.

And the use of astrophysical theory as support for any dating method would be of no more value than the theory itself, and here there is much room for question.

Currie seems quite satisfied that radioactive dating methods give reliable estimates for the various geological ages and the age of the earth.

He mentions few, if any, of the problems concerning radioactive dating methods brought to our attention, for instance, by Dr. Melvin Cook in the pages of past issues of this *Quarterly*.

Currie's essay, "Overview of the Geological Record," is a very worthwhile contribution. After a brief account of certain geological concepts, he mentions a number of anomalies, or data which defy explanation by currently accepted geological thinking, while emphasizing that such anomalies are relatively rare and susceptible to solution by introduction of new concepts.

Currie states that the case for historical geology rests in the fact that more data can be explained within this framework than any other that has been suggested. He supports the idea that the concept of "flood geology" deserves serious reappraisal, if for no other reason, than the remarks once made by N. L. Bowen, that any geological concept which appears completely dead should be periodically reexamined for any sign of life.

Currie mentions several assumptions which served as the basis for rejecting the concept of "flood geology," all of which, he states, have been breaking down in recent years. He closes this chapter by stating, "The Biblical account of the flood must therefore be carefully examined to determine its historical content."

Dr. Tychsen in his chapter, " 'Firsts' in the Geological Records," gives an accounting of a number of surprising finds in the fossil record which have caused geologists to realize that certain plants and animals existed in geological periods prior to those previously supposed. Especially startling to evolutionists has been the discovery, both from evidence of microspores and fragments of woody cells, of the existence of vascular (woody) plants in Cambrian deposits.

In mentioning the discovery of new "firsts" in the geological record, Tychsen states that the change may well be one in which the amount of time between successive firsts is appreciably shortened. Later on he says, "... if the amount of time between the successive 'firsts' is significantly reduced, this may well suggest the situation to be expected on the basis of the Genesis account of creation interpreted as a true account of the origin of life on this planet."

In his essay, "Geology and the Flood," Tychsen presents a summary of geological evidence related to the Flood. His conclusions are that although geologic research has discovered records of many great floods and that there is evidence of an unusual rise in the world's water level 6000 years ago, it is not possible to identify any of these phenomena with Noah's flood. Since, according to Tychsen, geology cannot provide the answer one way or the other, he believes that

the question of the Flood should remain the concern of theologians only.

Prof. Kramer contributes three excellent chapters on "A Critical Evaluation of the Chronology of Usher," "The Biblical Account of Creation," and "The Biblical Account of the Flood." Kramer thoroughly documents from both the Old and New Testaments the fact that the Biblical account of creation and the Fall is given as history, and therefore must be accepted as historical facts by the Bible-believer. In his chapter on the Flood, Kramer shows that the Bible presents the Flood as an historical event which was worldwide in nature.

Prof. Rusch's chapter, "Human Fossils," was the highlight of the book for this reviewer. Rusch begins by pointing out that prejudices and preconceived ideas of evolutionists with regard to the origin of man have led to serious weaknesses in interpretation of the data. This is followed by a comparison of the anatomical, mental and cultural differences among the primates, contrasting man to the other primates.

Rusch presents an excellent and concise review of the fossil record as it pertains to man and his alleged ancestors. In summary, Rusch stated that, humanoid skeletons so far found can be assigned satisfactorily to two genera (*Homo* and *Australopithecus*), four species and two subspecies. Of the four species, *Homo sapiens* and *Homo erectus* existed simultaneously, as did *Australopithecus robustus* and *Australopithecus africanus*. Preliminary evidence indicates that a species of *Homo* coexisted with *Australopithecus*, and if this is true, then the genus *Homo* is as old as the oldest known humanoid.

Earlier Rusch had quoted Montagu as saying, "... the Australopithecines show too many specialized and apelike characters to be either the direct ancestors of man or of the line that led to man." These facts contradict the idea that man's ancestry can be traced through the Australopithecines, and presently there seems to be no other candidates for his progenitors.

Rusch states that the differentiation of species within *Homo* is dubious since there are living men with most or all the skeletal features of *Homo erectus*. He concludes,

The fossil evidence supports the conclusion that species of *Homo* similar or identical to *homo sapiens* have existed since the initial appearance of humanoid fossils in the geological record. Therefore, it may be concluded that fossil evidence offers no support for any schemes of the evolutionary descent of man, either within hominid genera or from primate ancestors.

Biblical Cosmology and Modern Science by Henry M. Morris. 1970. Baker Book House, Grand Rapids, Michigan. 146 pp. \$2.50.

Reviewed by Charles A. Clough.*

In the Fall of 1967, Dallas Theological Seminary invited Dr. Morris, as the chief architect behind much of the creationist revival in the 1960's, to be Guest Lecturer for the famous W. H. Griffith Thomas Memorial Lectures. This latest volume from Professor Morris includes these four lectures, a revised article on Genesis 1-11 chronology previously published in *Biblical Viewpoint* (the journal of the Bob Jones School of Religion), two revised articles published in the *Creation Research Society Quarterly* on population statistics and sedimentation processes (October 1966 and December 1967 issues, respectively), and a final essay written for this volume especially on thermodynamics and Psalm 19.

Morris resumes battle with those who try to synthesize the Bible and modern theories of the origin and meaning of the universe. Drawing upon II Peter 3 for his framework, he again sets forth the broad overall outlines of a truly Biblical cosmology clearer and more concisely than in his now classic book, *The Genesis Flood*, co-authored with Dr. John C. Whitcomb, nearly a decade ago. Details of specific problems are sacrificed to provide emphasis upon the foundational issues.

If Morris has been criticized for not taking into account the history of geology,¹ his critics can be criticized for not taking into account the trail of disastrous theological compromises that Christians have made by rejecting the plain outline of cosmology given in Scripture:

One hesitates even to consider the unfortunate type of exegesis which treats Genesis 1-11 as allegorical or mythical rather than historical. Nevertheless there seem to be an increasing number of evangelical scholars today who are advocating the notion that this section is only a great hymn, or liturgy, or poem, or saga—anything except real history! They seem unaware or unconcerned that this type of interpretation inevitably undermines all the rest of Scripture.²

This was shown recently when an evangelical geologist attacked Morris' revived deluge geology only to expose his own neo-orthodoxy. The Word of God, to this critic, apparently is something unconnected to space-time history:

It is a fundamental and extremely dangerous mistake to think that our belief in the reliable Word of God could ever be based on

or strengthened by so-called scientific reasoning.³

One would wonder, given this critic's approach, how Scripture is to be "strengthened." Certainly faith "in the reliable Word of God" is strengthened by observational reports and historical data as shown in such Bible passages as Deuteronomy 4:32-39; Luke 1:1-4; John 20:30f; Acts 1:1-3; and I Corinthians 15:12-19. These passages quite evidently were written to show that true belief is intimately connected to real historical acts and is not just "faith in faith" or "faith in myth."

Twenty-three conflicts between Genesis 1-2 and geological ages as presently proposed are noted to refute evangelical attempts at synthesis. Also, effectively refuted is the use of the Gap Theory as a harmonizing device with geology although left untreated are the problems of the immaterial angelic sphere and Satan's Fall together with passages as Job 38:4-11; Psalm 104:6-9; Proverbs 3:20; 8:22-31, and Jeremiah 5:22.

Morris declines to comment in this book on the growing debate over the existence and extent of other catastrophes besides the Flood as possibly hinted in Genesis 10:25, the Exodus and Hezekiah's Sun dial incidents.⁴

To sum up: This book will be a tremendous help for the beginning student to "get his feet wet" in the creationist position as well as for the veteran researcher in reminding him of the overall picture.

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- ²Morris, Henry M. 1970. *Biblical Cosmology and Modern Science*. Baker Book House, Grand Rapids, Michigan, page 57.
- ³van de Fliert, *Op. cit.*, p. 69.
- ⁴See, for example, Morris' remarks in March, 1970, *Creation Research Society Quarterly*, 6 (No. 4):160; Dr. Howe's note in Northrup, Bernard E. December, 1969. The Sisquoc diatomite fossil beds. *Creation Research Society Quarterly*, 6 (No. 3):135; and Clark, Harold W. 1968. Fossils, flood and fire. *Outdoor Pictures*, Escondido, California, pp. 41-3.

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Man's Origin, Man's Destiny by A. E. Wilder-Smith. 1968. Harold Shaw Publishers, Wheaton, Illinois. 320 pages. \$5.95.

Reviewed by Walter E. Lammerts.*

Here is a most unusual book, in that it not only effectively shows the many flaws in evolutionary concepts, but discusses various aspects of creation also. According to evolutionary principles

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man is nothing more than a highly intelligent animal. But according to Biblical revelation man was specially created, though as a being much superior to what he is today. The third mediating view of certain Christians tries to combine the two points of view by claiming that Darwinism is God's creative method.

Evolutionists postulate a continual change to complexity, all forms of life being genetically related. These forms are derived from the simple so called "primitive" cell formed by some type of spontaneous generation. Chance mutations which occasionally give the possessor an advantage over those not having them enable it to survive in the struggle for existence postulated by Darwinists.

The fact that these helpful mutations have simply not been found is ignored in the presentation of the evolutionary picture. The idea of evolution without a struggle for existence would be impossible according to modern biological thought. Millions of years are considered necessary since evolution is postulated as taking place very slowly.

By contrast the Bible teaches a relative constancy of species since they are commanded to reproduce only after their kind. Also by the clear example of the races of mankind all coming from Adam and Eve, the Bible teaches that species do vary considerably though within limits.

Wilder-Smith examines the ideas of certain theistic evolutionists in considerable detail. Thus Von Huene claims that God selected Adam as a child from among the pre-adamic race and breathed the breath of an eternal spirit into him. Just where Eve came from is not made clear, and the dust of the ground from which the Bible says Adam was made becomes a symbolical equivalent of this presumed pre-Adamic race. Various ideas such as the one that the seven creation days are seven ages, and the Gap theory simply do not harmonize either with science or the Bible. He shows that uniformitarianism is hardly consistent with the words of the apostle Peter who predicts a catastrophic fiery end to the heavens and the earth (II Peter 3:7-10).

He then raises the question as to whether evolution is really scientifically sound. Thus according to the theory similarities are due to descent from a common ancestry.

The octopus eye and the human eye are remarkably similar, yet no one would claim the octopus is closely related to man. Also the eyes are very distinctive in their embryological development. Why then are these complex organs of sight so remarkably similar?

Creationists would answer that they were so designed because the visual needs of both complex organisms. Evolutionists must rely on chance

mutation to bring about these remarkably similar eyes in two distinct creatures having habitats as different as can be imagined!

Various marsupial "mice," "bears," and "wolves" closely resemble their mammalian counterparts. Yet no biologist would claim this is due to close genetic relationship. Evolutionists claim this "convergence" is due to the various habitats "demanding" a "wolf," "bear," or "mouse," so mutations and natural selection brought forth these organisms in unrelated stocks.

Again how should evolution, if it is a purely materialistic cause know what is needed by a habitat? May not the similarities between the Anthropoid apes and man be explained on the basis that one master planned them both?

Wilder-Smith then goes into a detailed presentation of the second law of thermodynamics or increase in entropy. The amount of unavailable energy in the universe is ever increasing. Order tends to disintegrate into disorder or randomness and chaos during the passage of time. Yet evolutionists assume that non-living carbon, hydrogen, nitrogen, oxygen and other atoms, as they "fluttered" through the ages of time, slowly organized themselves into the DNA systems, proteins, carbohydrates, fats and other complex chemicals of the living organism.

Though the chance of forming stable amino acids is good, the chances of forming polypeptides is much less, while the chances of random formation of a protein molecule capable of functioning as an enzyme is negligible. As Harold F. Blum says, "The spontaneous formation of a polypeptide of the size of the smallest known proteins seems beyond all probability." He hopes that we will discover ways and processes which would explain how nature overcame this otherwise insuperable problem without invoking extra-material interference.

The creationist believes that God synthesized non-living matter into living organisms and thus provided the motors capable of extracting enough energy from their environment to maintain and reproduce themselves.

Long periods of time are supposed to increase the chances of forming the needed complex proteins. But actually the longer the atoms or resulting molecules are exposed to random forces, the wider will become their random distribution and the fewer chances of forming an ordered protein or nucleic acid molecule out of non-living randomly occurring molecules. Solar energy, often appealed to by evolutionists, simply is not available to non-living matter. A complex metabolic motor called chlorophyll is needed, far too complex to have ever arisen by chance from non-living matter.

Different laws are now in operation than at creation. Today everything is subject to decay and the entropy in the total cosmos is increasing. We can study and accurately measure this phenomenon. We know that the less the entropy or greater the complexity of an object, the greater is the creative genius of the mind or spirit behind it.

One of the most unusual features of this book is that Wilder-Smith comes to grips with such questions as how Jesus Christ as Creator would have gone about His creative work, insofar as our finite minds can grasp creation at all.

Does it seem likely that One who thus prized and lived out meekness would build His very creation using a tool which may completely deny this characteristic? Natural selection, involving the merciless extinction of the weak and the meek or unfitted at the expense of the strong, fit and selfish, does not seem to point to a merciful and meek Creator. How could he violate all his personal principles of meekness and poverty of spirit in making use of a ruthless struggle for existence as his own creative method?

This question asked by Wilder-Smith is indeed most pertinent.

Also consider the basic Darwinian concept of chance as the prime mover in life. Surely chance does not and cannot exist in any divine omniscience. Equally incongruous is the matter of the huge time spans which are so necessary for evolution. But God is eternal and absolutely independent of time, so how can we bind Him to dependence on time for creation as we do by postulating evolution as His mode of creation?

In answer to the objection that God used destructive methods in achieving victory for Israel, our answer is that here judgment of the sin of these peoples was involved. Also in regard to Israel disciplinary measures were necessary since they repeatedly sinned grievously. But in the original creation there was neither sin nor reason to discipline the created beings. The struggle for existence today among living organisms is the result of sin entering a perfect creation and is not the method of bringing that creation into existence.

Wilder-Smith makes several most important observations in discussing God's creation as showing the attributes of His character. Thus we believe that God is infinite and it looks as if the universe bears . . . the depths of infinity, for the deeper we search into atoms and sub-atomic particles and even life itself, the more we remark that its secrets go on and on. The deeper we dig into the secrets of our own cells, nerve fibres, muscle fibres—indeed the ego itself—the deeper we find we can dig.

Again we believe God is omniscient and "chance does not and cannot exist in divine omniscience." Our study of physics and chemistry shows that chemical reactions for instance are completely predictable. In the realm of atomic energy we as finite beings do not know which atom in a million atoms will be the next one to decompose. So we treat the matter statistically and speak of the "chance" that any given atom will explode. But God, since He is omniscient, must know which atom is next on the list for explosion.

The consequences of Darwin's doctrine of the struggle for existence leading to better adapted and more complex creatures, have been very bad as regards the world of politics. Darwinism is not only the State doctrine of the communists but was also that of the National Socialists and Fascists. Anything that leads to struggle, and therefore to selection in struggle, is to be welcomed.

Intellectuals among the Darwinists hotly deny this conclusion although their theory leads patently and logically directly to it. But certainly men like Hitler, Mussolini, Karl Marx, Lenin, Stalin, and Castro have drawn this conclusion and acted accordingly.

In our own society we note the effect of Darwinism taught in universities and colleges. Young people taught the doctrine rapidly draw their own conclusions, declare war on all authority of their elders, and are easily deluded by extremists to use force. Riots like those in Watts in 1965 and Detroit in 1967 could easily be provoked on this basis of unrest.

Since man is said to be only an intelligent animal, why should not those in the prime of life be free to use their sexual instincts as they wish? So free love is proclaimed and practiced. The consequences are unwanted babies, broken lives, syphilis and gonorrhea, and guilt complexes; anything but the satisfaction and promised delight which they as animals are supposed to reap. As Wilder-Smith concludes the reason simply is that man is *not* a mere intelligent animal.

To me the most interesting part of Wilder-Smith's book is his discussion of what the world must have been like before the fall of man. Many Christians give no thought to this; yet it is most important since all of Scripture both in the Old and New Testaments solemnly promise a return to these conditions for all of nature either at or after the second coming of Christ.

Before the fall Adam and Eve and all animals even creeping things were vegetarians (Gen. 1:29-30). This means that the metabolism of our present carnivores and omnivores, as well as their dental and intestinal anatomy and biochemistry must have been vastly changed since the fall of man.

Some hint of this is given as regards the serpent, which was condemned to crawl on its belly, thus losing its limbs. We should note that it was cursed "above every beast of the field" which here means "more than." The paradise of God was not restricted to Eden alone but was world wide. Hence the effects of the fall as regards changes in the plant and animal kingdom were world wide.

Only after the Flood did animals begin to fear man (Gen. 9:1-5). This was because animals *were not eaten by man even after the fall*. Permission to eat flesh was not given until Noah's time. The statement that Abel was a keeper of sheep and sacrificed them to the Lord, would seem to be exceptional. At least the sacrifice of animals was not general enough as regards the kinds sacrificed, or the number, to have caused fear of man among animals until after the flood.

One of the changes induced by the fall of man was that the whole reproductive process was speeded up. This was necessary because death now required replacement. Man still had the commission to be fruitful, multiply, and replenish the earth, but he had to do so in spite of death. Hence reproduction was greatly increased. Presumably had man not sinned, reproduction would have progressively *decreased* as mankind spread more and more over the face of the earth.

If the consumption of flesh had been permitted in paradise, death would have been introduced thereby. But the death of animals was first introduced after paradise was lost, not to provide food, but as a source of clothing and a sacrifice for sin (Gen. 3:21). Since no animal before the fall of man feared being made a meal of by Adam or by any other animal, there was automatically quite a different relationship than at present between man and animals and between animal and animal.

The peace of paradise died slowly and the consequences of the fall were progressive. At first Cain and his offspring were exceptional, but it should be noted that by the time of the Flood

the world was filled with violence.

It is obvious that Scriptures view the death of a plant quite differently than that of an animal. Actually the plant to be eaten may have been only leaves, grass blades, stems, fruits and seeds. Whole plants may not have been involved. We must remember that before the fall nature was a paradise where no pain, death, decay, aging, carnivores or omnivores were known.

As Wilder-Smith says we cannot conceive of exactly how such a paradisiacal nature functioned nor imagine its beauty and perfection, since even in our thinking we are dominated by the second law of thermodynamics. Thus as a reviewer it is hard for me to understand how something as ephemeral as a butterfly could exist forever. Certainly we can be sure there was no natural selection or struggle for existence in paradise.

Wilder-Smith also gives a very adequate discussion of the critique of evolution by four mathematicians: Murray Eden, S. M. Ulam, V. Weisskopf, and M. P. Schutzenberger (See *Mathematical Challenges to the Neo-Darwinian Interpretation of Evolution*. Wistar Institute Press, Philadelphia, Pennsylvania). Though the argument for creation from design in nature has not been reinstated by the mathematicians, the main grounds on which the Darwinists rejected the arguments from design have evaporated.

His discussion of the flaws in radioactivity dating and determination of the age of the fossils, especially fossil man, is excellent also. He goes quite thoroughly into the rather obvious fact that any creation must have the appearance of age, showing how this would affect the validity of radioactivity dating.

Though some Christians will not accept Wilder-Smith's concept of what the new heavens and earth will be like, or may differ from him in other matters, this book deserves wide reading on the part of those who wish to be informed in the field of creation versus evolution. It is indeed a must book for the creationist's library.

ARTICLE REVIEWS

"Evolution and Some Philosophers" by W. R. Thompson (in) *Me'langes à la Mémoire de Charles de Koninck*. Edited by Robert Lapron. Les Presses de l'Université Laval, 1968. (pp. 363-378).

Reviewed by John N. Moore.*

According to Dr. Thompson, who is a Fellow of the Royal Society of Canada, many Christians have been influenced positively toward "the evolutionary band-wagon" because of the evolutionary philosophy of the Jesuit, Teilhard de

Chardin. Thompson holds that the numerous writings on evolutionism by de Chardin are "at present exercising an immense seduction."

Thompson positions de Chardin in company with Henri Bergson and G. G. Simpson as a proponent of the vision of evolution. Thus, he finds it necessary to evaluate the work of de Chardin from a scientific point of view,

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because a number of theologians and philosophers who have subjected Teilhard's philosophy and theology to devastating criticism, show that they are intimidated by his scientific achievements, which have been inflated by his admirers to legendary proportions. Too often, these critics of theological and philosophical positions leave intact the scientific "vision" on which Teilhard claimed to base them. They do not ask whether the "vision is valid, nor do they enquire as to the connection between it and the conclusions Teilhard claimed to draw from it and yet, as I have said, there is really nothing in Teilhard's own purely palaeontological work that substantiates the vision. (p. 368)

As Thompson points out:

Simpson concedes that Teilhard produced one or two monographs still basic in their fields but his palaeontological contributions do not seem to be of outstanding importance. "He achieved," said the Nobel prizeman P. B. Medawar (in *Mind*, 1961), "a modest proficiency" . . . "in an intellectually unexact-ing kind of science." (p. 368)

By means of this article Thompson provides his readers "a few of the insoluble difficulties into which the evolutionary obsession of Teilhard has led him and the gullible disciples captured by his revivalist oratory."

Thompson introduces these difficulties by noting, "Teilhard was passionately interested in the origin of man." He points out some characteristically unscientific reasoning by Teilhard in an early essay of 1923:

When, says Teilhard, an audience unfamiliar with the natural sciences hears a lecture on human palaeontology and finally realizes on what inadequate fragments a story has been constructed, it is astonished. But this astonishment, he explains, is unjustified, because we know positively what the course of evolution has been in the rest of the organic world and, knowing this, we can say,—“without any absolutely sensational discoveries in prehistory”—what the palaeontology of human origins *must have been*. This “generalisation”—which of course crumbles to ruins under the impact of the facts,—is the basis of Teilhard's “vision.” (p. 369)

Thompson also found expression of the de Chardin “fanatical obsession” for evolution in a 1921 article and noted, “Chardin asserted that evolution is not a hypothesis but is simply an application to the case of life of a law which conditions all our knowledge of the perceptible world.”

The role of this obsession is examined next by Thompson with regard to the case of Piltdown man with which Teilhard was associated in as

much as he found some of the material used to reconstruct what some have called “The Earliest Englishman.” After recalling for the reader conclusive evidence for deliberate imposture regarding the real origin of so-called Piltdown man, Thompson writes:

Thus the effect of the Piltdown imposture was to provide evidence of the descent of man from ape-like animals; and it is therefore comparable to the suppression of evidence by E. Dubois in connection with *Pithecanthropus*; or the alteration of figures of vertebrate embryos by Haeckel. In an article by a Correspondent of the British Museum in the London Times, for November 21, 1953, it was suggested that the motive was a desire for fame; but a much more likely motive is the obsession of a man for whom evolution is a religion—something which cannot be doubted—so that the type of proof provided by Piltdown man *must* exist. In these circumstances, a little tinkering with the facts is at most, only a venial sin: the end justifies the means. For the success of the plan, the forger must of course remain anonymous, but as the forgery is to appear, not as his work, but as the work of nature, this anonymity is not a hardship but rather a source of deep inner satisfaction. (pp. 370-371)

Thompson offers his own comments after he mentions suspicions of others published in 1964 about de Chardin's connection with the Piltdown affair:

It appears to me that it would be difficult to find even among the most enthusiastic evolutionists, a person more indifferent to factual observation, when it traversed his cherished ideas, than Teilhard de Chardin. In regard to his honesty it should be remembered that the Society to which Teilhard belonged was long known for its support of Papal authority and that the vows of obedience of its members are particularly rigorous. Teilhard took these vows. Later, the scientific education he received in the University of Paris, a natural bent for pseudo-scientific mysticism and association with evolutionists developed in him the conviction that he was called to lead the Catholic church into a new faith based on scientific evolutionism. When he began to spread these views and they became known to the Roman authorities the professional career that had opened for him in the Catholic Institute in Paris was terminated; all his attempts to obtain an imprimatur for anything but his technical scientific essays were futile.

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It was of course obvious to him that he

was preaching a religion very different from the Catholic faith; but no admonition induced him to deviate an inch from his course. By leaving his manuscripts to his Secretary—a procedure about which his Superiors apparently were remarkably accommodating—he transferred them to a Committee, through whose sponsorship they eventually appeared in print. . . . How much Teilhard was interested in his personal advancement, it is hard to say. His evolutionary religion was what he lived for. When distinctions came his way, he accepted them, if permitted to do so; but he was willing to sacrifice them in the interest of his evolutionary mysticism. In the event, this strategy proved to be sound. The success of Teilhardism, particularly in Catholic circles, has been spectacular.

The attempt to demonstrate the responsibility of Charles Dawson for the Piltdown forgery was based in the main on a view of his character. From this standpoint, Teilhard must also be considered. His long residence in the district, his scientific knowledge, his access to fossil collections, including material associated with north Africa and the Dordogne, would have made the execution of the imposture possible for him; and his contained but fanatical devotion to his evolutionary religion—hardly to be matched in an English temperament—might well have suggested it to him, not indeed as a practical joke—such matters would be to sacred for joking—but as an example of the evidence that *must* exist, so that though we may speak of falsification, it is rather in a material than a formal sense. (pp. 371-372-373)

In the second half of this article Thompson pursues an item by item discussion of Teilhard de Chardin's relationship to investigations of so-called Peking man at Choukontien. Along with Fr. P. O'Connell, a long time resident of China, Thompson feels that much real doubt must be brought to bear on findings of *Sinanthropus* in the cave of this site in China, and ends his discussion by the following:

The immense expenditure on the exploitation of Choukontien and the intense effort by specialists to interpret every scrap of evidence in favour of their thesis, makes it unlikely that the truth about *Sinanthropus* will ever be fully revealed. As it happens, the bones, which were said to be "scarcely more than a few handfuls packed in glass jars," were handed to the commander of the Marine detachment at the American Embassy in Peking for transmission to the United States, but were lost in transit. The addi-

tional checks and tests that might have been made are therefore impossible.

The methods and reasoning adopted by evolutionary anthropologists are not such as could command respect in other fields of science. One might almost say, the more inadequate the factual data, the more far-reaching the conclusions concerning human origin and destiny. What happened in the *Sinanthropus* case was the collective responsibility of a group of workers. However, as I have said, Teilhard was, . . . in general charge of the work in Choukontien and therefore had a special responsibility to see that the data were fairly and objectively presented. (p. 375)

Dr. Thompson summarizes his evaluation of Teilhard de Chardin in his last sentences:

The prime requisite in research, as Claude Bernard insisted, is *doubt*. The final judgement on Teilhard must be that by the substitution of pseudo-scientific dogma for scientific doubt, he rendered an immense disservice to science. (p. 378)

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"Amino-acid Sequences of Porcine Pancreatic Elastase and Its Homologies with Other Serine Proteinases," D. M. Shotton and B. S. Hartley. 1970. *Nature*, 225:802-806.

Reviewed by George F. Howe.*

In an article about pancreatic enzymes of the pig, Shotton and Hartley of England report their thorough success in mapping the amino acid sequence of the entire enzyme molecule. They state that elastase (the enzyme studied) is one of those which breaks down protein food molecules in the intestine.

Secreted by the pancreas, elastase becomes active in the duodenum. While it is able to speed up the digestion of a wide variety of protein foods in general (like other protein-digesting or "proteinase" enzymes) elastase has the interesting property to digest the elastic fibrous protein of connective tissue—"elastin."

This paper manifests the high degree of sophistication presently possible in "decoding" complex biochemical sequences. Each of the 240 sequential amino acids in the elastase molecule is identified.

A protein enzyme such as elastase has one particular part known as the "active center" which is largely responsible for the digestive work accomplished. The authors have indicated that the active center of pig elastase enzyme consists of

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the three amino acids: aspartic acid, serine, and glycine—in that sequence within the molecule.

In their section entitled, “Evolution of the Serine Proteinases,” Shotton and Hartley show that five such protein-splitting enzymes from the pancreas fall into a single family of molecules having great similarity in shape and structure. Several enzymes in the pig thus have roughly the same chemical shape and demonstrate an internal similarity to each other (homology). Furthermore, the authors show such similarity or homology of proteinase enzymes occurs among quite different creatures:

Serine proteinases from other organisms, the spiny Pacific dogfish, the turtle, a sea anemone (*Metridium senile*), a mould (*Streptomyces griseus*) and a soil bacterium (*Sorangium sp.*) have been shown to possess some homologies with the mammalian serine proteinases in substrate kinetics and specificity and in amino-acid sequences, notably the possession of an Asp-Ser-Gly sequence at the serine residue of the active centre. This suggests that these enzymes of the “chymotrypsin” type may be of common distant evolutionary origin, the products of gene duplication events followed by divergent evolution. (p. 805) (Parentheses added)

This quote shows that the authors believe some common ancestor had genetic information for an enzyme with this same active center. Over the supposed vast ages of natural selection, these genes are imagined to have mutated so that the organisms resulting by divergence from the common stock each had a slightly different enzyme, but with underlying similarities which show the pattern of descent with modification.

This might have been a clever evolutionary “dodge” were it not for additional material that the same authors share on page 805:

Another class of serine proteinases exists which is characterized by a Thr-Ser-Met sequence at the active centre serine residue and is represented by the bacterial extracellular proteinases subtilisin BPN’ from *Bacillus amyloliquefaciens* and subtilisin Carlsberg from *B. subtilis*, and probably by a proteinase from a mould (*Aspergillus oryzae*).

While homologous with one another, these enzymes show no homology in sequence or in tertiary structure with the mammalian serine proteinases, and yet have a similar grouping of an aspartic acid, a histidine, and a serine residue at the catalytic site and seem to function by a similar enzymic mechanism produced by convergent evolution. (Parenthesis added)

Protein enzymes of this second category have the same function as proteinases in the first group and they even have the same active center sequence—yet they come from otherwise obviously different chemical pattern! This is a marvelous thing. Protein digestion takes place in a similar fashion by enzymes which are quite different in their architecture.

Evolutionists seek to explain all these data by asserting that evolution can cause “divergence” in some cases—yielding a whole family of enzymes that have underlying tell-tale similarities which demonstrate relatedness. Or, they say in other cases that evolution proceeded from genes for two very different protein molecules and modified them so that they finally perform the same function with the same active centers!

Such circuitous reasoning is obviously only a rationalization or afterthought intended to fit the embarrassing data with a preconceived evolutionary faith.

A more effective and perhaps more scientific explanation would propose that the Creator decided in certain cases to produce protein-splitting enzymes in particular creatures with underlying similarities among the molecules (homology). For reasons of functional or other character, the Creator formed proteinase enzymes in other creatures that are quite different in architecture from the first but nonetheless perform the same digestive work.

Such a view avoids the unbridled speculation involving “divergence” followed by “convergence.” The creation view also answers the major question which evolutionists like Shotton and Hartley otherwise fail to answer or even to ask, “How did the gene information for complex protein-splitting enzymes arise in the first place?!”

QUESTIONS FOR EVOLUTIONISTS

1. Consider a single-celled amoeba. It has effective systems for life-support including: (a) detecting and capturing food; (b) digesting food, converting it to energy and eliminating waste; (c) reproducing itself. Obviously the amoeba cannot exist apart from the effective operation of these three systems. They operate in

extremely complex fashion, even in the amoeba.

Question: From what did the amoeba “evolve,” and what chance process explains the great “evolutionary” step which brought these three systems into simultaneous operation?

2. Consider the DNA molecule (ignore the virus which must be in a living cell to repro-

duce). During reproduction the DNA molecule "unzips" itself and the two identical halves take up similar molecules of four nucleotides only in such a way as to reproduce the original DNA molecule (as one side of a zip fastener can be united only with a matching other side). The DNA molecule "blueprints" the essential characteristics of the living thing of which it comprises a part.

Question: What scope for "evolutionary" change does the reproduction of the DNA molecule permit?

3. For observational or experimental proof of the theory of evolution we are offered comparatively minor changes within the general ambit of one genus, e.g., the variation or mutation of the fruit fly in the laboratory or the lamp shell (brachiopod) fossils in the rocks.

Question: A fruit fly or lamp shell after mutation is still a fruit fly or a lamp shell. Does "microevolution" prove "macroevolution"? i.e., does the production of a new variety of fruit fly or lamp shell explain the creation of the fruit fly or lamp shell itself?

4. Consider interdependent systems in nature such as the bee hive, or consider specialized or-

gans in insects such as the web-spinning mechanism of the spider. Both organization and organ are in themselves incredibly complex. Obviously intermediate forms are inoperative.

Question: What chance process can one describe convincingly to explain an "evolutionary" step which brings a complete hive, or a whole spider, into existence at once?

5. Think of the incredible complexity of the single human body cell, the human brain with its capabilities, and the human body as a whole.

Question: Is more faith required to believe that the human being came into existence only after the very long operation of a process of favorable chance events (which common sense leads us to expect to be more probably unfavorable), or to believe that an all-wise God created the human being as he is by a single act as described in Genesis 1:26-27 and 2:7?

-Modified from suggestions by
Ian McDowell, B.A., B.Sc., B.D.
in *The Harvester* (England),
Vol. 49, No. 2, February, 1970,
p. 27.

THERMODYNAMICS AND ORIGINAL INFORMATION*

(Some Communications)

Perhaps it is possible to state a Law of Biological Conservation in terms of the Second rather than the First Law of Thermodynamics after taking into consideration what is called "Information Theory." This is an aspect of the communications art which was put forward by Dr. Claude Shannon at the Bell Telephone Laboratories in your country about twenty years ago. The point of special interest is that the formula for the amount of information to be supplied to transmit any given message using symbols x where the probability of any symbol occurring is $P(x)$ is:

$$H(x) = - \sum_x P(x) \log_2 P(x)$$

which is the negative of the usual entropy formula of thermodynamics. The equivalence of entropy in thermodynamics and in-

formation in a binary system is given by the formula:

1 unit (of information) = 1.37×10^{-16} ergs / °C
All this suggests the equivalence of order at the design stage (information), and disorder which emerges within the designed universe (entropy).

A suggested Law of Biological Conservation in my mind at the moment reads like this:

The ultimate decrease in thermodynamic entropy which results from the appearance of life in all its forms within any closed system (including the efforts of that life to bring order into its environment) cannot exceed the equivalent amount of information impressed by God upon the biological genes of the forms of life brought into being at creation.

This implies that tremendous scope exists for decrease in entropy within the universe through the increase, spread, and activity of intelligent life. Also that mutations destroy information and necessarily give rise to less complex entities. Also that the word which God spoke in order to bring life into being is far more than merely "Let there be" or

*Excerpts taken from a letter from Ian McDowell, Emmaus Bible School, 25 Ray Road, Epping N. S. W. 2121, Australia. These are part of a continuing series of comments on a universal conservation law. Emmett L. Williams, Jr., began the series in 1969 by requesting discussion of interrelationships between the principles of thermodynamics and the discipline of biology. Emmett L. Williams, Jr., holds the Ph.D. degree and is a member of the faculty of Bob Jones University, Greenville, South Carolina 29607.

equivalent—it is a message (in the communications engineering sense) with a vast information content.

Emmett L. Williams, Jr., comments:

Mr. McDowell's ideas offer another approach to biological conservation (after its kind). However it should be realized that thermodynamic entropy is not the same as information theory entropy.

I think we need to be careful about calling for a decrease in entropy by the spread and activity of intelligent life unless it is mentioned that this was done by God during the creation period. The created universe at the end of the sixth day should have been in a state of maximum order (Genesis 1:31). Since sin entered the world, this order has decreased because of such things as mutations as mentioned by McDowell.

The activity of intelligent life cannot increase the order of a perfectly ordered universe; however, intelligent life can try to increase the order in a decaying earth and universe. This continuing struggle is doomed to failure because of the effects of the Second Law of Thermodynamics. The amount of order or information attained by intelligent life is inferior order or information, and in no way approaches the original order, immediately after creation.

Possibly quality of the information should be considered. Since sin entered the world the quality of the information has steadily decreased. Has the quality of the ordered universe decreased if there is such?

I would like to rephrase McDowell's statement of the biological law of conservation as follows:

There can never be a decrease in thermodynamic entropy from the appearance of life in all of its forms within any closed system (including the efforts of that life to bring order into its environment) because of the limitations of the information impressed by God upon the biological genes of the forms

of life brought into being at creation (after its kind). The effects of sin prevent any efforts of life to bring lasting order into the environment. It can slow down the entropy increase but it cannot stop it.

Since my letter to the editor was published in the December, 1969 *Quarterly*, Prof. Harold Armstrong answered with a brief review (March, 1970 *Quarterly*) of physical conservation concepts and a discussion of order. Dr. Walter E. Lammerts replied in the 1970 Annual Issue (June) discussing conservation from the standpoint of total number of created species determining DNA units. He nicely stated biological conservation.

Considering these replies and the present one, what is the relation between energy conservation, DNA units, and original information? The connection between the last two may be rather apparent.

What about it, biochemists, is there a chemical connection? Possibly an information theory specialist would like to suggest a connection or just expound on the possible relation between genes and information.

Some other interesting questions are: What are the genetic similarities of kinds (a detailed discussion of DNA units in relation to after its kind)? What makes up a kind biologically? At the last Board of Directors meeting Wilbert Rusch, Sr., suggested that someone should do some research on determining a kind. Anyone interested?

All of these questions are related to the problem of combining energy and biological conservation. The replies up to now have been excellent. I wish more readers would contribute to the discussion. Please mail your comments to me at the Department of Physics, Bob Jones University, Greenville, South Carolina 29614.

My thanks to Harold Armstrong, Walter Lammerts, Dave Shetland and Ian McDowell.

LETTERS TO THE EDITOR

Dr. Hubble's Position Clarified

Please permit the following comments regarding the diagram, page 16, Figure 5, as contained in the 1970 Annual Issue of the C. R. S. *Quarterly*, Vol. 7, No. 1, in an article by Professor George Mulfinger.

The late Dr. Hubble (at one time director of Mt. Wilson Observatory) used this same diagram in his work, *The Realm of the Nebulae*, page 45, Figure 1. Concerning the diagram, Dr. Hubble states:

The terms "early" and "late" are used to denote relative position in the *empirical*

sequence without regard to their temporal implications. . . . These explanations emphasize the purely empirical nature of the sequence of classification. (page 38) (Emphasis added)

Thus although Dr. Hubble sketches what I would call a quasi-evolutionistic developmental sequence, he appears only in vague fashion to condescend to some sort of evolutionistic theory.

In my view of the matter, the above quotation practically nullifies any attempts which eventually could be (mis)read (?) as trying to conform to an evolutionary sequential development *per*

se. Either Dr. Hubble was (1) inconsistent or (2) tried—and that rather half-heartedly and (to me) quite unconvincingly—the idea of evolution to satisfy his colleagues (perhaps—?) to at least allude to this “universal” mania.

I believe that this should be published to clear up a point. My point of view is that Dr. Hubble was extremely careful as concerns speculations. He has this in common with the late Dr. Baker who wrote such a wonderful *Introduction to Astronomy*. Baker used phrases such as “. . . according to the presently accepted views” and “. . . this idea has persisted to the present time” (meaning the old Kant-LaPlace Nebular hypothesis).

Both of these men show little evidence of subscribing to an evolutionary way of thinking; at least Hubble is very faint-hearted about it, and I would consider it in justice to him to publish the above annotation.

It should also be noted that the addition of “irregulars” in Professor Mulfinger’s Figure 5, page 16, is not found in Hubble’s original drawing.

Another statement of Hubble’s (*Ibid*), concerning the so-called Einstein red-shift in extra-galactic spirals, I will expatiate on in one of the articles I expect to submit within a few weeks: “Either these shifts [referring to the large spectral shifts in extra-galactic spirals (the so-called Einstein red-shift)] are velocity shifts or they represent some hitherto undiscovered principle of physics.” More about this in my article.

In general, however, I seem to have observed that the professional astronomer appears to be growing adverse to spinning ANY cosmological theories.

Signed,
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Augustine Not an Evolutionist

I have long been an enthusiastic supporter of the Creation Research Society and its work and so perhaps you will permit me to call attention to what I believe to be not only an erroneous statement of fact, but one which betrays the residue of cultural evolutionary assumptions within the prevailing ideas of your writers, and further does a great disservice to the whole cause of Christ.

In the June *Quarterly*, Harold W. Clark, in his article, “The Earth in Space and Time,” (*C.R.S. Quarterly*, 7(1):26) ascribed to Augustine and other theologians the introduction of “certain

Greek ideas of the origin of the earth and the origin of life into Christian theology.”

I suppose this may come from Dr. Bolton Davidheiser’s otherwise most commendable book, who in turn relies on a Professor Osburn for attributing the seeds of evolutionary thought among Christians to the great Augustine. Dr. Davidheiser does not furnish any references to Augustine nor do his authorities; however, the great African had quite a bit to say on the subject (See *City of God*, Book XI, Chapters 4-9).

What Augustine says quite clearly is that no one knows how things were accomplished in the creative week or what time was involved, but that after creation was finished, processes which are now observable began to operate. If I understand what men like Dr. Henry Morris are saying, they are simply rephrasing what Augustine said, distinguishing between Creation and Providence.

It is difficult to reduce the thought of any one like Augustine to a few sentences. He deals with so many problems connected with Creation that it is difficult to single out passages which are to be understood in relation to the question at hand, which is the supposed acceptance of evolutionary ideas.

The only one I can find that might in any way support such an interpretation is given by William A. Christian in Battenhouse’s *A Companion to the Study of St. Augustine*, Oxford 1955, page 330. Summing up what has gone before, Christian says, “So the world may be likened to a tree which develops in the course of time from its beginning seed,” and then from Augustine De gen. ad Litt. V. 23; CSEL 28, 168:

Just as in that seed there were together (simul) invisibly all the things which would in time develop into the tree, so the world itself is to be thought to have had together—since God created all things together—all the things which were made in it and with it when the day was made, not only the heaven with the sun and the moon and the constellations . . . and the earth and the abysses . . . but also those things which the water and the earth produced potentially and causally, before they should arise in the course of time in the way we now know them, through those operations which God carries on even till now.

It is difficult from the context to be sure whether Augustine is here discussing kinds of creatures or individuals within kinds. However, it seems to me to wrest the amazingly consistent doctrine of Augustine to read into it the modern obsession with the origin of species.

It seems to me his thought is much closer to the Biblical figure of the Kingdom of God as a mustard seed which grew into a great tree. In

his commentary on Psalm 96, Augustine says, "All the earth is the house of God." It is easy to see the similarity in thought.

More to the point, it seems to me to be wholly in line with one of the principal points made by Dr. Morris that it is impossible for us to comprehend or have any knowledge of the processes of created work. All we see today is corruption introduced by the fall so that we cannot even speculate on natural processes between creation and the fall.

Augustine's work does not deal with processes in this sense as this was not a matter of interest in his day. What he does deal with is the question of time, perhaps far more profound than anything involved in processes.

In *The City of God* he firmly takes the position that man cannot know what occurred in the six days of creation. In *The City of God*, Book XI, Chapter 6, he says, "What kind of days these were is extremely difficult or perhaps impossible for us to conceive and how much more to say."

He discusses this question at length and his view is quite clear. His concern, however, is more with an understanding of the distinction between time and eternity and the nature of time than he is with establishing or refuting a twenty four hour period. Again the significant factor is that in considering the question of time, the great gulf that separates creative work and providential work is expressed.

Augustine also ridiculed those who were unwilling or unable to accept the age of the world as being less than 6,000 years and as any reader of Augustine surely knows, his insistence upon the authority of Scripture could hardly be surpassed. Also, his consistency of thought does not allow him the schizophrenic attitude of many today, but he insists on applying the plain sense of the words taken in their context over the whole broad range of questions which his mind encounters.

I cannot find any trace in Augustine or any of the Church Fathers of evolutionary thought.

(Continued from Page 136)

has been recognized, but the pressures of the evolutionary establishment are powerful and inhibitive, and many Christian intellectuals have been influenced by them.

But evidence continues to accumulate which refutes not only evolution as such but also the geological-age system which is its chief support, and which in fact is essentially identical with it. The radioactivity determinations of geologic age are increasingly being recognized as dependent completely upon pure assumptions which are both unreasonable and unproveable. Some of these are discussed effectively by Clementsen in this Quarterly. Similarly, Burdick clearly reviews

They may have been wanting in natural science but the Creation Research Society would do well to explore the heights to which his writings rose in understanding Creation and its implications.

I see no need to look for bad seed in the Fathers of the Christian Church. (See Matthew 13:24 A.)

The whole idea of seeking to trace the origins of paganism through a series of almost imperceptible errors that originated along with sound doctrine smacks dangerously of gnosticism and seems to me to be thoroughly in the scheme of cultural evolution.

Paganism or evolution was a complete system of thought at the time of Augustine. Augustine was thoroughly familiar with it and it is the bad seed. It is absurd to accuse Christians for a thousand years of having held a syncretistic religion.

It is impossible to syncretize Christianity and Paganism. This point has been well made, it seems to me, by the Creation Research Society in rejecting so-called theistic evolution.

Augustine and the great doctrinal writers of the Church also were not theistic evolutionists. Why blame them for the fact that organized paganism is sewing its seeds quite as busily as the ministers of Christ?

The Reformers certainly would not have stood still for a moment for the idea that the problems of the Renaissance Papacy were derived from seed errors in the Church Fathers.

Can't we do without such statements as this?—"Had proponents of Christianity retained a firm commitment to the creation record of Genesis, modern science might have developed with quite a different emphasis than it has."

Faithfully yours,
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some of the weaknesses of the uniformitarian and evolutionary assumptions in historical geology.

In view of the plain teachings of Scripture concerning the processes, duration and completion of His work of creation, there is surely poor justification for charging the Creator with the contradictions and cruelties implicit in the twin theories of theistic evolution and progressive creation. Still less reasonable is such a position when the vaporous nature of the entire geologic-age system is recognized. "For what if some did not believe? shall their unbelief make the faith of God without effect?" (Romans 3:3).

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