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EDITORIAL COMMENTS

The September issue of *Creation Research Society Quarterly* contains three major articles, two short but significant papers, two continuing features, several book reviews, and a letter to the editor. The broad spectrum in topics covered presents literature that will be of interest to different readers—from the most technically sophisticated voting member to the sustaining member who cannot spend all of his time in science.

The major articles include an analysis of population control by Mr. E. Norbert Smith. In this work, he demonstrates that populations of animals show self-limiting features which support a scriptural understanding of a created order rather than the Darwinian view of struggle with survival of the fittest. This paper lays a foundation for further creationist studies in the area of population study and in the implications of the curse (Genesis 3) for contemporary biology.

Because the supposed origin of life from an ancient water pool is heralded as close to established certainty by some, the article, "The Origin of Life on Earth," by Mr. Gary Parker is a worthy effort. Although there may be evidence for certain chemical reactions in experiments reviewed, Mr. Parker proposes that the whole schema bogs down at the key transformation from chemical reactions to biological reactions. Young pupils using the B. S. C. S. textbooks in their high school courses should be given this fine treatise for study.

Dr. John Moore, who continually works behind the scenes on the production phases of each issue of the *Quarterly*, has contributed a much-needed article correlating creation science with the topics of education and philosophy. Well-versed in each of these fields, Dr. Moore has presented an objective pattern of opposition, based on scientific work, to the teaching of organic evolution *as fact* by examining the General Theory of Evolution and the Special Theory of Evolution.

Charles Darwin and followers quickly gloss over the problem of sex. In the short work, "Creation of the Origin of Sex," Mr. William Stroud points to evidence that cannot be lightly described as support for evolution. In another short article Dr. Oscar Brauer describes the integrated control system coordinating parathyroid hormone, calcium metabolism, vitamin interaction, bone growth, and kidney function in the human body. The physiological interaction

dwarfs the complex coordination within the finest symphony and certainly merits the phrase, "Wonderfully Planned," which appears in Dr. Brauer's title.

Continuing features include an article by Dr. Lammerts describing another creationist college, Los Angeles Baptist College, Newhall, California. A series of comments by Professor Harold Armstrong on science reading will serve as an introduction to current literature and its relevance to origins studies. An annual feature inserted in this September issue is the Board meeting report submitted by the Secretary, Dr. William Tinkle.

Several book reviews and a letter to the editor round out an issue that is intended to meet a need and to issue a challenge. The editors hope that this *Quarterly*, like others before it, will contribute to the demand for creationist literature in science. But further, this issue should serve as a challenge to each voting member to ask himself if there is some paper latent in his mind which should be worked out and submitted. The performance of C. R. S. in demonstrating that special creationism is the best origins option cannot improve unless each member gives what he is able by way of intellectual support to a growing academic cause.

New papers are invited along many lines. To supply guidance, Dr. Larry Butler, Vice President and Research Chairman, has presented a list of potential research projects which could be undertaken immediately. May many more members begin the work of writing for the benefit of others. Even a book or article review can be a significant contribution.

Papers of direct research nature are needed to show our colleagues that creationism is a productive view in the sciences. Papers of review character are also essential to "rescue" valid data from papers written with an evolutionary philosophic bias and reorient the same data in terms of the creationist view.

The entire editorial staff of Creation Research Society hopes that you enjoy reading this material, and that you will pray for God to send additional laborers into the vineyard of theoretical and experimental science.

GEORGE F. HOWE,
Editor

A RESEARCH CHALLENGE

A major function of our Society is promotion of sound scientific research which bears upon the question of origins and related aspects of Biblical Christianity. Many reports of such research appear in our published *Quarterlies*, too often only after considerable urging by our Editor. Many of us feel that because of our creationist viewpoint we are better scientists than we would be if we were evolutionists; this advantage ought to be reflected in productive research reported through our publications.

At our 1970 Board of Directors meeting at Ann Arbor this spring I was asked, as Chairman of our Research Committee, to compile a list of potential research projects. The following list, presented with a minimum of editing from the original suggestions, was largely provided by the Directors. It is our earnest hope that this representative list will stimulate new creation-oriented research in these or other related areas by many of our members and friends.

1. Experimental demonstration that coal can be formed rapidly under conditions of high stress, in contradiction of the uniformitarian idea that immense lengths of time are required for gradual conversion of peat into coal. Under controlled laboratory conditions, in a testing machine capable of applying very high tri-axial pressures, determine whether coal can be produced from vegetal matter, for various types of vegetation, water contents, pressures, temperature, etc.

2. Experimental formation of fossils, using a variety of conditions. Simulate gradual deposition in a tank or pond to determine if various organisms become fossilized. A minor catastrophe could be simulated by quickly burying organic material under several feet of sediment. A period of a few years might be sufficient to obtain significant results.

3. Experimental determination of optimum conditions for rapid growth of coral reefs. Present published rates of coral growth and the extent of modern coral reefs are difficult to reconcile with Biblical chronology. Also, extensive fossil reefs are found in various parts of the geologic column, which may be even more difficult to interpret in the context of Bible chronology.

However, it may be that reefs may grow quite rapidly under some conditions. Certainly it seems that in some areas they are currently disappearing quite rapidly. Also, it may be that the larger reefs in the geologic column are allochthonous to some extent.

A thorough study should be made of the extant literature on reefs, to determine: (1) what is actually known, quantitatively, concerning coral

growth rates and the various parameters that may affect them; (2) how much of both present and fossil reefs must be interpreted in terms of *in situ* growth, and how much could possibly be attributed to sedimentary transportation and accumulation.

Then, if possible, a laboratory or field study should be performed to determine what values of pH, salinity, temperature, etc., will produce maximum growth rates for various kinds of reef-building organisms.

4. Investigation of caves, mine shafts, and tunnels of recent (100-200 years) vintage for presence and growth rate of stalactites. Perhaps it is a false assumption to postulate long ages based upon stalactites.

5. Anthropological measurements of the possible variations in thickness, shape, etc., of contemporary human skulls. This would involve comparison of such data with known populations of Neanderthal and other supposed prehistoric men.

6. Consideration of the thermodynamic effects of the Flood. Can the polar ice packs be accounted for by sudden cooling immediately after the Flood?

7. Geology from 40,000 feet altitude and higher, by one of our geologists who often travels by jet. A full color article could be produced showing vast alluvial fans in Arizona and California-traces of great waterways after the Flood. Much could be said about faulting by showing whole fault systems from the air. One could discuss the front range of the Rockies with its vast alluvial fan leading out over eastern Colorado. A Flood geologist ought to prepare a series of annotated illustrations with proposed explanations of each item.

8. Continuation of Dr. George Howe's sea water soaking experiment (*Creation Research Society Quarterly*, Vol. 5, p. 105, 1968). (Dr. Howe has moved away from the ocean.) In addition to seeds, the viability of spores, cuttings, and even whole plants could be tested after various regimens of soaking to determine the likelihood of their survival through the Flood.

9. Villee states on page 575 of his text *Biology* published with Saunders that

... early in the fifteenth century a litter of rabbits was released on Porto Santo, a small island near Madeira. There were no other rabbits and no carnivorous enemies on the island and the rabbits multiplied with amazing speed. By the nineteenth century they were strikingly different from their ancestral European stock, only half as large as their

European relatives, with a different color pattern, and a more nocturnal way of life. More importantly, they could not produce offspring when bred with members of the European species. Within four hundred years, then, a new species of rabbits developed.

Villee gives no documentation but perhaps the source could be located. If one of our traveling members would arrange to bring back some of these rabbits then breeding experiments could be carried out to see if they really are isolated from other rabbits and if so, what means of reproduction isolation exists. Perhaps this report is faulty; it deserves reinvestigation.

10. Consideration of the fate of the tremendous amount of helium which would have been produced by radioactive decay processes if the earth is billions of years old

11. There are several species of cultivated plants which are absolutely dependent upon man for survival; these plants, such as corn, cannot effectively compete in a natural environment and would become extinct unless cultivated. Someone should investigate whether the origin of all these plants can be adequately traced to vigorous undomesticated species. If not, there is the possibility that they originated by special creation contemporary with Adam who cultivated them.

12. Carbon-14 dating of insects trapped in amber, which is supposedly millions of years old. If this age is correct the insect will contain no detectable carbon-14, for all of it would have decayed. Detection of significant amounts of carbon-14 would negate the uniformitarian dating.

13. Several suggestions emphasized the importance of attacking the question of the various

"kinds" of Genesis. Several types of experimental approaches are possible: breeding experiments, blood typing, etc. Perhaps unique, fundamental criteria for classification can be developed, which are based on real differences due to physiological characteristics.

14. Formulation of summary report of "Living Fossils" by drawing from book of same name by Maurice Burton and other references to show that many plants and animals that were supposed to have been extinct for millions of years have been found alive in recent years.

15. Arrive at some kind of "settling coefficient," if possible, based on use of controlled levels in a water tank to check out idea of differential settling of bodies of organisms possibly in proportion to density and/or body surface area.

Potential researchers are reminded that the Society maintains a modest Research Fund to support creation-oriented projects when no other source of funds is available. Research proposals involving such requests for support should be submitted to the Research Committee Chairman, and should include a proposed itemized budget accounting for expenditure of the requested funds.

Others who feel led to support this work financially rather than by carrying out research should send all contributions to Professor Richard G. Korthals, Treasurer, 2678 Page Avenue, Ann Arbor, Michigan 48104. Mark your gift for the "Research Fund."

LARRY G. BUTLER, Ph.D.

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COMMENTS FROM PRESIDENT MORRIS

Although I am writing this column in my office at Virginia Polytechnic Institute in Blacksburg, my family and I will have moved to California by the time the column is read. We would appreciate prayers more than we can say as we begin a distinctly new venture in San Diego.

One does not of course make a change of such magnitude lightly. I have been working in the profession of civil and hydraulic engineering for over thirty years, and could have continued in a very satisfying and remunerative tenured position for another fifteen years or so until retirement. But I am firmly convinced, after much prayer and consideration, that the Lord has led into a radically new position. (If this decision is

a mistake, then it's a whopper! But my family and I believe that this is God's time for a unique new institution and that it is my responsibility to try to give active direction to it, as He enables.)

I will have two overlapping responsibilities, one as Vice-President for Academic Affairs at the new Christian Heritage College in San Diego (Dr. Tim F. LaHaye, President), the other as Director of the Creation Science Research Center which will be established at the College. In the first capacity, I believe we can develop a broad program of professional curricula, all structured around the integrating framework of Biblical creation and redemption.

The second responsibility is possibly of more

direct relevance to the work of the Creation Research Society, although there will of course be no direct connection or affiliation. Objectives of the Creation Science Research Center will be to:

(1) write and publish textbooks for use in both public and private schools, in all appropriate disciplines and grade levels, from the perspective of scientific creationism;

(2) conduct research in areas of apparent conflict between science and Scripture and in applications of creationism;

(3) sponsor seminars, short courses, radio programs, and other means of disseminating the facts and implications of Biblical creationism as widely as possible.

The above activities will be carried out not only by the regular staff of the College and Research Center but also by others on specific part-time or short-term contract assignments.

Naturally, care will be taken that no projects of this sort duplicate or compete with similar projects undertaken by the Creation Research Society or any other association or institution. There is such a tremendous need, and so little time, that not even a dozen such schools and organizations could accomplish what needs to be done as soon as it ought to be done! But somebody needs to begin.

The Creation Research Society has of course pioneered in all of this, laying the foundations and demonstrating the feasibility of a thoroughgoing application of creationism in modern science. The preparation of creationist textbooks will receive initial impetus by publication in October, after five years of diligent effort by the Textbook Committee and authors, of our C.R.S. high school text, *Biology: A Search for Order in Complexity*, by the Zondervan Publishing House. Three other committees have begun work on a

science series for the junior high level, in physical science, earth science and life science, respectively.

Research in creationism also is being expanded in the Society, although limitations of time and money are restraining factors. The timely list of potential research topics, prepared by Dr. Larry Butler for this issue of the *Quarterly*, should be very helpful in stimulating further research activity by our members.

To date, activities of Society members in promoting creationism have been limited mainly to publication of appropriate articles in the *Quarterlies*. There is no doubt that this has been a highly effective mechanism and that it should continue to be the primary emphasis. This current *Quarterly* is a good case in point, containing outstanding articles on population control mechanisms by Norbert Smith, on the origin of life by Gary Parker, on the unscientific nature of evolution by John Moore, and several others.

The article by Managing Editor Moore is especially devastating in its careful and well-documented indictment of evolutionary philosophy and methodology. Evolutionists, if they can be persuaded to read it, will find it completely unanswerable. Christians everywhere ought to make effective use of his approach when witnessing to those who have been intimidated by evolutionary semantics.

We all continue to marvel and to thank our God of Creation for all that has been accomplished in the past seven years. I believe that the gracious promise of the Lord Jesus may have special significance to us. "Ye have not chosen me," He said, "but I have chosen you and ordained you, that ye should go and bring forth fruit, and that your fruit should remain." (John 15: 16)

SPECIAL ANNOUNCEMENT

By letter dated July 14, 1970, Treasurer Richard Korthals has been informed that the Creation Research Society is "exempt from Federal income tax under section 501 (c) (3) of the Code." This ruling comes after several years of preparation and discussion with governmental officials. Further in the letter the following paragraph was included:

Donors may deduct contributions to you, as provided by section 170 of the Code. Bequests, legacies, devices, transfers, or gifts to you or for your use are deductible for Federal estate and gift tax purposes under sections 2055, 2106, and 2522 of the Code.

All this information should prove useful to Society members and to friends who are interested in supporting research and publication projects sponsored by the Society and approved by the Board of Directors.

Congratulations are certainly in order for the diligent efforts of Richard Korthals, and also Membership Secretary Wilbert Rusch, Sr., who made initial contacts with Internal Revenue Service personnel. The perseverance of these two Board of Directors members is much appreciated and special thanks are extended to them on behalf of all Board members, voting members, and sustaining members.

-The Editors

POPULATION CONTROL: EVIDENCE OF A PERFECT CREATION

E. NORBERT SMITH*

All animals have the ability to increase their numbers at an astonishing rate. In spite of this fact, animal populations remain relatively constant. The Bible teaches that before the Fall creation was perfect and without predation. This implies an intrinsic population controlling factor. Perhaps this intrinsic population control is still present and working today, and maybe Darwin's checks are unneeded. If so, this is another reason why scientists should turn from evolution to creation in seeking to account for living things.

Casual observation reveals that animal populations are relatively stable. Rodent populations may fluctuate yearly but always between seemingly fixed limits. Each year approximately the same number of robins nest around our homes. The relative numbers of various insects changes little from year to year also.

Where little environmental change has occurred scientific investigation has shown populations to have a relatively constant average value. In England, the herons (*Ardea cinerea*) have been counted since 1928, and only minor fluctuations from an average have been detected. In years following severe winters the population quickly returned to previous levels.¹ Concerning birds, Dr. Welty says,

Unless environmental conditions change abnormally, most bird populations remain remarkably constant despite the potential which all species possess for almost unlimited increase. This stability can only mean that birth rate equals death rate; that natality matches mortality.²

It is generally assumed that animals produce as many offspring as they are capable and their numbers are kept in check by negative outside forces such as disease, starvation, and predation. Overproduction is thus said to provide natural selection with its necessary raw materials. (Overproduction is here defined as occurring when an adult pair of animals produces more than two offspring in their life time, e.g. producing a surplus of its kind.) A closer look at the apparent hand-in-glove fit of birth rate and death rate reveals exciting evidence of a perfect creation and may weaken the persuasiveness of natural selection.

Control of Animal Populations Before the Fall:

The Bible teaches that the original creation before the Fall was complete and without error. The phrase, "And God saw that it was good" appears seven times in the first chapter of Genesis³ and refers to the things God created or made. Verses 21 and 25 refer specifically to the Animal Kingdom, and verse 31 summarizes God's opinion of the things that He had willed into existence, "And God saw every thing He had made, and be-

hold, it was very good. . . ." Certainly an all wise Creator would not have called something good if it contained errors or inadequacies

In addition to bringing all living things into existence, God distinctly commanded the animals saying, "Be fruitful and multiply" (Genesis 1:22), "fill the waters" (Genesis 1:21), "and replenish the earth" (Genesis 1:28). The same words were spoken after the Flood to Noah (Genesis 9:11), and the animals that survived the Deluge (Genesis 8:17). This in itself is a good Biblical argument against evolution, theistic or otherwise, for certainly if any "higher" group evolved, the earth would already have been filled with "lower" forms and these words would lose their meaning.

The principle of no death before the Fall certainly applies to the warm-blooded vertebrate animals. In the life cycle of these creatures the adult is the main and substantial stage. Thus these vertebrates were apparently designed to live in close companionship with man. Perhaps also fish and other cold-blooded vertebrates were designed originally for continuous life in that the adult is the obvious end form of the life cycle.

Yet butterflies and certain other invertebrates have a very ephemeral adult stage. Even without being attacked by predators the scales of their beautiful wings wear off, and there is no apparent provision for replacement. At the end of the summer season a butterfly is a rather bedraggled, worn out creature. This is true of many groups of insects. In one family, the Ephemeridae, the adults are very short lived!

In view of their complex metamorphosis from caterpillar to chrysalis to a mature form, it is doubtful if butterflies were originally created any differently. Thus the remarks in this paper concern primarily the vertebrates although striking mechanisms for population control among invertebrates will also be discussed. The concept of invertebrate longevity before the Fall may deserve separate analysis.

It is likewise true that God designed plants to serve as food for animals. Thus comments in this paper deal only with possible population control mechanisms for *animals* before the Fall, as well as possible residual tendencies toward population control operating today.

Implied in the teaching of a perfect or good creation in the idea of no starvation, disease, or

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death of any kind. Only after sin entered into the newly created world did predation and death appear. According to Whitcomb and Morris:

One of the clearest texts in the Old Testament on the transformation of animal characteristics after the Fall is that which describes the diet which God ordained for animals before the Fall. Before the Edenic curse, this was God's provision for the food of animals: "to every beast of the earth, and to every bird of the heavens, and to every thing that creepeth upon the earth, wherein there is life, *I have given every green herb for food*: and it was so" (Gen. 1:30). Under such conditions, there could have been no carnivorous beasts on earth before the Fall; for the animals to which God gave "every green herb for food" included "every beast of the field" and "every thing that creepeth upon the earth, wherein is life."⁴ (Emphasis added)

This is in direct contrast to the conditions described after the Fall immediately following the Flood:

And the fear of you and the dread of you shall be upon every beast of the earth, and upon every fowl of the air, upon all that moveth upon the earth, and upon all the fishes of the sea; into your hand are they delivered. Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things.⁵

If Adam and Eve had not sinned or, if many years separated the creation from the Fall, what would have controlled the population of the various vegetarian animals? According to modern theories animal populations are held in check largely by negative outside forces. Some have argued that, without predators, no balance of nature could exist; without the sparrow hawk sparrows would overpopulate the world. How then could animal numbers be controlled before the Fall?

Intrinsic Mechanism for Population Control before the Fall: We believe the Bible to be the infallible Word of the infinitely wise God; therefore, animals must have had an intrinsic mechanism for controlling population density. The pre-Fall situation can be represented:

$$\text{Recruitment} + \text{Immigration} = \text{Emigration} \\ \text{Eq. 1}$$

In obeying God's commandment to "be fruitful and multiply," recruitment or birth rate would have begun at or near the physiological maximum level. At first with the earth largely empty, obeying God's commandment to "fill the waters" and the entire earth would have meant that for any one populated area emigration would have exceeded immigration, that is, animals would be dispersing to the distant portions of the globe.

After a while (a short time for highly fecundant forms, longer for others) the earth would have been filled and emigration would equal immigration. In order to avoid overpopulation and consequent starvation, the recruitment rate would have had to taper off eventually to zero. All animals must have had a built-in mechanism for controlling their recruitment rate; a population density dependent reproduction rate. The command of God was simply to fill the earth not to reproduce at the highest rate possible indefinitely.

Population Control Today: The paradise did not last. Sin entered into the world and because of sin the Curse. This Curse was not limited to the Serpent and Adam and Eve, but to the entire created world. "Cursed is the ground for thy sake; in toil shalt thou eat of it all the days of thy life; thorns also and thistles shall it bring forth to thee; and thou shalt eat the herb of the field; in sweat of thy face shalt thou eat bread, till thou return unto the ground. . . ."⁶ The New Testament teaches that this fallen state still exists for the entire world. "For we know that the whole creation groaneth and travaileth in pain together until now."⁷

The Fall certainly brought about modifications to the living world. Animals began to prey upon one another. Death, fear, and disease entered into the world but the Fall and Curse do not imply a re-creation. If animals were created with the ability to regulate their own numbers it is only logical that they still retain that ability. Woman's curse, in part, was increased pain in child birth, not a new mode of reproduction.⁸

It appears that two truths are evident from the Scripture concerning the regulation of animal numbers:

(1) A perfect creation prior to the Fall would necessitate animals capable of limiting their own rates of reproduction and,

(2) This mechanism may be working today, perhaps partly masked by other consequences of the Edenic Curse, which include predation, etc.

Population Control and Modern Evolution: From Darwin to the present time over-production has been a cornerstone for the entire superstructure of evolution. To better appreciate the emphasis given superfertility and its relation to evolution consider Julian Huxley's summary of Darwinism:

By Darwinism I imply that blend of induction and deduction which Darwin was the first to apply to the study of evolution. . . .

Darwin based his theory of natural selection on three observable facts of nature and two deductions from them, the first fact is the tendency of all organisms to increase in a geometrical ratio. . . . The second fact is that in spite of this tendency to progressive

increase, the numbers of a given species actually remain more or less constant.

The first deduction follows. From these two facts he deduced the struggle for existence. For since more young are produced than can survive, there must be competition for survival. . . .

Darwin's third fact of nature was variation: all organisms vary appreciably. And this second and final deduction, which he deduced from the first deduction and the third fact, was Natural Selection. Since there is a struggle for existence among individuals, and since the individuals are not all alike, some of the variations among them will be advantageous in the struggle for survival. . . .⁹

According to Huxley the fact of overproduction or potential of "geometric increase" is still unquestioned. Darwin's second fact, the "constancy of numbers of any species," is also considered true today. Thus the first deduction based on these facts is said to be true.

Notice that the very basis for evolution is overproduction. Without overproduction there would be no struggle for survival and no natural selection.

While modern evolutionists pay homage to the advances in evolutionary thinking, made by Darwin, few want to be identified as holding Darwinian or even neo-Darwinian theories. Today's breed of evolutionist claims to have merged the best of past school into the Synthetic Theory,^{10,11} or the Modern Synthesis.¹²

Most of the "improvements" in evolutionary thinking have dealt with what has been learned about genetics. Mutation and recombination are thought to be involved in the formation of new species today. "Recombination, thus is by far the most important source of genetic variation."¹³

To produce favorable recombination many recombinations must be tried, thus the need for high fertility. Mayr included fertility, fecundity, and sexual vigor as characters that are of the greatest evolutionary importance.¹⁴ Conversely, Mayr says that in animals that reproduce slowly "natural selection is considerably curtailed when so few genotypes are available for choice."¹⁵ Overproduction thus stands as one of the necessary elements in modern evolutionary theory.

The fact remains that animal populations remain constant. How is this correlated with the potentially wide open reproduction rates? Natural selection is thought to be effective not only in eliminating the weak, diseased, and poorly adapted; but also it is thought to be density dependent. This density dependent mortality,¹⁶ is thought to regulate animal numbers automatically. If this view is correct certainly the argu-

ment for a perfect creation without death is weakened. Is there a scientifically acceptable alternate view?

Creationist view points: How can we as creationists view the phenomena of population control? The fact remains that animal numbers are regulated. Is "tooth and fang" competition the only answer? Without regulation all animals in time would either become extinct themselves or cause the extinction of virtually every other living thing. Prior to the Fall, population control was necessary to avoid "over-grazing" the earth and thus bringing about mass starvation. Today population control is necessary for the earth to support its multitude of individuals and species. The problem is summarized by V. C. Wynne-Edwards:

It is self-evident that in every population remaining at a constant density, or returning each year to the same density at the same season, the rate of recruitment must be equal to the rate of loss of the constituent members. As most animals are seasonal breeders, this implies in the simplest imaginable case that a stable population requires each breeding season to make good the losses of the preceding twelve months: that is to say, the number of recruits must equal the number of members lost.

This simple equation that recruitment and loss are numerically equal, is generally true wherever population-density (when averaged over a suitable period of time) remains constant, no matter whether the numerical value is great or small. Some animals reproduce faster than others and this is frequently true even of different populations of a single species living in different circumstances; yet their several population-densities can each remain constant over the years. This is possible because those that reproduce faster also die correspondingly quicker: the whole equation is given a higher numerical value, but both sides nevertheless remain balanced.

To preserve the balance, the two sides of the equation cannot be allowed to vary independently: a state of adjustment must exist between them; and the question immediately arises, which side is the independent and which the dependent variable? Are the losses somehow influenced so that they automatically match the number of recruits coming forward? Or is the reverse true, namely that however the losses vary, within manageable limits, recruitment can be adjusted to compensate for them?¹⁷

Dr. Wynne-Edwards accepts the latter view and makes a good case for it in his book, *Animal Dispersion in Relation to Social Behavior*, review-

ed in a previous *Creation Research Society Quarterly*.¹⁸

Admittedly his viewpoint is upheld by a minority of biologists today; however, it seems that his view is more compatible with what the Bible teaches concerning population control than an alternate point of view. Could it be that in trying so hard to provide evolution with a mechanism, e.g., overproduction and natural selection, modern biologists have blinded themselves to an objective look at the entire population controlling mechanism? As creationists we need to evaluate the facts very carefully. It could be that here lies not only very strong supporting evidence of both a perfect Creation and a subsequent Fall, but possibly the key to understanding some vastly important and basic biology—that of population control.

To restate the problem briefly: Animal populations remain constant year to year. From the Biblical teaching of a perfect creation, an intrinsic population density control of reproduction can be deduced. Most evolutionists seem to believe that population control is extrinsic, that is, negative outside forces such as disease, starvation, and predation limit animal numbers.

Protagonists agree that the following relationship exists:

$$\text{Recruitment} + \text{Emigration} = \text{Death} + \text{Immigration} \\ \text{Eq. 2}$$

Apparently most biologists consider death to be density dependent and thus the controlling mechanism for population constancy. Modern evolutionary theories often depend on natural selection which entails unbridled fertility. Wynne-Edwards and others have amassed a great deal of evidence supporting the theory that population control is an inherent part of each animal population, that animals regulate their own recruitment rate. The latter viewpoint seems more acceptable to the creationist. Our problem is to identify the independent variable of Equation 2.

Evidence Supporting Intrinsic Population Control in Animals: A great deal of experimental work has been done demonstrating the relationship between fertility and population density with a wide spectrum of animals. A review of the literature is neither intended nor necessary. A brief sampling will suffice to illustrate the point.

Working with the fruit-fly, *Drosophila melanogaster*, Pearl¹⁹ showed that in a milk-bottle “universe” containing a superabundance of food, population increases rapidly as long as the density is low. Later the population tapers off to a definite population density. This situation is affected by reduced egg production of the females as crowding increases. He found that

females confined under alternating high and low density situations responded immediately with corresponding low and high egg production. He concluded that egg production must be regulated partly at least by collision or interference action of the flies to each other.

Robertson and Sang²⁰ continued Pearl’s work later and proved that food abundance as well as density control population. This kind of population control involving feedback from both population density and available food is perhaps the most common.

The “confused flour-beetle,” *Tribolium confusum*, illustrates an intrinsic population controlling factor even more dramatically. R. N. Chapman in 1928 demonstrated that, in a closed system with a nutrient medium of two cm. deep layer of flour, a steady ceiling-population would always be reached. This virtually constant density of individuals per gram of flour was reached regardless of original quantity of beetles or total volume of flour used. Chapman believed the density-limiting factor was cannibalism due to adult beetles eating eggs and immature stages in quantities proportional to the population density.²¹

Subsequent workers found this to be only a partial answer. MacLagan found that egg production was inversely related to density. MacLagan referred to the regulating mechanism as “psychological” and concluded that natural populations (just like experimental ones) “automatically check their own increase, by virtue of this density effect, and that the organism itself imposes the ultimate limit to its own abundance when all other factors (biotic and physical) normally inhibiting population increase have failed.”²²

Park later showed that “conditioning” of the nutrient media by metabolic wastes and secretions reduced the reproduction rate. Length of larval life and larval mortality both increased with contaminated media.²³ Concerning secretions it was found by Alexander and Barton that ethylquinone is produced by odoriferous glands of both *Tribolium confusum* and *T. constaneum*. The secretion is produced in largest quantities under conditions of cold or crowding.²⁴

It was found that ethylquinone causes the pinkish discoloration of conditioned flour, and is lethal to first-instar larva and induces developmental abnormalities in late larva and pupae.²⁵ It is also thought to be depressing on adults and perhaps is the substance wholly responsible for the demonstrated intrinsic population control these insects exhibit.²⁶ Apparently one of the functions of the odoriferous glands is to control population.

The next two examples introduce a new factor—that of harvesting part of the population as

any of Darwin's natural selection agents might do. The first experiment was performed by Nicholson²⁷ in Australia with the sheep blow fly, *Lucilia cuprina*. Four populations (A, B, C, and D) were established under predetermined environmental conditions for about a year. Newly emerged adults were removed as follows: A—0%; B—50%; C—75%; D—90%. Without exception, remaining adults of the population tried to compensate for these losses. The result of destroying adults was to cause more adults to be recruited.

In the control group A, an average of 573 new adults emerged daily compared to 712, 878, 1,260 for B, C, and D. The adult population suffering 50% mortality remained at 2,335 compared with 2,520 for the control group. C and D were progressively less.

Again to compensate for lost flies, adults from C and D had longer life spans ($4\frac{1}{2}$ to 7 days) and recruitment rate per adult per day was much larger. This experiment indicated how limited natural predation must be in dictating population size. It is seen from those experiments that "intrinsic population control" clearly operates in the world of invertebrates aside from the question of whether or not these creatures faced possible death before the Fall.

A great deal of population control interest has been sparked by the fishing industries. In order to obtain the maximum sustainable yield each year from fishing, a certain limit must not be exceeded. Overfishing at first provides a higher catch but eventually will result in a reduced annual crop. The following experiment by Silliam and Gutsell²⁸ was performed to test a mathematical model invented by exponents of the overfishing theory.

Four identical aquaria under the same uniform conditions were stocked with guppies, *Lebistes reticulatus*, two kept as duplicate controls and two used as duplicate experimental populations. All were provided with a superabundance of food and were allowed to increase in numbers until a ceiling of about 32 grams of live fish per 17 liters of water was obtained after 40 weeks. This research substantiated earlier work.²⁹ The third and fourth tanks remained "unfished" and the population varied only slightly for 174 weeks. The first and second tanks, however, were subjected to harvesting every three weeks (this period representing average generation time for guppies).

At first 25% by weight of the fish were removed. The numbers of adults and young dropped however by the sixteenth week and a new stable ratio of young to adults was established. After the seventy-ninth week the harvesting rate was reduced to 10% and the biomass increased to nearly the level of the controls. From weeks 121 to 150 harvesting was increased to 50% and

the proportion of juveniles increased sharply with a progressive decline of biomass. That is, overfishing was occurring. Finally from week 151 to the termination of the experiment, harvesting rate was increased to 75% which led to extinction.

Several things can be gained from this excellent experiment. First, from the control tanks it was found that with a superabundance of food and none of Darwin's checks such as predators, starvation, or disease (save senility), the population was limited to a constant "healthy" value. The proportion of adults to young became high. The production and survival of young was low and cannibalism common. The effective recruiting rate was just enough to replace natural mortality of senile fish. As exploitation increased recruitment increased proportionately. Silliman and Gutsell considered a harvest rate of 30 to 40% would provide the maximum sustainable yields under these conditions.

Similar experiments with parallel results could be cited with the laboratory mouse, *Mus musculus*³⁰; the vole, *Microtus agrestis*³¹; and other animals.^{32,33}

In mammals and birds a social effect appears to predominate with some adults enjoying certain privileges (space and food) obtained only partially by less fortunate members of the population, but in all cases a ceiling density is reached and an attempt is made to hold it constant in spite of changing outside factors.

Concerning natural populations S. A. Barnett made a very interesting observation about rats:

What controls the growth of a rat colony? When a few rats begin to breed in an area with plenty of food and cover, their rate of increase is slow at first, but it becomes rapid when there are plenty of fecund females; later it slows again. As density increases, several hostile forces can be expected to act progressively against still further increase. Predation by dogs, hawks, and man may become more intense; nest sites for rearing young will be less easily found; infectious disease may increase. Any of these (or shortage of food) could put a ceiling on further growth.

It is possible, however, that none will do so, and that social interactions will limit density before food and shelter fail, and before predators or parasites do more than kill the old, and the weak. D. E. Davis, then at Johns Hopkins University, reduced a rat population by half by a strenuous trapping operation. The pregnancy rate of the survivors doubled in two months. Crowding evidently interferes with breeding, but we do not know just how. Females with litters may be pestered by males, although ordi-

narily a parturient female can drive away intruders from her nest merely by making sounds and perhaps a snapping movement of her head.

It is possible that the regulating process is far more complex, and involves several factors, acting together.³⁴

Mechanisms for Intrinsic Population Control:

Several controlling factors have been mentioned thus far: cannibalism, fertility, and death-age of adults. Other factors considered important by Wynne-Edwards are: infant mortality, resorption of embryos, clutch size, and number of broods per year, and the size of the breeding population.

Many birds apparently avoid competing for food by the simple but effective method of holding territory, for at least part of the year. Birds without territory do not breed. This effectively limits not only the population for any one area but also controls recruitment rate.

According to Wynne-Edwards, communal breeding sites (common to many palaginic birds, eels, marine turtles, and certain seals) provide a parallel to more conventional territory holdings. Territory holding is common with insects,³⁵

crabs,³⁶ and lizards.³⁷

These and no doubt many other mechanisms provide animals with the ability to regulate their own numbers, to ward off starvation and to enable them to co-exist with other animals. Each animal (be it vegetarian or carnivorous) must guard against "overfishing." For its own good it must not reproduce at its physiological limit all the time since this might lead to its own self extinction.

When God formed the first living things, He very possibly established a built in "balance of nature" without the necessity of disease, predation, or starvation. Available evidence appears to indicate that intrinsic mechanisms could have been sufficient in regulation of populations which developed shortly after the time of creation and may be a factor in the regulation of animal numbers today. This paper is intended as a stimulus to encourage study of what may become a new field of creation-evolution research:—intrinsic population control.

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THE ORIGIN OF LIFE ON EARTH

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The DNA-protein relationship is analyzed in relation to the origin of life. Evidence for the modern evolutionary theory of spontaneous generation and evidence for creation are analyzed. Definition and scientific adequacy of these two views are considered. The work of Miller, Fox, and Oparin is reviewed. Concepts of time, chance, and chemical selection are evaluated and the concept of "imposed relationships" is introduced as evidence supporting Biblical creationism.

Concept of Spontaneous Generation

In man's quest to understand the nature and origin of life, one idea occurs again and again: spontaneous generation. This is a concept generally including the theory that all life on earth arose ultimately and naturally or "spontaneously" from nonliving matter. The current version of spontaneous generation is succinctly summarized by Paul B. Weisz in a widely adopted college biology text:

Living creatures on earth are a direct product of the earth. There is every reason to believe that living beings owe their origin entirely to certain physical and chemical properties of the ancient earth. Nothing supernatural appeared to be involved—only time and natural physical and chemical laws operating within the peculiarly suitable earthly environment. Given such an environment, life probably had to happen.¹

Several other high school and college biology text book authors make similar claims,^{2,3,4} so it is easy to see why spontaneous generation is accepted by many people as the modern, scientific theory of life's origin.

This "modern, scientific" theory, however, is easily discernible in the third century B.C. writings of Chung Tzu:

The harmonious cooperation of all beings arose, not from the orders of a superior authority external to themselves, but from the fact that they were all parts in a hierarchy of wholes forming a cosmic pattern, and what they obeyed were the internal dictates of their own natures.⁵

Though separated by twenty-three centuries and all the discoveries of molecular biology, Dr. Weisz and Chung Tzu are agreed that life originated without the aid of the "supernatural" (Weisz) or "a superior authority external to themselves" (Chung Tzu).

In his phrase, "harmonious cooperation," Chung Tzu has even captured the essential difference between life and non-life as molecular biologists may view it.⁶ Chung Tzu would no doubt agree with Dr. Weisz that the "harmonious

cooperation" of molecules within living systems owes its origin entirely to "natural physical and chemical laws" (Weisz), or to parts following the "internal dictates of their own natures" (Chung Tzu).

Twenty-three centuries, then, have seen no basic change in the belief that simpler elements, by natural process, spontaneously generated the properties distinctive of life on earth. But the same twenty-three centuries have seen dramatic changes in our knowledge of life. It is therefore appropriate to ask: is the modern version of spontaneous generation supported, refuted, or left undecided by what is presently known of biological chemistry?

Evidence for Spontaneous Generation

Evidences for the modern theory of spontaneous generation are often discussed (either explicitly or implicitly) under four headings. Each topic corresponds to a phase in what is presumed to be a continuous sequence of chemosynthetic, evolutionary development.⁷

(1) **Phase 1** is the combination of small, inorganic molecules (e.g., water, methane, ammonia) to form small organic molecules (e.g., sugars, amino acids, nucleotides). This process presumably began billions of years ago under conditions quite different from those on earth today.

(2) **Phase 2** is the combination of small, organic, Phase 1 molecules to form larger molecules (e.g., starch, protein, and nucleic acid chains).

(3) **Phase 3** is the union of larger, Phase 2 molecules into aggregates or coacervates having a tendency to maintain some structure and to absorb smaller molecules.

(4) **Phase 4** is the appearance of the first life forms, "super-aggregates" or "proto-cells" able to harness energy for their own maintenance, replication, and mutation. The driving forces culminating in the origin of life during Phase 4 are considered to be only time, chance, and a chemical version of natural selection acting upon molecules following the "dictates of their own natures" as reflected in the current laws of physics and chemistry.

Couched in the language of contemporary chemistry, the theory is logical, appealing, easy to visualize, and much evidence can be cited in favor of it.

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Phase 1. There is certainly evidence supporting the *plausibility* of Phase 1, the natural, “*ex vivo*” or “outside life” combination of inorganic into organic molecules. Stanley Miller simulated assumed, early earth conditions in a laboratory apparatus, and he and other workers have obtained sugars, amino acids, and nucleotides from inorganic precursors.

It might be objected, however, that new geological data may be used to argue against Miller’s original assumptions regarding early earth conditions⁸, or that the argument is somewhat circular since the conditions may have been postulated anticipating the results obtained. Wöhler’s *ex vivo* synthesis of urea in 1828 and the whole development of organic chemistry have shown clearly that organic molecules do behave in *chemical* ways. The question remains: will organic molecules spontaneously begin to behave in *biological* ways, as parts in “harmonious co-operation.”

Phase 2. Certainly one feature distinguishing “biological chemistry” from “chemical chemistry” is the influence of protein enzymes. Given an array of small organic molecules, what evidence do we have that these could spontaneously combine to form enzymatic proteins?

The answer here depends upon whether the formation of *any* protein is being considered, or the formation of some *specific* protein. Sidney Fox has actually produced peptide chains by “simply” heating mixtures of amino acids. His results represent only an ordinary chemical expectation for the reactants and level of thermal energy selected for the experiments.

Dr. Fox’s production of various proteinoids under such conditions, however, might be used to argue *against* spontaneous generation. His proteinoids would, of course, possess the general properties of colloids. Although *specific*, appropriate catalysis is surely necessary for life, *general* catalysis might actually favor the destruction of any evolving life; catalysts only hasten the achievement of equilibrium without affecting the balance point of a reaction, and an organism at equilibrium is a dead organism.

Particularly dangerous among the randomly generated Phase 2 proteinoids would be polymerases, enzymes catalyzing the formation of more enzymes. Dean E. Wooldridge of the California Institute of Technology seems to claim such “autocatalytic” enzymes as a real evolutionary advance⁹, but Richard Dickerson of the same institution explains why no living system can tolerate such polymerase enzymes:

The reason is easy; such enzymes would be too dangerous. Enzymes, like all catalysts, speed up forward and reverse reactions equally and accelerate only the drive toward equilibrium. Polymerases are also depoly-

merases. An enzyme that would link two amino acids to form a peptide bond would just as readily break one already formed. With the immense number of peptide bonds present in the protein of an organism, simple mass-action arguments will show that such an enzyme would spend most of its working life as a depolymerase and would work havoc on its host.¹⁰

Dr. Fox’s Phase 2 proteinoids, then, would work havoc on any evolving life simply because of their tendency to promote equilibrium and the accumulation of stable and low energy molecules. Apart from the influence of life, “chemical chemistry” is largely equilibrium chemistry, but “biological chemistry” is largely steady state chemistry based upon the continual input of raw materials and energy into a system capable of harnessing such input to maintain a pool of relatively unstable and continually interacting molecules.¹¹

Please note that the key to biological steady state chemistry is not the energy, but the harnessing system. The energy for many biochemical processes is supplied by ATP. ATP has been produced in Stanley Miller’s apparatus, and phosphate energy has been used by Dr. Fox to obtain proteinoids at lower temperatures. Phosphate energy, however, can be used for both synthesis and destruction of large molecules, and living systems actually “protect themselves” against the dangers of phosphate energy by closely regulating its quantity and distribution.

But just like the potentially destructive force of a gasoline explosion can be harnessed to power automobiles, so phosphate energy can be harnessed to power living systems by appropriately specific enzymes acting in a steady state context. No one supposes that gasoline explosions generated systems capable of harnessing gasoline explosions, and there is no *a priori* reason to suppose that biochemically dangerous phosphate energy generated systems capable of harnessing phosphate energy.

Given a spontaneously generated energy supply, the problem remains: would natural processes spontaneously produce the ordered enzymes and enzyme systems that life on earth requires to harness such energy? Without appropriate enzyme direction, Miller’s phosphate energy and Fox’s generalized proteinoid catalysts would only seem to inhibit the production of life-like systems in the “primordial soup,” and the whole process at Phase 2 would become strongly self-limiting.

Selection is often introduced into the discussion at this point, and claims are made that systems capable of harnessing energy would tend to persist and increase in number. Selection, however, is only a “hindsight” concept that explains the probable survival of a system already originated; selection itself supplies no reason for, or

clue to, the origin of the system for which the survival value is being considered.

The question remains: can the natural processes of time and chance molecular collision produce combinations of molecules with some evolutionary survival value? It seems that time is too short and the odds too long to permit such a view. In a reference text on enzymes, Dixon and Webb put the case simply:

First, the number of proteins of average molecular weight possible is 10^{650} .

Second, assuming conditions more favorable than those postulated, the equilibrium concentration of any particular protein would be only 10^{-99} M, i.e., only one molecule in a volume one hundred trillion trillion trillion times that of the earth.

Third, if the whole weight of the earth were protein, less than 10^{47} of the 10^{650} possible proteins could exist simultaneously, so the odds of finding two proteins of the same kind, even in a mixture the size of the earth, is vanishingly small.

Changing every protein in this mixture every second for five billion years, which is only 10^{17} seconds, would allow pre-biotic systems to sample less than 10^{64} proteins, an infinitesimally small fraction of 1% off all possible proteins. These figures, of course, can be variously "juggled," but it is not surprising that Dixon and Webb introduce their short section on the origin of enzymes by stating: "To say airily, as some do, that whenever the conditions are suitable for life to exist, life will inevitably emerge, is to betray a complete ignorance of the problems involved."¹²

Scientists are not, of course, ignorant of the problems involved. A. I. Oparin, the Russian biochemist who "fathered" the modern theory of spontaneous generation, even wrote: "To the student of protein structure the spontaneous formation of such an atomic arrangement in the protein molecule would seem as improbable as would the accidental origin of the text of Virgil's 'Aeneid' from scattered letter type."¹³

In a recent Wistar Institute symposium, an international group of distinguished scientists grappled with the serious mathematical challenges to evolutionary thought.¹⁴ Several of the participants admitted severe weaknesses in current evolutionary theory, but all seemed confident these difficulties would be resolved by new discoveries or new insights within the evolutionary framework.

Such faith in future support for a theory is a valid and vital part of science. Because finite minds can never include all relevant data or exclude all alternate theories, "truth" in science always remains in the indefinite future. The severe chemical, selectional, and mathematical problems encountered as a result of demonstrated Phase 1 and Phase 2 processes make it impossible,

however, for a scientist to say that present evidence supports the modern theory of spontaneous generation.

Phase 3. Phase 3 involves spontaneous formation of molecular aggregates with some life-like properties. Every housewife who has made "Jell-O" or used soap to "float away" skillet grease or mixed up a "Good Seasons" salad dressing has watched organic molecules form membranes and more or less stable aggregates rapidly and spontaneously. Indeed, aggregation, fission, pulsation, and movement can be observed with a blob of mercury under appropriate and simple conditions. Formation of crystals, of course, is the most dramatic example of spontaneous appearance of order.

According to the Second Law of Thermodynamics, a price must be paid for spontaneous appearance of order. A high price is paid, for example, by the tobacco mosaic virus (TMV), which can spontaneously re-assemble after being shaken apart.

First, a tremendous amount of energy and machinery (supplied by a living tobacco leaf cell) is required to form the 2130 ornately sculptured proteins whose specific distribution of facets and electrical charges make the self-assembly possible. Second, the assembly of these exquisite proteins proceeds with a decrease in free energy, so the assembled form represents an equilibrium condition of relatively low free energy. Hence, the virus is dead, i.e., incapable of any further meaningful transformations of energy.

The ability of molecules to form various aggregates, then, is not distinctive of life; it is, rather, a property common to both living and non-living systems. Phase 3 demonstrations, like those for Phases 1 and 2, have only shown that organic molecules behave in chemical ways. Still lacking is a demonstration that organic molecules will begin spontaneously to behave in biological ways, i.e., as parts in "harmonious cooperation" harnessing energy for their own maintenance, replication, and mutation.

Phase 4. Phase 4 deals with the origin of this "harmonious cooperation," the transition from chemistry to biology and from nonlife to life. Twenty-three centuries ago, Chung Tzu asserted that the "harmonious cooperation" distinctive of life would result from parts following the "dictates of their own nature" and "not from the orders of a superior authority external to themselves."

Is there any evidence to support this ancient assertion, or its modern counterpart? Is there any evidence that life on earth resulted from time, chance, and selection acting upon molecules following the "dictates of their own natures" reflect-

ed in the current laws of physics and chemistry? The answer, quite simply, is no.

There is no evidence at all that natural processes and two to five billion years spontaneously generated the life on earth.¹⁵ What we have, indeed, is evidence exactly contrary—evidence that molecules in living systems interact in “un-natural” ways that are contrary to the “dictates of their own natures” and actually imposed upon them by “a superior authority external to themselves.”

Evidence for Creation

The most striking example of such an “un-natural” relationship is that between DNA and protein. Central to current molecular biology is the well supported theory that the sequence of bases in DNA (or RNA) molecules determine the sequence of amino acids in particular proteins, and this relationship is considered the basis for growth and development in viruses and all known life forms.

This absolutely vital relationship, however, is neither direct nor “natural.” The observed relationship is between the bases of DNA and the variable “R” groups of amino acids. There is, however, no chemical reason at all to suspect any sort of regular relationship between single and double ring bases and R groups that vary from a hydrogen atom to methyl, alcohol, sulphhydryl, acid, base, and ring groups.

Left to themselves, primordial DNA fragments and amino acids might be expected to form some sort of base-acid or acid-base relationship,¹⁶ and this natural chemical relationship would actually hinder the development of the “un-natural” relationship observed. Most significantly, the observed relation *necessitates a translation* process to establish the base-R group relationship (and to prevent the natural tendency of DNA bases and amino acids to react in the “wrong way”).

One translation molecule apparently employed by living systems is transfer RNA, one for each amino acid. But transfer RNA has no general tendency to combine with amino acids in any meaningful fashion, and no way at all to recognize the specific amino acid whose code name it bears. In present living systems, this “un-natural” combination of a *specific* transfer RNA with a *specific* amino acid is brought about by a *specific* activating enzyme which “recognizes”:

- (1) the R group of the amino acid, and
- (2) the codon bases of the transfer RNA, while at the same time holding the two molecules so that (3) the acid of the amino acid (already energized by the addition of AMP) can be coupled to (4) the sugar portion of a non-codon nucleotide of the transfer RNA.

This activating enzyme—the only molecule that “understands” the “un-natural” relationship between bases and the R groups of amino acids—

is a very highly ordered molecule including a necessary minimum of four active sites (five, if the AMP energy site is included). A molecule as highly ordered as the activating enzyme is not, of course, the sort of molecule likely to occur as a Phase 2 proteinoid, and several such molecules would be required to make even simple proteins.

Furthermore, the problems in establishing the “un-natural” relationship between DNA and protein only begin with activating enzymes. The amino acid coupled to its transfer RNA must still be coupled to another amino acid, the specific amino acid designated by the next codon in the informational base series.

In present living systems, this process involves ribosomes, ornately complex particles of several RNA and protein molecules including enough active sites properly spaced to (1) read an informational base series one codon at a time in the correct sequence, (2) hold onto a transfer RNA and remove its amino acid, and (3) hold one amino acid in position to combine with the next as the ribosome moves on to the next codon.

Several transfer RNA's and activating enzymes and at least one ribosome seem to be minimal requirements for making amino acid sequences from base sequences, not just “trim” for speeding up a natural process or elaborating on simpler systems. All these components, or several equivalent, imaginary “super coupling enzymes” of equal or greater complexity, would be needed to establish the observed continuing “un-natural” relationship between a particular series of bases and a particular series of amino acids, and this “un-natural” relationship is the basis of all life on earth.

What do I mean here by “un-natural”? Do I mean that the cellular relationship between DNA and protein violates the laws of physics and chemistry? No, not at all.

I mean these laws are fundamentally *irrelevant* to the problem of the *origin* of the DNA-protein relationship, just as Ohm's law and other laws relating to electricity are fundamentally irrelevant to the origin of a television set. No laws of physics are violated in the *operation* of a television set, but the operation of Ohm's law, etc., over any period of time does not explain the origin of the television set.

Indeed, an objective observer would have no trouble ascertaining that a television set is an “un-natural” or “un-spontaneous” relationship of wires, tubes, cathode rays, etc., a product of “something” familiar with the laws of physics, but not a product of the laws themselves, or of copper ore, glass, phosphorus, etc., following the “dictates of their own natures.”

That is, an objective observer would conclude that the relationship among the parts of a television set is an “un-natural” one *imposed* upon

the parts of the system by something "external to themselves." I am suggesting that biologists, for similar reasons, should conclude that life on earth is a "manufactured product," a system of relationships imposed upon matter by "a superior authority external to themselves."

Please note that I am neither "arguing from design" nor from the mathematical complexity of the relationships involved; I am arguing from the *kind* of relationships observed. Consider, for example, a geologist traveling through the West. He finds two columns of rock side by side, each column bearing a striking resemblance to a man in outline.

On one column, the nose, ears, chest, and other such prominent points in the outline are made of hard, weather resistant rock, and the neck and grooved regions of the body are made of soft rock, easily weathered. The appearance of such an ordered and improbable relationship could easily be explained by time, chance, and the natural processes of weathering.

The other column appears no more ordered or improbable, but the geologist finds that many prominent features are of soft rock, and many apparently more worn rocks are harder. Because of the "un-natural" relationships in the second column, the geologist would drop any thought that the column was formed spontaneously, and he would quite easily conclude that the column had been manufactured, perhaps carved by Indians.

I am suggesting that biologists, because of the kind of relationships among molecules in living systems, should conclude life on earth, like the second rock column, is a "manufactured product."

Scientific Explanation

Biological data currently available may be used to argue significantly that life on earth has descended from life forms originally manufactured by "a superior authority external to themselves," so it is reasonable to consider that life was authored by the Lord God, even Jesus the Christ, a possibility opened to our minds by the Bible (John 1 and Genesis 1 and 2).

Unfortunately, many biologists regard the Biblical explanation of life's origin as "unscientific," and even Christians try to "harmonize" science and the Bible by saying that God created and that spontaneous generation scientifically explains how He created. The modern theory of spontaneous generation, however, offers no scientific explanation at all for the origin of life on earth.

The factors presumed to explain the spontaneous origin of life are time, chance, and a form of natural selection operating on some "primordial soup." Time is the most disappointing element in spontaneous generation. The maximum of five

billion years allowed for the process is only 10^{17} seconds or 10^{23} millionths of seconds, insignificant figures compared to improbabilities reaching far beyond the 10^{1000} level arbitrarily designated "impossible" on some computers. Dr. Schützenberger found such a computer just "jammed" when he tried it with an evolutionary problem much simpler than life's origin.¹⁷

Nor will time produce slowly the same biochemical reactions that today occur rapidly because of enzyme help. Though free from competition with existing life, any evolving biochemistry would not be free from substrate competition or from competition with hydrolysis, both demanding fairly rapid, directed syntheses. More importantly, time is not a force that can make molecules behave in a consistently "un-natural" way, and this is the sort of force that seems required to originate the "harmonious cooperation" that living systems then perpetuate.

"Chance," the second element in spontaneous generation, can be a deceptive concept. When "chance" refers to Phases 1, 2, and 3, it usually means, "what would be the probability of natural chemical and physical processes producing a significant quantity of some molecule or aggregate," a scientific use of the word "chance."

Put in Phase 4, the meaning of "chance" changes. To ask, "what are the chances that DNA and protein will establish a relationship through necessary translation intermediates" is to ask, "what are the chances that the natural operation of chemical and physical laws will be violated over a series of events." "Chance" here has a mystical rather than scientific ring, and is devoid of explanatory value.

Mathematical odds, of course, can be calculated, but it is like calculating the odds that a Roman candle, randomly fired, could put a man on the moon. The odds of hitting the moon rather than some other area of space could be calculated, but such an abstract figure would fail to recognize that a Roman candle does not have the empirical potential to reach the moon.

Similarly, the forces imagined to produce the DNA-protein relationship are insufficient for the task. But as Saki wisely observed: "When once you have taken the impossible into your calculations, its possibilities become practically limitless."¹⁸ Those who use "chance" to argue that "anything is possible" have reached the antithesis of science, whose laws are based upon the assumption that some things occur and others do not.

Selection is the final and distinctive element in the evolutionary view of life's spontaneous origin, but Darwin himself seemed to recognize that natural selection never was, and never could be, an explanation of origin. As a "hindsight" concept selection only attempts to explain how

certain trait combinations survive once they have somehow originated. (Darwin accepted, perhaps reluctantly, the now discarded pangenesis theory of origin of variations.)

The selectional argument, for example, that those aggregates which developed the ability to replicate increased in numbers sounds meaningful, but offers no explanation at all of how the aggregates originated their replicating fitness. In a lecture series at Haverford College, Manfred Eigen of the Max Planck Institut für Physikalische Chemie described a feedback system in which a series of nucleotides produced a series of amino acids which, in turn, induced the nucleotide series to form another amino acid series much like the first.¹⁹ Dr. Eigen elegantly showed such a system would possess, for physical reasons, a selectional advantage promoting its own increase in numbers.

He began his argument, however, by saying, "if we assume" a series of X's and a series of Y's interacting in a feedback process. It is this assumption, however, that is the key issue, especially since the nucleotide (X) to amino acid (Y) translation necessarily involves complex and "unnatural" intermediate steps. When I asked him afterwards how the relationship between nucleotide and amino acid series was originally established, Dr. Eigen replied that this was indeed the key difficulty.

Besides failing to solve the key difficulty in spontaneous generation theory, selection at Phases 1, 2, and 3 might actually operate *against* spontaneous generation. Biological selection basically differentiates between organisms each acting as if it were striving to survive.

Chemistry, however, is concerned with molecules interacting as if they were striving to attain low energy, stability, or equilibrium. So, chemical selection in Phases 1, 2, and 3 would tend to accumulate relatively stable molecules at the expense of the labile molecules required by living systems.

The somewhat mystical, scientifically inadequate²⁰, nature of the modern theory of spontaneous generation is eloquently indicated by a well known writer on evolution, Loren Eiseley:

Men talk much of matter and energy, of the struggle for existence that molds the shape of life. These things exist, it is true; but more delicate, elusive, quicker than the fins in water, is that *mysterious principle known as "organization,"* which leaves all other mysteries concerned with life stale and insignificant by comparison. For that without organization life does not persist is obvious. Yet this organization itself is not strictly the product of life, *nor of selection.* Like some dark and passing shadow within matter, it cups out the eyes' small windows or

spaces the notes of a meadow lark's song in the interior of a mottled egg. That principle—I am beginning to suspect—was there before the living *in the deeps of water.*²¹ (Emphases added)

The current theory of spontaneous generation, then, offers no scientific explanation at all for life's origin. Instead, it presents an implausible, deceptively easy to visualize, sequence of events fundamentally inconsistent with inherent assumptions about the adequacy and uniform applicability of present statistical, chemical, and selectional laws.

The Biblical explanation of life's origin is much more scientific. First, the data of biology are interpreted very reasonably from the position that earth's life originated as a result of "a superior authority external to themselves," and the Bible opens to our minds that God in Christ is that "superior authority." Dr. Eiseley comes very close to an independent assertion of the Biblical thesis when he seeks for a "mysterious principle" of "organization" in the "deeps of water." These are phrases that will remind many of the Genesis description of the Spirit of God moving over the chaotic deep before He "organized" the world.

Second, the Bible, by objective standards, represents at least a small part of the data pertinent to a discussion of life's origin, and there is no logical reason to dismiss its statements without examining them. So, even though the Biblical identification of the Lord God as Creator can nearly be arrived at inductively, it is legitimate for some intrigued by the Biblical thesis to begin a deductive investigation of its agreement with nature.

Third, there is much agreement between the Biblical account of life's origin and the present data of biology. Both the evolutionary and the Biblical concepts agree, for example, that living systems are fundamentally ordered "dust of the ground," forms not unique in substance but in organization or "harmonious cooperation."

Fourth, the Biblical explanation of life's origin is scientific because it encourages testable deductions and stimulates further research. Some, for example, are stimulated by the Biblical account to suppose that man, the image of the Creator, has the potential to form a kind of life from "dust," an exciting and practical field of research. Others see in the Biblical comments on "kinds" the possibility of an objective taxonomy based upon experimental tests rather than the often contradictory and subjective evaluations of experts. Still others deduce from the Biblical account hypotheses of fossil formation and distribution much more consistent with fossil data than current evolutionary interpretations.^{22,23,24}

"Creationism" stands between the extremes of "vitalism" and "mechanism," a synthesis of both

the possibility of supernatural origin and natural operation. For the scientist whose mind is open to the discovery of imposed or "created" relationships, biology becomes a scientist's dream: a highly ordered system of relationships which has coherence, understandability, and meaning guaranteed by God Himself. Neither spontaneous generation nor the Biblical explanation of life's origin is completely empirically testable, but, because of its high view of the orderliness of nature and its ability to integrate the data of biology and to stimulate research, the Biblical explanation is certainly scientific.

The God-centered view of life will not be accepted as scientific, however, if "scientific" is confused with "materialistic." A. I. Oparin, the father of the modern concept of evolutionary spontaneous generation, never even considered the possibility that life properties arose by the orders of "a superior authority external to themselves." Even before he begins to present evidence for his theory, Dr. Oparin announces his conclusion as follows:

Engels shows that a consistent *materialistic philosophy* can follow only a single path

in the attempt to solve the problem of the origin of life. Life has neither arisen spontaneously [in the sense of quickly] nor has it existed eternally. It must have, *therefore*, resulted from a long *evolution* of matter, its origin being merely one step in the course of its historical development.²⁵ (Emphases added)

For those whose minds are not closed to the possibility, the God-centered view of life offers rich treasures. To the scientist, the Bible offers a highly ordered and meaningful world developed according to "Logos," the Divine Plan, or the Word, for:

In the beginning was the Word [Logos], and the Word was with God, and the Word was God. He was in the beginning with God; all things were made through him, and without him was not anything made that was made. (John 1:1-3)

To the person, the Bible offers a personal world, for "the Word became flesh and dwelt among us, full of grace and truth" (John 1: 14), having come, as Jesus said, so that we might "have life, and have it abundantly." (John 10: 10).

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CREATION AND THE ORIGIN OF SEX

WILLIAM STROUD*

The origin of sex from the standpoint of evolution is extremely unlikely while at the same time the existence of sex is a strong evidence favoring special creationism.

The general picture of how evolution works is now clear. The basic raw material is the mutant gene. Among these mutations most will be deleterious, but a minority will be beneficial. These few will be retained by what Muller has called the sieve of natural selection. As the British statistician R. A. Fischer has said, natural selection is a "mechanism for generating an exceedingly high level of improbability." It is Maxwell's famous demon superimposed on the random process of mutation. Despite the clarity and simplicity of the general idea, the details are difficult and obscure.¹

The foregoing statement is representative of the mechanism currently postulated by which all life forms supposedly arrived at their present configurations.

It is the writer's contention that this hypothesis contains a tacit assumption about sex, a system essential to the theory. It will be shown, that under present physical laws, the observed nature of mutations, and population genetics, the gradual evolution of present life forms according to the currently proposed Neo-Darwinian framework is not possible. Existence of a system of sexual reproduction is gratuitously assumed.

Specific Case Discussed

As a specific case, consider the proposed common mammalian ancestor and the changes in the reproductive organs necessary to give rise to such extremes in size as mouse and moose. Random mutations would indeed produce an array of deformations in the genitalia of such a progenitor. The point of interest in this case is that the organs of each sex function as environmental selectors on the mutant organs randomly occurring in the other sex.

The situation, then, is not one of environmental selection operating on a randomly fluctuating gene pool, but two independently variable parameters that must, however, be at all times compatible with each other in order to propagate and maintain the species in question.

Yet, even if the progeny of some aberrant type did survive, there would be *no* selection advantage, since each mutant organ would be "selected" only with respect to random mutations occurring in the opposite sex, not with respect to an environment external to the whole species. Es-

tablishment of this mutant form would seem to be ruled out in any length of time.

To further compound the problem, the limited, recurrent, nature of these genetic mutations is best seen in the often quoted statement of Goldschmidt:

It is true that nobody thus far has produced a new species or genus, etc., by macromutation. It is equally true that nobody has produced even a species by the selection of micromutations. In the best-known organisms, like *Drosophila*, innumerable mutants are known. If we were able to combine a thousand or more of such mutants in a single individual, this would have no resemblance whatsoever to any type known as a species in nature.²

It would seem that the strictures cited previously bear even more stringently upon the chromosomal rearrangements favored by Goldschmidt as an evolutionary mechanism.

The Ultimate Objection

The ultimate objection, however, is the origin of the sex difference itself, demanding simultaneous introduction of mutually compatible organs of both male and female, at whatever primitive level of life one wishes to introduce sexual reproduction. In essence, based on present observable processes, unless these two independent systems (male and female), both mutually compatible, and otherwise functional, arose simultaneously from a population that heretofore was reproducing asexually, then there was no copulation, no progeny, no evolution.

It is true that one can postulate multiple simultaneous mutations occurring in past history that are not now observed. One could go so far as to postulate a saltational origin of the two sexes. But such multiple mutation or jump evolution concepts are unlikely and are rejected by a majority of biologists, including evolutionists.

And certain aspects of human sexual reproduction have not been considered in this short paper. While the forementioned objections are germane to human reproduction, the remarkable matter of secondary sex characteristics, and divergent but complimentary psychological and hormonal responses would further complicate any evolutionary "explanation" of the origin of sex.

Conclusion

For some time, the origin of the sexes has been to this writer an evidence of a Creator (or in the strictest sense, an obstacle to acceptance

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SHOULD EVOLUTION BE TAUGHT?"

JOHN N. MOORE**

Students, teachers, and parents encounter emphatic presentation of organic evolution as fact. An objective pattern of opposition, based on scientific work, to this type of teaching of organic evolution is provided.

Two theories of evolution: the general and the special, are explicated. Each theory of evolution is examined with regard to reasonable predictions that can be stated within limits of the normal scientific viewpoint. Conclusions are reached that the fossil record (the historical record) cannot be used to support the general theory of evolution; there are no intermediate or transitional forms in the fossil record.

Breeding experiments with plants and animals afford extensive data, usable in support of the special theory of evolution; however, to avoid equivocation of terms the phenomena involved might just as well be called "genetic variation." ALL known, observable changes of living things are always WITHIN recognizable limits of variation of major groups of plants and animals. Thus there is empirical support for the special theory of evolution only.

The general theory of evolution, at most, should be optional for a science course, while the special theory of evolution is an appropriately required area of study to exemplify characteristic scientific procedures and findings.

Introduction

All across this nation parents with children in non-parochial schools, and also parents whose children attend parochial schools, are asking, should evolution be taught? In state after state, parental attention is increasing regarding science courses that include the teaching of evolution *as fact*. Criticisms of the teaching of evolution have appeared in newspapers in Arizona, Arkansas, Delaware, Idaho, Indiana, Kentucky, Michigan, Mississippi, Tennessee, Texas, and Washington. And as the 1970's began, new impetus for parental criticism came with public discussion in California of guidelines for writing elementary science textbooks.

Such parental attention to methods of teaching evolution in science courses has increased as a result of increased adoptions of the BSCS textbooks produced under the leadership of the American Institute of Biological Sciences, and so conveniently labeled the Green, Yellow, and Blue Versions of Biology. Early criticism of these BSCS textbooks, with regard to treatment of evolution *as fact*, began when a few ardent parents testified in 1964 at the Texas Textbook Review Committee hearings.

Of course criticisms of the teaching of evolution have been heard for a long time in many lands. Scholars criticized application of Darwin's ideas in his day, professors pointed out fallacies in Haeckel's reasoning, and likewise for social Darwinism. And within the last few years, certain biologists and mathematicians have

expressed critical opposition to monophyletic evolutionary thought. Wistar Institute in Philadelphia published a Symposium Monograph in 1967 entitled, "Mathematical Challenges to the Neo-Darwinian Interpretation of Evolution."¹ And McGraw-Hill, Inc., published two such articles: "Heresy in the halls of biology: mathematicians question Darwinism"² and "Thinking the unthinkable: are evolutionists wrong?"³, in a company publication, *Scientific Research*.

These few references are mentioned simply to point out that evolution is under scholarly criticism once more (really *still* under criticism, since criticisms of evolution and natural selection by *scientists* in every decade since Darwin's day can be documented thoroughly). In point of fact, of course, evolution should be criticized in accordance with the very tenets of scientific attitude and operative scientific methodologies.

And especially apropos to the question whether evolution should be taught in a science course, the following assertion is pertinent at the outset; namely, that this question can be answered on scientific grounds, as should be the case for a subject so much discussed by men who call themselves scientists. That this question can be resolved on a scientific basis is a crucial fact that opponents of evolution in high school textbooks often have failed to affirm. To make explicit the scientific grounds for much of the parental opposition to the teaching of evolution as fact is the purpose of this article.

One brief interjection as added introduction. Ideas expressed in this article should not be confused with the position of censorship. No support is intended for removal of the teaching of evolution from school curricula. Rather the author asserts that evolution must be mentioned since it is such an ancient idea of men, but the manner in which evolution is taught is all im-

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portant. Evolution should *not* be taught as fact, that is, *as if* it were observable, or that someone had actually seen one animal form change into another animal form.

Background: Definitions and Assumptions

As background, an explication of the meaning of the word "science" or an answer to the question, what is science?, is required. Of course the word "science" comes from the Latin for knowledge; and, according to a common dictionary definition, a student will find that science is knowledge attained through study or practice. These give a static meaning for science.

A more dynamic definition was provided by John Somerville⁴: "Any body of doctrine or collection of truths is scientific to the extent that it yields the power to predict in relation to the subject matter of its choice." And a decade later in 1951 James B. Conant offered the definition that—

Science is an interconnected series of concepts and conceptual schemes that have developed as a result of experimentation and observation and are fruitful⁵ of further experimentation and observation.

And the Oxford Dictionary contains a formal definition as follows:

A branch of study which is concerned either with a connected body of demonstrated truths or with observed facts systematically classified and more or less colligated by being brought under general laws, and which includes trustworthy methods for the discovery of new truth within its own domain.

Thus, from these last three definitions, scientific activity involves dynamically facts that can be observed or demonstrated and laws, which have been demonstrated also, by means of *trustworthy* methods for discovery. Then at the core of scientific method or methods is experimental repeatability or reproducibility. Other synonyms for this core idea are predictability and/or control. As G. G. Simpson has pointed out:

The important distinction between science and those other systematizations (i.e., the arts, philosophy, and theology—J. N. M.) is that science is self-testing and self-correcting. The testing and correcting are done by means of observations that can be repeated with essentially the same results by normal persons operating by the same methods and with the same approach.⁶

Therefore, the heart of scientific method is the problem — hypothesis — test process. And, necessarily, the scientific method involves predictions. And predictions, to be useful in scientific methodology, must be subject to test empirically. The pertinent question to ask, therefore,

is whether this is the case with regard to the theory of evolution? But before that question can be met, some consideration of presuppositions or assumptions of scientists is in order.

Scientific activity is built upon certain basic assumptions that are accepted implicitly or explicitly by all scientists. The scientist begins by supposing that there is a real world. Then he assumes that there is a discoverable uniformity or dependability about his natural environment, that the unfamiliar is explainable in terms of the familiar through analogy, that there are simple explanations of things and events, and that his statements should be subject to criticism and correction. From the latter assumptions the scientist develops details of interaction of empirical and theoretical processes covered in the Conant and Oxford Dictionary definition of science.

One more basic assumption or presupposition of the scientist is very important and can be connected with the pertinent question about predictions from the theory of evolution; that is, an assumption of causality whereby natural events involve a network of causes and effects. On the basis of knowledge of regular and predictable changes the scientist detects an association between events and he infers a cause-effect relation. At first the scientist assumes that the same causes are associated with the same effects in time. Sometimes he finds that different causes produce the same effect and he studies the situation further for some more initial possible cause.

If the scientist follows through a network of causes, partial causes and effects, he may find himself searching for a beginning, that is, he finds he is faced with searching for the first cause. However, most scientists recognize their limitations and the limitations of methods of scientific activity and do not press for a first cause, as scientists. Most scholars will agree that first causes extend the searcher beyond the realm of scientific activity; first causes, then, become the primary concern of theologians, metaphysicians, and philosophers.

However, at just this point of searching for first causes, many men in numerous sub-fields of scientific activity want to press on to discuss possible "origins." Faced with a vast array of data from controlled experiments and tested predictions of some theories, many biologists particularly, though this is also true of many physical scientists, want to ask questions of "origin" of the universe and matter, of the "origin" of life in animal and plant forms, of the "origin" of man, and of the "origin" of man's language and culture. In these modern times, an all encompassing, total evolutionary point of view, or world view, or theory has been proposed as the answer to the questions of "origins."

Of course critics of the theory of evolution have found with G. A. Kerkut⁷ that a General Theory of Evolution and a Special Theory of Evolution must be distinguished.

A proponent of the General Theory of Evolution, which is the amoeba to man thesis, would state that all living things in the world have arisen from a single source that came from an inorganic beginning. Thus, according to the General Theory of Evolution, the first living cell "evolved" into complex multicellular forms of life; these gave rise to all forms of invertebrates; in turn, invertebrates "evolved" into vertebrates; fish into amphibia, amphibia into reptiles, reptiles into birds and mammals, early mammals into primates, and finally primates "evolved" into man. Unmistakably this is the basic meaning of the term "evolution" for most people.

And a proponent of the Special Theory of Evolution would state that many living plants and animals can be observed, over the course of time, to undergo changes so that new varieties are formed.

Now to the question: Can predictions be made with regard to the General Theory of Evolution *and* the Special Theory of Evolution that are subject to test empirically? Only the major prediction associated with each theory will be given attention. Since no theory can be tested directly, tests of predictions based upon a theory afford the only means of confirming or discrediting a theory.

Fossil Record Considered

Examination of the General Theory of Evolution is based on consideration of the fossil record. The fossil record is *the prime source* of so-called evidence for the General Theory of Evolution because it is interpreted as the record of what *has existed*, of what *has happened*. Many authorities agree that the *decisive* "evidence" for the General Theory of Evolution must be based upon what they consider to be historical, that is, the fossil record. Charles Darwin and many, many other scientists have recognized this fact.

The very essence of evolutionary thinking is slow change. Therefore, a major prediction from the General Theory of Evolution would be that researchers would expect to find a record of *gradual transition* from the least complex to the complex. This is the major prediction from the general theory. In fact, if the General Theory of Evolution ever has any empirical basis, such a gradual transition of fossils *must* be found.

In other words, systematic or regular gaps must be *absent* from the fossil record, and transitional forms at some stage between all phyla, classes, orders, families, genera, and species *must* be found. Such transitional forms

must be found if the General Theory of Evolution, defined already as amoeba to man, has occurred. Of course, to be fair, one must admit that some sporadic gaps might be expected in the fossil record. The geological record is not complete. However, there must be *no regular or systematic gaps* in the fossil record.

Is this actually the case? How do predictions of the existence of transitional forms survive the test of observation? (The importance of predictions with regard to the theory of evolution has been well worked out by Prof. Earl D. Hanson⁸ of Wesleyan University.)

Earliest Invertebrates in Cambrian Strata

The earliest or most ancient geological period in which *indisputable* fossils are found is known as the Cambrian Period according to the generally adopted geological time scale. Noteworthy is the fact that every major invertebrate form of life is found in Cambrian strata. In fact, billions and billions of fossils are found in Cambrian strata.

Yet not a single indisputable fossil *prior* to the Cambrian Period has been found! Not a trace of any record of Pre-Cambrian life can be found of indisputable ancestry to the well-identified Cambrian invertebrate forms. Paleontologist G. G. Simpson is reported to have considered the absence of Pre-Cambrian fossils as the major mystery of the history of life.

Noteworthy at this point is the fact that no single-celled organism is considered simple anymore as a result of analysis through the electron microscope. Actually the fossil record contains remains of life which ranged from the *complex* to the *complex*, not from the simple to the complex!

But, if there is a "mystery" about the absence of evidence of ancestors of Cambrian life, there is still another even greater difficulty or mystery which arises when the prediction about the presence of transitional forms in the fossil record is tested. There is a systematic and universal absence of any transitional forms between all higher categories of life, that is, between all phyla, all classes, all orders, and almost all families. Just where the fossil record is needed the most, the claims of proponents of gradual evolution are not supported by the necessary evidence.

Transitions would have required thousands of generations and millions of years, according to the General Theory of Evolution, and an abundance of transitional forms should be found in the fossil record. However such transitional forms *cannot be found*! Actually sudden appearance of different kinds of animals is the logical deduction from the fossil record! In point of fact, transitional forms between the invertebrate

phyla, which appear suddenly in the Cambrian Period strata, have never been found.

Furthermore, since vertebrates appear supposedly in the fossil record more recently than invertebrates and are more complex in organization, proponents of the General Theory of Evolution claim that vertebrates “evolved” from invertebrates. *Then* transitions from the invertebrate, either from animals which had hard outer shells and soft inner bodies or those which were just soft-bodied forms, to vertebrates with a soft outer body and hard inner parts or skeleton would have been a tremendous transition, indeed, and should be abundantly documented in the fossil record, if such transitions actually took place. However, not a single such transitional form has ever been found!!

The earliest vertebrate fish is found in the fossil record as 100% vertebrate. Amphibia appear more “recently” in the fossil record than fish. But the amphibia appear as 100% amphibians, and no one would confuse them with fish. Not a single transitional form has ever been found! And the same flat assertion can be made in summary of other vital transitions, such as amphibia to reptile, reptile to birds, and reptile to mammals.

For instance, not a single fossil in which forelimbs are “evolving” into wings, or scales into feathers, has ever been found. These and other necessary transitions, such as hind feet into perching feet, and heavy reptilian bones into light avian bones, must be found in transitional forms, if the General Theory of Evolution is to be presented as part of significant scientific knowledge.

No one has produced yet a single fossil with half-way wings or a fossil of an animal showing a transition half-way between the cold-blooded, scaled reptile and the warm-blooded, feathered bird. If reptiles “evolved” into birds, thousands of such bizarre transitional forms should be found in the fossil record without difficulty. And not even the fossil *Archaeopteryx* can qualify as a transitional form, because it apparently had a bird-like skull, perching feet and fully developed wings with feathers. It was in the fullest sense a bird. It was no more a connecting form between reptile and bird than the bat is between mammal and bird.

Evolution Proponents Might Argue

Proponents of evolutionary theory in the general sense may want to argue at this point that successful predictions have been made with respect to the fossil record. Some might be inclined to argue that because of the concept of evolution men have been aided in seeking fossil remains in-between those already located and identified. For instance the so-called horse “series” or different elephant specimens might be

pointed to by evolutionary proponents as results of successful predictions regarding the fossil record. Because some specimens were located, then proponents of evolutionary theory are want to claim that researchers were aided by evolutionary theory to go to specific rock layers and look for possible in-between specimens.

However, the horse “series” does not display evolution; that is, the so-called horse series does not serve as an example of the General Theory of Evolution. True, men have *thought* they were using the General Theory of Evolution when they looked at specific rock layers for in-between specimens of horse or horse-like remains.

But careful analysis of their work and reports brings out that the so-called series of horses from possible dog-size and five toes, on through supposed changes to three toes, and then large horses with one toe only of functional use, exemplify *ONLY* variational changes within one kind or form of complex organism, namely, horses. The so-called five, three and present one-toed horses are *all horses* when the discussion is concluded. Ergo no evidence, absolutely no direct or indirect evidence, has been presented for the General Theory of Evolution, which requires change from one form into another form. It is likewise possible that these fossil creatures represent four or five distinct types that are unrelated organically to the modern horse.

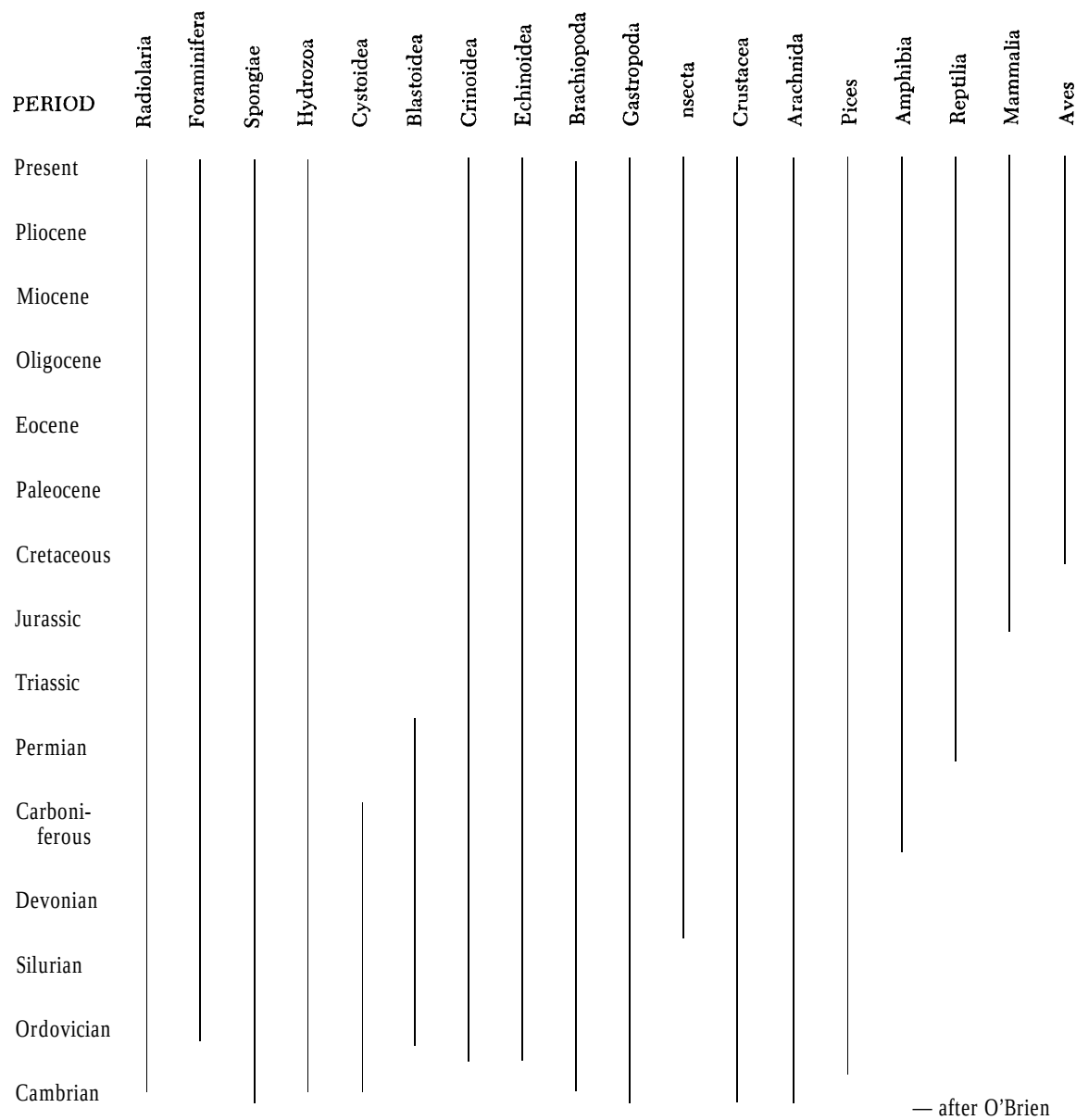
No change from one animal form into another recognizable animal form has been shown or reported. Only a constancy of form or kind has been displayed if we accept the so-called fossil evidence as reliable for horse ancestry of the present form. Thus evolutionary proponents have not made any successful predictions regarding the fossil record, as far as the General Theory of Evolution is concerned.

Documentation of No Transitional Forms

Clear documentation for this position is available in the 1967 publication, *The Fossil Record* (A Symposium with Documentation), jointly sponsored by the Geological Society of London and the Palaeontological Association of England⁹. Attention to this thorough scientific work resulted from the suggestion of Father Vincent J. O'Brien, science master at Castlenock College, County Dublin, Ireland and chairman of the Association of Irish Teachers of Science.*

In this research volume, some 120 scientists, all specialists, prepared 30 chapters in a monu-

*Editor's Note: V. J. O'Brien, C.M., Castlenock College, County Dublin, Ireland, has published independently a helpful anti-evolutionary treatise entitled, “Evolution: The Minority View.” He effectively presents the problem of the gaps in the study of fossil men, horses, and birds.



— after O'Brien

Chart 1-Generalized Geological Record of Animals. Vertical lines represent duration of existence in each animal group. No common ancestors are known. (Based on Harland, W. B. and Others (Editors). The fossil record. London: Geological Society, 1967.)

mental work of over 800 pages to present the fossil record for plants and animals divided into about 2,500 groups. Also these specialists prepared 71 highly instructive and authoritative charts that are included throughout the chapters of the book (See Charts 1 and 2). Acknowledgement should be made of the fact that some zoological specialists attempted to indicate possible limited “connections,” but such tenuous relationships always involve possible “connections” WITHIN major divisions of animals, viz. Porifera, Brachiopoda, Mollusca, Agnatha, Amphibia,

Aves, Mammalia. No such limited “connections” were recorded by any botanical specialist.

However, a conclusive generalization drawn from these charts is as follows: **Each major form or kind of plant and animal is shown to have a separate and distinct history from all the other forms or kinds!!!**

Groups of both plants and animals *appear suddenly* in the fossil record. For example, most mammals appear in the so-called Eocene division and are as diverse then as researchers find them to be today. Whales, bats, horses, primates, ele-

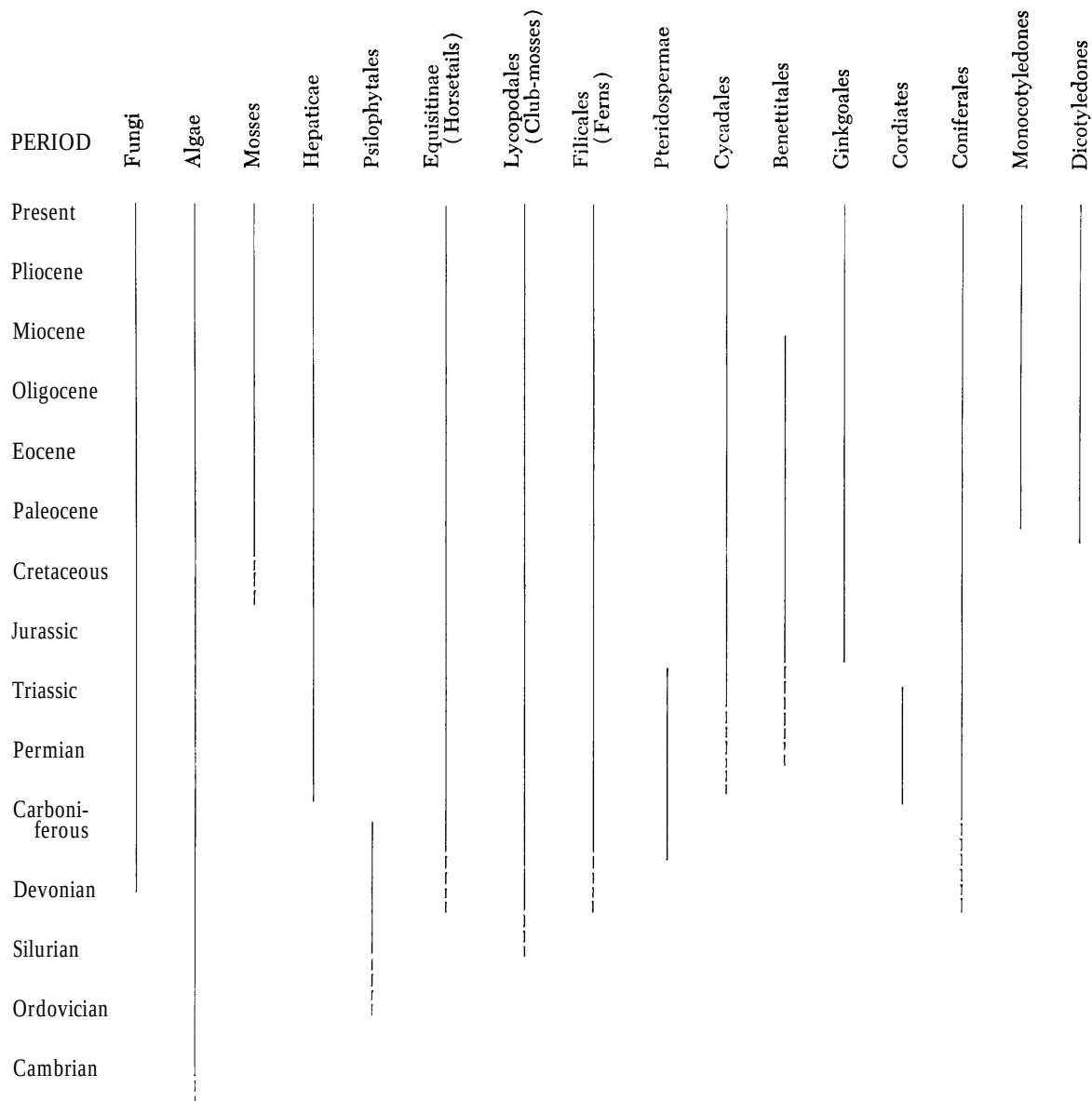


Chart 2—Generalized Geological Record of Plants. Solid vertical lines represent duration of existence of each plant group. Broken line portions indicate some doubts as to earliest appearance of some groups. No common ancestors are known. (Based on Harland, W. B. and Others (Editors). *The fossil record*. London: Geological Society, 1967.)

phants, hares, squirrels, etc., all are as distinct at their first appearance as they are now. There is not a trace of a common ancestor, much less a link with any reptile, the supposed progenitor. And the same is true of the *sudden* appearance of about 50 families of flowering plants in the so-called Cretaceous division of the accepted geological time scale.

Many summary paragraphs could be included here on the outstanding scientifically documented information about plants and animals in the fossil record. But the important point to

make is that knowledge of the content of the above cited book is not recent. Specialists in the proper fields have possessed most of these facts for decades. And proponents of the General Theory of Evolution, who are familiar with the facts of paleontology, admit existence of gaps between *all* higher categories. They admit that this is an undeniable fact of the fossil record.

Authorities Recognize Gaps

Simpson has asserted¹⁰, "It is a feature of the known fossil record that most taxa appear

abruptly Gaps among known orders, classes, and phyla are systematic and almost always large." This is a very important statement by this specialist. Simpson said the gaps are **systematic!!** But this is precisely what cannot be allowed if the General Theory of Evolution is to be supported empirically.

Prof. Alfred S. Romer¹¹ of Harvard University has recognized, "Links are missing just where we most fervently desire them and it is all too probable that many links will continue to be missing." And the late geneticist Dr. R. B. Goldschmidt¹² wrote of the paleontological record, "When a new phylum, class or order appears, there follows a quick, explosive (in terms of geological time) diversification so that practically all orders or families known appear suddenly and without apparent transitions."

Thus, these scientists have recognized that gaps appear in the fossil record, *systematic* gaps; links are *missing*, and groups of organisms appear *suddenly* and *without* transitions. Thus with regard to the General Theory of Evolution (which means all present forms came from past existing forms), one must conclude that, instead of a transition from lowest to highest, study of the fossil record reveals:

(1) absence, that is total absence, of forms considered most primitive and ancestral to invertebrate life,

(2) sudden appearance of the major taxonomic groups, and

(3) an amazing absence of the many transitional forms required by *the major prediction* from the general theory. The historical record, rather than supporting the General Theory of Evolution, as its proponents claim, is actually incompatible with the theory!

Therefore, one could reasonably ask, is the General Theory of Evolution really part of true scientific activity? Scientific activity involves facts that can be observed or demonstrated by means of trustworthy methods of discovery. There is no question about the discovery of remains of plants and animals that are identified as fossils. Thus the plain discovery of fossils and the organization of the remains based on similarities to living organisms is all part of solid scientific activity. But the core of scientific work is experimental repeatability, which is synonymous with predictability and/or control, as already noted.

One might ask, where are the demonstrated or observed experiments on relationship among or between fossils, or for that matter among or between fossils and living things? But such control of events is totally impossible. Thus there are breeding gaps in addition to the already recognized gaps in the fossil groups. No predictions of breeding results are possible with

fossils. And *no predictable* transitional forms according to the General Theory of Evolution can be found in the fossil record.

Thus the careful critic is able to assert quite accurately that there is absolutely no empirical evidence in existence to support the General Theory of Evolution. There is absolutely no empirical evidence for the General Theory of Evolution, when it is understood to mean the amoeba to man thesis, or transitional change of one animal form or kind into another animal form or kind, or transition of one plant form or kind into another plant form or kind.

As a consequence of discussion to this point, should evolution be taught in a science course? As far as true scientific activity is concerned the General Theory of Evolution is *not* a required part of a science course. The General Theory of Evolution at best should be optional for a science course.

Then is the General Theory of Evolution more properly a part of the subject area of various social sciences? The answer is affirmative. The General Theory of Evolution is a core part of a study of world-views, or of points of view in history and humanities and so-called social science. Impact of the General Theory of Evolution in philosophy and other areas of man's academic disciplines has been multiple in dimension and kind. (See diagram of Impact of Modern Evolutionary Thought) Full treatment of such impact is really a study of Evolutionism and goes beyond the scope of this article. However, excellent explanations and further references will be found in Conner¹³, Henkin¹⁴, Loewenberg¹⁵, Persons¹⁶, Roppen¹⁷, Selsam¹⁸, Stevenson¹⁹, and Zirkle²⁰.

Special Theory of Evolution

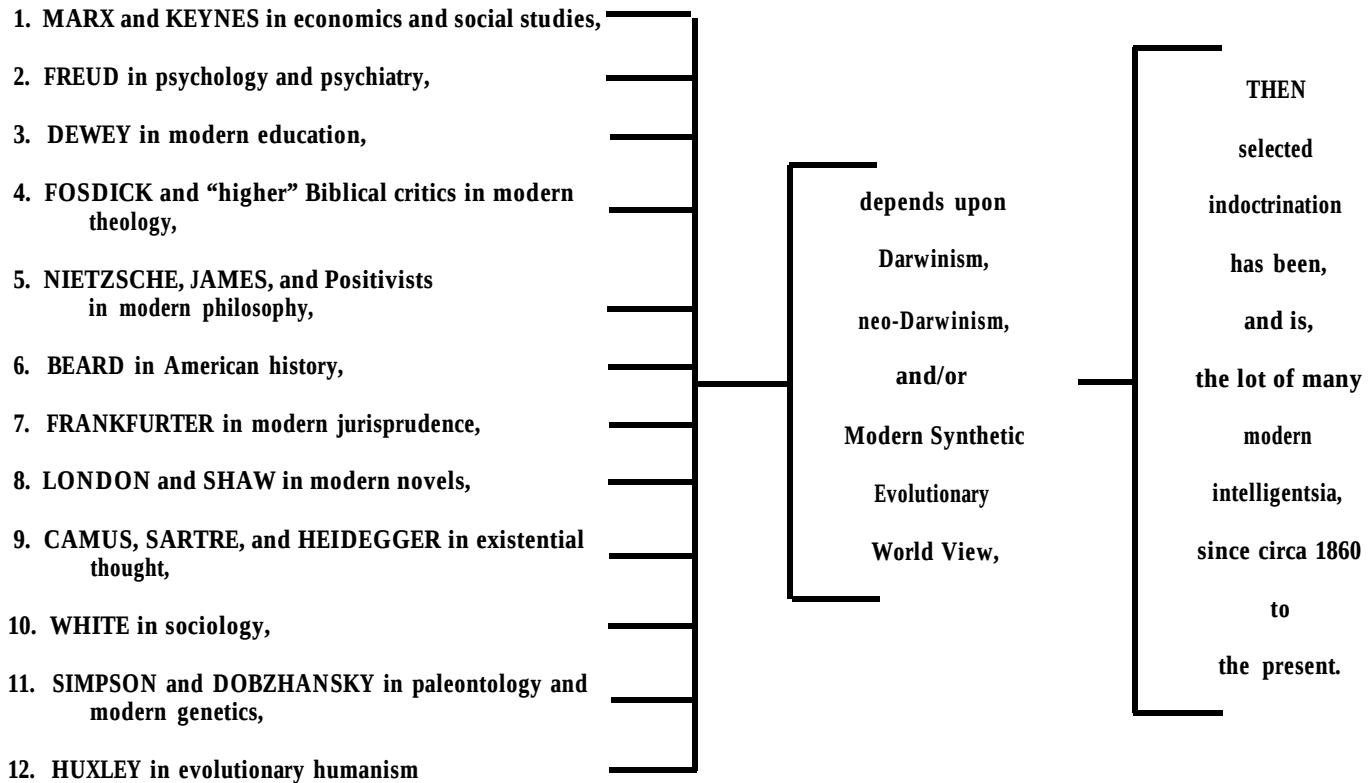
The question, should evolution be taught, with regard to the Special Theory of Evolution, can be disposed of more briefly. A **major prediction** from the Special Theory of Evolution, as defined earlier, would be that researchers would expect to find different degrees of variability WITHIN presumably basic forms or kinds of animals and plants.

Many reports of experimental studies in "evolution" are available. For example, in 1955 W. H. Dowdeswell²¹ published *The Mechanism of Evolution*. That title should have been "Mechanisms of Micro-evolution," but more on this later. In 1960 W. S. Boyle²² published "Studies in Experimental Evolution" as part of the *Faculty Honor Lecture Series* of Utah State University. And in 1966 Prof. E. B. Ford of Oxford University spoke at Michigan State University on the subject, "The Experimental Study of Evolution."

Are these studies designed to test predictions

IMPACT OF MODERN EVOLUTIONARY THOUGHT

IF research in the history of ideas can substantiate that the position of



POSITIVE AFFIRMATION of each of the antecedents in the above complex material implication is gained through full examination of the history of ideas.

THEREFORE, modern secular educational content results in selected indoctrination of many of the intelligentsia of the United States, and of Western Civilization, in general.

of the General Theory of Evolution or the Special Theory of Evolution? At this point close criticism is needed. ONLY the major prediction from the Special Theory of Evolution is relevant to these studies. The prediction of different degrees of variability WITHIN presumably basic forms or kinds of animals and plants is the *only* prediction confirmed by breeding experiments, of controlled nature, both in the laboratory and in the field anywhere on the surface of the globe. Bacteria give rise to bacteria, moss to moss, ferns to ferns, protozoa to protozoa, earthworms to earthworms, and dogs to dogs. From these experiments come observations that are in total agreement with the Law of Biogenesis. Then these studies are *not* experimental studies within the frame of reference of the General Theory of Evolution, which requires change of one form into another form of organism.

All the experimental studies known have been tests of predictions or consequences of the Special Theory of Evolution, which involves the thesis that many living animals (or plants) can be observed, over the course of time, to undergo changes so that new varieties are formed. This is the type of "evolution" that *can be demonstrated* in the laboratory, or in the field. And the question can be asked, does "evolution" here mean "genetic variation?" If so, then the term "evolution" has been equivocated.

Now one would be quite correct to interpret tests of predictions from the Special Theory of Evolution as tests of the concept of microevolution. They are that, but in no way have laboratory scientists come close to demonstrating the type of change in living forms required by the General Theory of Evolution. It is true that proponents of the General Theory of Evo-

lution have the hope, the desire, and in many cases actually admitted in print, the *faith* that the mechanism or mechanisms of micro-evolution provide understanding of the mode of surmised general evolutionary change. (See *The Process of Evolution* by Paul R. Ehrlich and Richard W. Holm.²³)

But tests of predictions from the Special Theory of Evolution, or micro-evolution, are no more than studies of genetic variation. This was clearly admitted by Prof. Ford during his presentation. The entire sum of his data related to variations, primarily genetic, of organisms such as butterflies and moths, which he and his colleagues had studied over the past 40 years. At no time whatsoever did Prof. Ford, or do any other published reports of so-called studies of experimental evolution, show any changes of one animal form into another animal form, or one plant form into another plant form.

An Equivocation of Terms

Therefore the laboratory experimenter, or the field investigator for that matter, only studies genetic variations within limits; or, in other words, empirical scientists produce tests of predictions and consequences of the Special Theory of Evolution, or micro-evolution, and no more!! In point of fact, unless someone forces an equivocation of the term "evolution" with "genetic variation," such experimentation is simply irrelevant (*non sequitur*) to discussion of any rise of new forms of life out of old forms.

At this point the question can be asked, should the Special Theory of Evolution be taught in a science course? Essentially the Special Theory of Evolution amounts to another expression of the concept of genetic variation, or micro-evolution. Since studies of genetic variation are excellent examples of the core of scientific activity, that is, controlled experimental tests of repeatability and predictability, then such studies should definitely be required as part of a science course.

Of course the net effect of this brief attention to the Special Theory of Evolution has been a lesson in semantics. If by "evolution" one means to commit an equivocation with "genetic variation," then such a person is speaking about discovery of observable and demonstrable facts obtained through trustworthy methods, which is excellent scientific activity. But equivocation of terms does not speak well for a scientific explanation and should be avoided.

This author states a clear affirmation for studies of genetic variation in science courses for that purpose alone, namely, studies of genetic variation as excellent examples of solid scientific activity. And students should not be confused about such studies with references to the Gen-

eral Theory of Evolution. And further there is absolutely no need for the labels, "Special Theory of Evolution" and/or "micro-evolution" after all, since to all intents and purposes the concepts involved are mostly the same as those involved in studies of genetic variation.

Propriety of Criticisms of Evolution

A few remarks about the propriety of criticisms of theories of evolution are in order at this point. Critics of theories of evolution have no quarrel with the Special Theory of Evolution as such, or micro-evolution, when one actually means genetic variation. The *fact* of genetic variation, and the fact of changes of animals and plant forms *within* limits is readily admitted. The problem is that critics of theories of evolution are puzzled as to why some scientists use the term "evolution" when the term "genetic variation" can be used without equivocation, and with greater rigor of meaning, and with actual physicalistic referents.

However debate and criticism of organic evolution is focused upon the level of the General Theory of Evolution. There is also much serious criticism of seemingly unrestrained, enthusiastic extensions of the general theory to other disciplines, far removed from the field of biology.

Of course it is proper in scientific endeavor to criticize theory, and empirical work as well. Criticism is the very essence of the scientific attitude. Most scientists will readily admit that theories and ideas of laboratory scientists are always open to re-evaluation. Attention is called to this by expression of the fact that doubt is always needed for the so-called self-correctiveness of scientific activity.

And propriety of criticisms of theories of evolution has been brought out by many scholars, among whom is W. R. Thompson, Fellow of the Royal Society, and former director of the Biological Institute of Control in Ottawa, Canada, who wrote:

As we know, there is a great divergence of opinion among biologists, not only about the causes of evolution but even about the actual process. This divergence exists because the evidence is unsatisfactory and does not permit any certain conclusion. It is therefore right and proper to draw attention of the non-scientific public to the disagreements about evolution. But some recent remarks of evolutionists show that they think this unreasonable. This situation, where scientific men rally to the defense of a doctrine they are unable to define scientifically, much less demonstrate with scientific rigor, attempting to maintain its credit with the public by suppression of criticism and the elimination of difficulties, is abnormal and undesirable in science.²⁴

Also W. R. Thompson has written in his republished book, *Science and Common Sense*:

But as has been shown in previous chapters, the development of Science, as an autonomous discipline, seems to entail the rigorous elimination of philosophical notions. . . . (Yet) evolutionary speculation is (full) of philosophical principles and suppositions. The concept of organic evolution is very highly prized by biologists, for many of whom it is an object of genuinely religious devotion, because they regard it as a supreme integrative principle. This is probably the reason why the severe methodological criticism employed in other departments of biology has not yet been brought to bear against evolutionary speculation.²⁵

And Errol Harris²⁶ makes clear in *The Foundations of Metaphysics in Science* that organic evolution is based upon the "argument from improbability." He uses eight pages to relate many examples of "coherently integrated systems that the evolutionary process must produce," which are in apparent contradiction to the fundamental law in physics, namely, the Second Law of Thermodynamics. Harris relates further important criticisms by biologists H. Graham Cannon and Ludwig von Bertalanffy.

In sum, criticisms of the General Theory of Evolution are set in focus by attention given to "scientism" by Isidor Chein in his 1966 *American Psychologist* article. Scientism can be defined as that belief that the only knowledge worthy of being called such is obtained through the scientific method. This is of course a prejudice in favor of naturalism, a part of an extreme naturalistic viewpoint. Chein wrote:

The most extreme expressions of scientism involve doctrinaire views on the nature of science and on proper rules of scientific conduct and expression. By strict application of some of these rules, a considerable array of sciences, from anatomy to zoology, would be ruled out of the domain of science because they are, in the main not experimental, not quantitative, not concerned with prediction, and/or hypothetico-deductive in structure.²⁷ (Emphasis added)

Chein continued, "A work like Darwin's *Origin of Species* would similarly not be expected to make the grade since it promulgates as a theory presuppositions that can only be applied on a post hoc basis and do not serve the ends of prediction." This is important. "Do not serve the ends of prediction," indeed. "Post hoc," indeed. Yet prediction is associated with repeatability, with reproducibility, with control of observable objects and events at the very core of solid scientific activity.

In the face of this analysis, which empirical scientist can seriously consider "origins" of life,

as an empirical scientist? Which student of so-called historical geology can give serious thought to supposed empirical study of Paleozoic or Mesozoic divisions of accepted geological time scale? Certainly discussions of "origins" and so-called historical geology are more to be considered as qualitative, speculative imaginations of naturalistically oriented men, rather than the type of work which we have rightly become accustomed to putting our trust in when the result of application of true scientific research principles.

Summary and Conclusions

In keeping with the stated purpose of this article, the scientific basis was made explicit for criticisms that have been formulated against theories of evolution by many parents in terms of the question, should evolution be taught in a science course? The conclusion was reached that the General Theory of Evolution need *not* be taught in a science course because it is unrelated to any direct study of scientific activity. Of course, the General Theory of Evolution might be used as a prime example of imaginative speculation by believers in naturalism.

The Special Theory of Evolution should be taught in a science course. However, expression of the Special Theory of Evolution and discussion around it might just as well be in terms of studies of genetic variation, which is all that proper scientific activity can demonstrate in the laboratory or in the field.

Actually full use of the methods of experimental science is *not* applicable to the General Theory of Evolution at all. Also, the fossil record cannot be used to support the claims of proponents of the General Theory of Evolution. There are many, many scientists today who attest to this condition; and many, many scientists who have written on this point over the decades since 1859 when Darwin's book first appeared. And parents of this nation can quite properly ask why their children have not heard of and read these critics in their elementary, secondary, or college level studies.

Experimental studies that are reported, and those that can be conducted properly within the frame of reference of empirical science, support *only* genetic variation. There is *absolutely no* experimental evidence for any change of one animal form into another animal form; or for that matter, any change of one plant form into another plant form—such changes being those demanded according to the General Theory of Evolution.

The *only* evidence of change that can be classed properly as the result of sound scientific method is the evidence of genetic variation WITHIN limits of kinds or forms of animals, or

WITHIN limits of kinds or forms of plants. A dog-kind, horse-kind, and man-kind exist; a moss-kind, fern-kind, and flowering plant-kind exist.

To reiterate, there is **absolutely no** empirical, repeatable, reproducible, predictable evidence from breeding experiments for connections between these kinds, and **no evidence** in the prime historical source, the fossil record, for any actual connection in sequence of these kinds. No transitional forms have been found in the fossil record very probably because no transitional forms exist in fossil stage at all. Very likely, transitions between animal kinds and/or transitions between plant kinds have never occurred.

Epilogue

As a consequence of November, 1969, action by California State Board of Education members, questions about the "origin" of man are to be considered from the point of view of evolution *and* the point of view of creation in elementary science textbooks used in California. Some scientists have expressed great consternation at such action. Yet, according to the definition provided in the Background section and quoted from John Somerville, theories of evolution *and* the Genesis account of creation can be classified as scientific to the extent "that it yields the power to predict in relation to the subject matter of its choice."

Within the context of this article, can predictions be made with regard to the Genesis account of creation that are subject to test empirically? A proponent of the Genesis account of creation would state that the basic kinds or forms of living plants and animals were placed on the earth by direct action of Almighty God; and state that, during time, created kinds or forms have changed quantitatively and qualitatively; yet, changes have always been WITHIN circumscribed boundaries of the original created kinds (still not clearly discerned) which God created.

A **major prediction** from the Genesis account of creation would be that researchers would expect to find gaps between distinct kinds or forms of living animals and plants, with different degrees of variability WITHIN known kinds of animals and plants. Furthermore, a **corollary prediction** would be that researchers would expect to find gaps in the fossil record between distinct kinds of animals and plants.

Full confirmation for these predictions from the Genesis account of creation can be obtained from careful research and interpretation of data from genetics, paleontology, comparative anatomy, embryology, serology, and biochemistry. In other words, data of the so-called fossil "series," gene combinations and recombinations, hy-

bridization, mutation, migration, isolation, distribution, and selection (artificial and natural) are interpreted meaningfully by means of the Genesis account of creation.

And based on a strict point of view regarding the basic assumption of cause and effect, *no* discussion of "origins" should be included in a science course. A search for "origins" necessarily partakes of a search for first causes, which most scholars will agree is beyond the core aspect of scientific activity as defined by the problem-hypothesis-test process. Therefore, an *empirical* scientist should leave discussions regarding first causes, such as the "origin" of life, or the "origin" of man, to theologians, to metaphysicians, and to philosophers.

However, *since* men do attempt answers to the questions of "origins" of the universe and matter, of life in animal and plant forms, of man, of his language and culture, *and since* science teachers insist upon exploring "origins" and first causes with their students, *then* science teachers seemingly should be duty bound in **academic freedom and responsibility** to present BOTH the theory of evolution (as General and Special Evolution) and the Genesis account of creation. Each conceptual framework is offered by proponents as an explanation of "origins," and each framework can reasonably be labeled scientific if predictions are possible in relation to the subject matter of each conceptual framework.

Of course students should become aware of the difference in success of predictions based upon the General Theory of Evolution and the Genesis account of creation, respectively. This difference has been shown above. In point of fact, the *only unchanging* explanation of "origins" is that found in the Genesis account of creation.

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LETTER TO THE EDITOR

Evolutionists claim that the second law is bypassed by the importation of energy from the sun. Regardless of the amount of energy imported from an outside source into an open system, there could be no consistent ordering effect in the open system if the effect of the energy is perfectly random (as the sun's energy is).

There may be random momentary fluctuations toward order, but there would be no consistent long range development of order such as required for the origin of life. The only way in which such an ordering effect could possibly be imagined would be if the incoming energy were directed to have a specific organizing effect.

Such an argument may appear to be in agreement with the position of theistic evolutionists, but when we consider that theistic evolution exists largely to salve the conscience of Christians who believe that they must keep their feet in both ideological worlds at once, we are aware that theistic evolutionism would disappear if atheistic evolution should disappear.

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EVOLUTION IS LOGICAL BUT NOT BIOLOGICAL

I hope it will be understood by the student that the evolutionary series presented throughout this book are not to be regarded as demonstrated facts. These series are, instead, logical conclusions held by many botanists based on observation and interpretation of the facts available to us. Additional information about plant structure, together with a re-interpretation of known facts, could lead to different hypotheses in the future.

from Preface of *Plant Diversification* (p. vi) by Theodore Delevoryas, Yale University.
Holt, Rinehart and Winston, New York, 1966.

(Continued from page 104)

of the currently postulated evolutionary mechanism). A greater understanding of this matter which is so personal and so vital will come with the realization that an Originator and Designer of sex and sexual attraction exists—that a man

and a woman were, after all, made for each other.

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UNIVERSITIES AND COLLEGES HAVING THE CREATIONIST POINT OF VIEW

WALTER E. LAMMERTS*

Los Angeles Baptist College is located on a thirty-five acre campus in Placerita Canyon near Newhall, California. This lovely area is in the foothills of the San Gabriel range, only thirty-five minutes from downtown Los Angeles. Picturesque California live oaks, pine, and other native trees give this campus and the surrounding area a great deal of native beauty.



Figure 1. A view of Rutherford Hall, one of the main buildings of Los Angeles Baptist College.

A full major is given in the biological sciences. This program covers basic coursework in biology, chemistry, and mathematics. Upper division courses offer a major student a wide selection of areas including Genetics, Microbiology, Physiology, Anatomy, Embryology, Ecology, Advanced Biology, Seminar in Biology, Research in Biology, and a course on Origins.

Each of the upper division courses offers special emphasis on field or laboratory research. For the last two years Dr. Walter Lammerts and Dr. George Howe have carried on a project in genetic variation of native California flowering plant populations, growing in the surrounding area. This project involves observation of variants in the populations of the California poppy, thistle sage, annual lupine, owl's clover, and yellow pansy. Each year students from various upper division classes help gather data and analyze results. Dr. Howe is currently undertaking a research program on regrowth of chaparral vegetation after fire and a survey of airborne pollens of the Newhall area. A research-minded student can find ample opportunity to work in any of these areas, or on a project of his design.

There are presently two full-time members of the science-division faculty, Dr. George Howe

and Mr. Dennis Englin, and two members on a part-time basis. Each Faculty member subscribes personally to the college statement of beliefs which includes this statement regarding Creation:

Creation and the Fall. We believe that the universe with all that is in it was created in the beginning by the Word of God; that

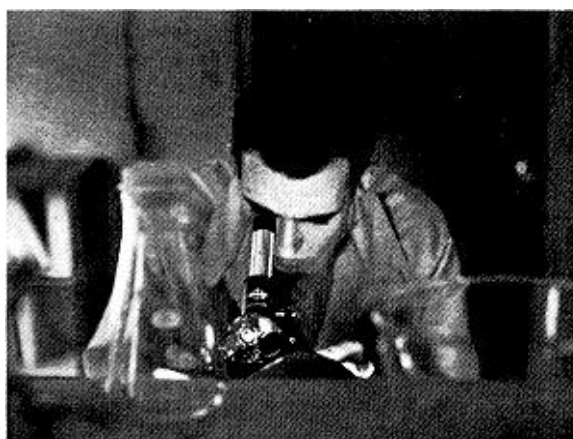


Figure 2. Steve Davenport, biology major, undertakes research on bacteria.

man's body was made by a creative act of God; that the first man, Adam, fell from his original state of innocence, became corrupt in nature, and came under condemnation and the sentence of death; and that because of the unity of the race in Adam, its natural head, all men have come under the same consequences of sin.

Each member of the science faculty in particular subscribes to a real creation "after their kinds" in six real days and it is the goal of the science division at Los Angeles Baptist College to graduate biology majors who are ready and able to begin research and writing in the area of Bible creationism. Plans for a new science building are under consideration. Los Angeles Baptist College credentials have been accepted by more than thirty regionally-accredited schools across the nation. It has a total faculty of thirty members all having at least a Master's Degree. The college is approved by the General Association of Regular Baptists.

Tuition charges are \$500.00 per semester for students taking 10-17 units and \$40.00 per credit hour for students taking over 17 units. Total expenses for tuition, room and board, and miscellaneous fees are estimated at \$964.00 per semester. Non-resident student costs are \$549.00 per semester.

*Walter E. Lammerts, well known rose breeder, holds the Ph.D. degree in Genetics from U.C.L.A.

PARATHYROID HORMONE FUNCTIONS: WONDERFULLY PLANNED

OSCAR L. BRAUER*

The experimental history of Parathyroid gland function is briefly reviewed. Complex coordination between parathormone and vitamin D in the metabolism of calcium phosphate is traced in the blood, kidney, intestinal tract, and bone. Interplay of checks and balances is presented as evidence supporting man's origin by divine special creation.

There are many features of the human body for which no explanations exist. Yet by the Word of God we learn we are fearfully and wonderfully made. Among such wonders are the eight ductless endocrine glands. The prime purpose of these glands is the synthesis of certain body regulators called hormones and the release of such hormones into the blood. There are some 20 different hormones synthesized by the endocrine glands.

Hormones have some major functions individually but they also have some other coordinate functions in which they "cooperate" with hormones of other glands or with vitamins. The emphasis of this article is on the hormone produced by the parathyroid glands.

Historical Background

In 1896 G. Vassale and F. Generali of Italy removed the parathyroid glands from animals and noticed before the animals died that their muscles twitched, went into spasms, and finally became rigid.

In 1909 W. G. MacCallum and Carl Voegtlin of Johns Hopkins University decided that these muscular effects were due to a deficiency of calcium. They also found that on removal of the parathyroids a calcium deficiency appeared in the blood.

Isidor Greenwald of Roosevelt Hospital in New York observed that a decrease in calcium ion was accompanied by an increase of phosphate ion in the blood.

It was finally learned that vitamin D is an essential factor in regulation of calcium and phosphate metabolism. Vitamin D and parathyroid hormone overlap in function, each reinforcing the activity of the other.

Hormone Identified

In 1960 Lyman C. Craig and Howard Rasmussen at the Rockefeller Institute in New York finally purified the parathyroid hormone and established that it was a protein. It took five years to produce one milligram of the pure hormone.

The molecule of this hormone has a molecular weight of 9,500 and is made up of a chain containing 83 separate residues of 17 different amino acids. The exact sequence of these amino acids is still unknown but it is understood that only 33

are necessary for the activity of the hormone. Apparently the other 50 amino acid units maintain the stability of the 33 active amino acid residues.

The parathyroid glands consist of four little reddish-brown organs about the size and shape of slightly flattened garden peas. The glands are located close to the thyroid gland near the voice box in the front region of the neck.

Hormone Function

The parathyroid hormone functions in the control of the internal environment of the body organs. This environment is composed largely of blood plasma and extracellular fluids.

One of the most important constituents of this internal fluid is the calcium ion. It is released when calcium compounds go into solution. The normal transmission of nerve impulses, contraction of muscles, coagulation of the blood, fertilization of eggs, and formation of bone each require an optimum calcium ion concentration. Two factors of major importance in this system are parathyroid hormone and vitamin D.

It has been established that the parathyroid hormone acts to promote the absorption of calcium ion into the blood stream from the food in the gastrointestinal tract. Evidently when the concentration of this ion falls too low, the glands are stimulated to synthesize more hormone.

In turn the hormone acts upon the intestinal cells to increase the absorption of calcium. It also acts on the cells of the kidney tubules to increase the reabsorption of calcium ion from the filtered urine.

In line with these functions, the parathyroid hormone acts upon the bone cells and converts them into bone destroying cells called osteoclasts. These osteoclasts then release calcium from storage in the bone and make it available elsewhere.

Likewise, the parathyroid hormone stimulates the kidney to excrete more phosphate ion into the urine. This furthers the desired effect of releasing calcium ion.

The responses of the kidneys and the gastrointestinal tract are rapid because they are sensitive to small changes in hormone concentration. The response of the bone is slow but has unlimited capacity. When the concentration of calcium ion is restored to normal, secretion of the hormone is reduced and this results in a slowing down of the extra addition of calcium. The concentration of calcium ion is returned to normal.

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Bone Structure Dynamics

It has been found recently by using radioactive tracers that bone is being remodeled constantly. Bone contains 98% of the body calcium and 66% of the phosphate. These are deposited as a complex salt, hydroxyapatite, framed in a protein called collagen. The osteoclasts build these fibers and align them to form bone.

When the gastrointestinal tract has enough calcium ion, the small hydroxyapatite crystals grow slowly. While small and growing they are called exchangeable bone because in case of need they give up their calcium and phosphate ion much more readily than does hard bone. If no need for calcium ion arises they grow into non-exchangeable hard bone.

In the average person enough old bone is broken down each day to release 0.5 grams of calcium ion. This absorbed old bone is replaced by new bone. The ions will leave the exchangeable bone if either calcium or phosphate ion concentration becomes too low in the blood plasma. They will enter the exchangeable bone when they are not further needed. Thus the exchangeable bone serves as a supply reservoir.

The role of vitamin D is to maintain the level of calcium and phosphate ion at such a concentration that bone is renewed continually. If the vitamin concentration falls too low, a disease called rickets develops.

Hormone and Vitamin Coordination

Nerve and muscle cells are critically dependent on the proper concentration of calcium ion in the blood. The parathyroid hormone and vitamin D acting together control both the total amount and the ratio of calcium to phosphate ion in the gastrointestinal environment. Vitamin D in excessive amounts can cause a large deficiency of hormone.

However, the situation is not quite so simple as indicated in the last paragraph. The steroid hormones of the adrenal cortex, the growth hormone of the pituitary, insulin from the pancreas, thyroid hormone, and the sex hormones have some influence on bone growth also.

Conclusion

All the mechanisms that evolutionists postulate fail to explain the origin of this complex interplay of checks and balances. The parathyroid hormone and vitamin D have a balanced series of effects upon the gastrointestinal tract, the kidney cells, the bone cells so that a favorable concentration of calcium and phosphate ions is maintained throughout the entire body. Such an intricate control system is evidence supporting the Divine special creation of man's body as recorded in the Scripture.

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COMMENTS ON SCIENTIFIC NEWS AND VIEWS

HAROLD ARMSTRONG*

It is common to distinguish two kinds of theories about the universe in addition to the Creationist view. Those who believe in Creation consider that we know that God made the world; and, when we simply know something, we do not say that we have a theory about it, but just that we know the fact.

We usually speak of Creation as of supernatural origin, so it might be reasonable to call the theories of others of natural origin. Indeed, it is hard to say whether "natural" means anything here; if we accept the philosopher's definition for "the natural": "that which happens always or for the most part unless it be forcibly prevented." Now nobody has claimed that the universe originated more than once, so it does not make much sense to talk about what, in that matter, happens "always or for the most part."

Be that as it may, the two "natural" theories are usually contrasted: on the one hand, the "steady-state" theories, such as Hoyle's; and on

the other hand, such theories as the "big bang." The purpose here is to suggest that the contrast between these two views may be much less than is usually supposed; that, in a sense, they are both "steady-state" theories.

It might be mentioned that "steady-state" theories are not especially new; Aristotle seems to have believed that the world had existed in more or less its present form from eternity. Indeed, on the basis of the information which he had, that was no doubt the most reasonable view, and it certainly made better sense than most of the pagan cosmogonies. In this connection, it might be remarked that some of the sayings of early Christians, which are quoted to show that they would not object to evolution, really have nothing to do with the origin of species, but rather are intended to reconcile the Scriptural teaching with the eternity of the universe (which was widely considered to have been proved).

While the second law of thermodynamics had not, of course, been formulated in ancient times, yet Aristotle knew well enough that the natural course of events is that things decay. The fact

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that the world had not long since decayed seems to have been ascribed to the action of the First Mover, an intelligent being. (And possibly also of several secondary movers.)

But what must be considered now is the argument that all the "natural" theories are really "steady-state" theories. About such theories as Hoyle's, nobody would deny this. So the argument must deal with such theories as the "big bang."

Theories of this sort, while they may suppose the appearance of the universe once to have been much different, must suppose the laws of the universe always to have been the same. If the supposed "big bang" is to be discussed at all, it must be discussed in terms of the laws of mechanics, electrodynamics, nuclear interaction, etc., which we know now.

It is true that the laws of inertia, e.g., may be supposed to vary according to the state of the universe, but this variation must be as prescribed by some more general, and unchanging, law. It is such a "super-law" which people hope to find, or think that they have found, in general relativity. In the present discussion we are not concerned as to whether this hope or belief is well founded.

The point is that a "steady-state" in respect to laws, at some level, must be assumed; otherwise people would be reduced to saying: "before such-and-such a time we simply know nothing about the matter."

It is generally admitted that the form of a thing, in the philosophical sense, is much more "the thing" than the matter is. The shape of a statue, for instance, is much more "the statue," than the marble, or whatever the material is.

This is so valid that one might say he knew a statue, or a painting, when what he meant was that he knew the form of it; but he might have only the vaguest knowledge of the material. Again, most Christians would say that the soul is "the man," much more than the body is. But the soul is the form of the man.

If we consider the whole universe, its form is surely to be found in its laws, much more than in any accidents of matter. And any naturalistic theory, we have concluded, must suppose that the law—the form of the universe, and thus, as we have argued, its most important part—is constant, or "steady."

Thus all of the naturalistic theories must, at some level, assume a steady state; the differences, then, are only about details. And nobody doubts that the material aspects of the universe have changed in the past, and are changing. Only by admitting Creation can one suppose that, at some time, something really new happened.

Adaptation and Survival

Darwinian evolutionists have to maintain that

every characteristic of every creature is in some way advantageous, for they hold that the characteristics came about through the advantages which they gave.

It is often not easy to believe such a thing. Who could affirm, for instance, that a rabbit derives so much advantage by having the kind of ears it has, or that a platypus is all that much ahead by having a bill?

A recent article¹ discusses an example of this. Deer, and such animals, have antlers; yet it seems quite certain that the antlers are more of a disadvantage than an advantage. The article does mention some rather trivial advantages which might arise from the possession of antlers, but none of them is very convincing.

A Creationist, on the other hand, knows (if we may say so) that God likes variety. Hence He created many different creatures, having their own peculiarities. He made them "adapted to their environment" in that He made them so that they would succeed in the environment in which they were placed; but that is not to say that their characteristics were caused by the environment, except, perhaps, in so far as it was, or was involved with, a final cause.

On Knuckle-Walking

Probably few people who have made any study at all of biology would maintain now that we have descended from apes. Yet the notion is still found in many places, and it acts, no doubt, as a stumbling-block. The fact is, that every new piece of evidence shows how great is the difference between apes and men. A recent article discusses at some length just one difference: the apes' habit of knuckle-walking.²

It seems that knuckle-walking is not just something which the apes do by chance now and then; it is a regular habit with them and they are adapted to it. Especially is this so in regard to their wrists.

It is suggested that the importance of knuckle-walking had been overlooked for some time because the apes had not been studied enough under natural conditions. (Of how many other pieces of evolutionary dogma might the same thing be said: that they were over-hasty inferences from a few unrepresentative observations.)

The suggestion is that the supposed ancestors of man never had a knuckle-walking stage. So our alleged ancestors were not really like apes. Were they like men? If so, there has been no evolution. If not, they were like nothing of which we know. In that case, we are supposed to have descended from an "unknown somewhat." But to say that does not tell anyone anything; it is merely a confession of ignorance. Is that the best that the evolutionary theorists can contrive?

Can Complexity Be by Chance?

It seems to be generally agreed now that DNA plays a very important part in the growth and life of living beings. It is considered, moreover, that the way in which the molecules of DNA can be duplicated, one serving as a template, as it were, to make another, is a very important feature. But many things about how all of this is managed are not at all clear.

It has been quite widely believed that the enzyme DNA polymerase is somehow involved in the duplication. Recently, however, there is reason to believe that, while the polymerase is present during the growth of cells, its main, or most important job is repair. In fact, it appears that it is used somehow by the cell in cutting out mismatched regions in a DNA molecule and replacing them with new segments.³

It is not entirely clear yet just what these findings will mean to us. We can consider, however, that every piece of evidence which shows the complexity of living beings, or even of single living cells, makes it less and less likely that such things could ever have come about by chance.

Ideas and Consequences

A news report⁴ quotes Dr. J. M. Billinsky, of the Andover Newton Theological School, as saying that Freud had an affair, which "was indeed very intimate," with his wife's younger sister. Apparently this was revealed by Jung, and was one of the reasons Jung broke with Freud. Another reason, according to the report, was that Jung "could not accept Freud's placing authority above the truth."

It is perhaps noteworthy that such a relationship is precisely the one forbidden specifically in Scripture, in Leviticus 18:18.

One might say now: "De mortuis nil nisi bonum." On the other hand, it is only too true, as Shakespeare said, that: "The evil that men do lives after them. . . ." Certainly Freud's theories, or what people supposed to be his theories, have been an influence for evil in the world. Perhaps someone should have said, or should yet say: "Physician, heal thyself."

A Cause and an Effect

An incidental, but perhaps not completely negligible, thing for which Freudian psychology especially may be blamed is for corrupting large parts of our literature, especially fiction. By "corrupting" is not necessarily meant that the literature was made immoral, although there was too much of that; but rather that it became filled with jargon and pompous nonsense; and instead of setting out to tell a story professes to explore the inner recesses of disordered minds. If it were merely that the literature, as a form of art, was corrupted, that would be regretted; but it seems very likely that such a thing can be also a bad

influence on the readers. And that is a much more serious matter.

On Special Receptors

Recently I noticed a letter which, while it is now several years old, might yet be of interest to those concerned with electrical problems.⁵ Briefly, it suggests that certain insects, especially moths of the families Noctuidae, Sphingidae, and Lasiocampidae, may use hairs, spines, and pit-pegs as receptors of infra-red radiation in navigation, in searching for food, etc.

The hairs, etc., work in much the same way as do the arrays of rods seen everywhere as television aerials, but the dimensions of the hairs are to the infra-red waves much as are the dimensions of the rods to the radio waves. Some of these features of the insects, it would appear, may be analogous to quite complicated arrangements of waveguides.

For instance, a waveguide with apertures properly spaced is a very useful element in microwave work. Studies with an electron microscope, it is said, show that there are apertures, spaced periodically, along certain hairs and spines of some insects. There is even a suggestion that something like superconductivity may be involved.

What are we to conclude from this? In the first place, it would seem that what engineers are doing now, God did thousands of years ago. Conversely, engineers might profit by this. A study of nature might often give an idea for a solution to some problem. Aristotle said that art (which, in the Greek, could include craft and technology), imitates nature; we, in agreeing, might wish to add: "which is really to imitate nature's Designer."

In the second place, what is true of so many other features of living beings is spectacularly true of the above mentioned receptors: to be of any use at all—to work at all—they must be just about perfect. So such features simply could not have developed by "natural selection." But are we to believe, then, that they persisted in developing, through untold generations, until suddenly, one day, they became workable? No, intelligent design is the only explanation; and, if we accept that, is it not only reasonable to accept the Designer's account that He did it?

Conservation and Stewardship

Conservation is very much in the news today, and in that people think about keeping from spoiling the world, they do well. Many Creationists take a special interest in the matter, believing that good stewardship is a Christian duty, and that stewardship of the Earth is more important than that of the little money or property which most of us have.

At the same time, there can be a danger here. It is reported that many who are the most active

(or, at least, the most vociferous), about conservation are working, intentionally or unintentionally, toward a revival of paganism.⁶

The argument seems to be that Christianity is allied with technology, which has brought about all the pollution. One would think that a little history would cure anyone of such notions. For certainly the Mediterranean world was greatly damaged (perhaps not exactly "polluted"), by cutting down too many trees, overgrazing, etc., while nations were still pagan.

And other pagan people, e.g., the Mayas, are believed to have ruined their countries in similar ways. In view of these considerations (and other cases could be mentioned), anyone who says that paganism is the answer is certainly not being guided by the facts.

At the same time, it must be admitted that many churches, which have thought much about stewardship of other things, have, perhaps, said too little about stewardship of the whole Earth.

The same kind of thing, it may also be remarked, is seen in another quarter. Anyone who reads the publications on health foods and natural foods will have noticed in them frequently an attitude which falls little short of pantheism. If we eat healthful food ourselves, that is prudence. To heal the sick, it is generally believed, is a good work.

Surely, then, since prevention is better than a cure, it is a better work to help and encourage people to keep well, by proper diet among other things. In this sense, we do well to be interested in good food. But the pantheism is a needless addition which should be discouraged in every way possible.

Reports on Brain Activity

Two interesting findings about the activity of the brain have been reported.^{7, 8}

Since almost everything has been ascribed to DNA and RNA, it is not surprising that these materials have been thought to have something to do with thought and memory. Some investigators seem to believe memory, in particular, to be written in these molecules somehow.

Some studies have shown that RNA was formed in the brains of goldfish while they were learning a task. But, of course, that does not prove that the RNA constitutes memory.

It is suggested, also, that the "alpha waves," which have been studied for quite a while as "brain waves" are not a reflection of the activity of the brain at all; in fact, they have nothing to do with the brain. Rather, they are electrical manifestations of tremor in the external muscles of the eye.

These matters, it must be said, have little to do directly with the question of creation vs. evolution. But they are relevant to the question whether the mechanistic view of everything,

which is so prevalent nowadays, is valid. In the long run, the strictly mechanistic view will be as much anti-Christian as the evolutionary one; thus a challenge is desirable whenever an opportunity arises.

On Fossils: Mixed and Otherwise

The "geological column" is surely "exhibit A" for evolution. Thus any evidence, such as the alleged overthrusts, which reveals it to be more of a heap than a column, is good evidence for the Creationist position. Such a piece of evidence has been found in Kashmir, where Permian brachiopods have been found mixed with lower Triassic pelecypods. No explanation is offered.⁹

Is it not possible that this kind of thing is actually fairly common? After all, we can see today, lying on the surface of the ground, stones containing fossil shells. If our own times should leave fossils for subsequent ages, is it not likely that mixed with those fossils there would be some of the ancient shells? And the same kind of thing should have happened in times past. Why, then, are most deposits of fossils not a hodge-podge? Three possible answers to this question might be suggested.

In the first place, likely most of the deposits of fossils were formed by catastrophes, when contemporary creatures were buried quickly, but there was no time for older fossils (if there were any), to be mixed with them.

In the second place, are not most of the recognized fossils found in certain places, where, presumably, they were buried under special conditions?

And in the third place, is there a tendency to ignore any mixed deposits that may be found, and to ascribe them to contamination?

On all these grounds, one must suspect strongly that the fossils which go to make up the "geological column" are not necessarily representative, and thus that they prove nothing.

Warning Systems and Bacteria

There is much in the news nowadays about early warning systems, and other ways of being warned against approaching enemies. It appears, now,¹⁰ that some bacteria have some such system. Apparently they have enzyme systems that somehow scan invading DNA molecules injected by viruses. Unless the DNA molecules are chemically marked at specific "recognition sites" the enzymes break them.

Admittedly it is not easy to see how such a system could have evolved. The situation is much like that of the partners in symbiosis; and the impossibility that such a partnership could have evolved has been mentioned several times in these pages. On the other hand, it is not hard to see that such a system could have been designed, for we know that the Designer's powers are sufficient. We know, too, that He designed

some extraordinary protective devices for various animals; now we see that He gave the same attention to the design even of bacteria.

Learning Is Not Simple

Something like learning, it is reported, has been observed in *Tetrahymena pyriformis*, a ciliate protozoan.¹¹⁻¹³ Shocks were applied to them, accompanied by light. After a while, they would avoid the light.

Their memory, it is reported, would last for two hours or more; and—what is remarkable—lasted, it is said, even after division, (Whether this means that after division both of the new individuals retained the “memory” is not very clear.) These creatures, according to ordinary views, have no nervous system, let alone brain.

Whatever these results, if they are supported by further work, may show, they certainly make it clear, if any more proof were needed, that these creatures are not simple. They are highly complicated; and everything that we learn about their complexity shows us more and more how impossible it is that things could have evolved.

Voluntary Versus Involuntary?

Muscular facilities have long been divided into “voluntary” and “involuntary”; the former supposedly under conscious control, the latter not. It is now maintained that there is no sharp distinction, but that all the facilities, including internal functions such as heartbeat, can come under some voluntary control. This was seen especially in experiments on rats; some human beings were able to accomplish the same kind of thing, but not, it would appear, so well as the rats.¹⁴

It would seem, on some reflection, that this is not so unreasonable. For we have a sort of example of what we might call “voluntary-or-not” muscles in those that control our breathing. For certainly we can inhale, exhale, or do neither, at will. Yet most of the time breathing goes on without our attention; the rate even is adjusted according to our activity without much attention on our part.

For that matter, why we do not really attend, most of the time, to all of the motions that go on in walking; and who could give any detailed description of all of the motions that he makes in riding a bicycle?

Can we not see here another evidence of good design? Our walking, e.g., depends on a multitude of circumstances; it has to be under voluntary control, or at least have the possibility of such control. We have to be able to control our breathing, for we thus control our speech. But the internal functions do not ordinarily need our conscious control.

It may be that, if we tried to control them from infancy, we should have as much control over them as we have over our hands and feet. But as it is, having no need we never learn.

Again, if we never, from our birth, uttered any voice or sound, it may be that when we were grown the muscles controlling breathing would be, for us, entirely involuntary. As we see over and over in Creation, the same basic system is adapted to two needs: mainly voluntary and mainly involuntary actions.

It is suggested, incidentally, that people may be able to learn to control their heart beat, e.g., and that such control may have medical uses.

DNA, Enzymes, and Design

Several years ago, upon the discovery of DNA, we were hearing that the “secret of life” had been found. No one wishes to slight the work that went into investigation of DNA; yet it now appears that here, as in practically everything having to do with life, the matter is far from simple.

Some recent work seems to show that the replication of DNA does not proceed as was first supposed, one molecule acting as a template for the construction of another.¹⁵ Apparently short sections of the molecule are constructed first, then they are assembled; and there is almost as much tearing down as building in the process. All this is supposed to be under the control of enzymes somehow, although exactly how enzymes control the assembling is not made very clear.

It would appear, then, that the process is, to say the least, not far removed from being under intelligent control. Note how this corresponds to what human beings might do in building something of some complexity. They might build some of the sub-assemblies elsewhere, take them to the site, and assemble everything there.

However the assembling of molecules may be controlled, it is clear that such synthesis could not have come about by blind chance in the past, nor can it come about so today. More logically, it came about, and comes about, by design. Hence we should be interested in the Designer.

Giant, but Not Human

Apparently certain large fossil bones, especially jaw bones, have been found in eastern Asia, and the name *Gigantopithecus* assigned to their late owner. Thereupon, it would appear *Gigantopithecus* was put forward as a missing link. (Seriously, I know that the term “missing link” is mostly avoided nowadays; but the change is mostly in the name, not in the evolutionary view which goes along with it.)

A recent article points out that, whatever role in history someone may wish to give him, *Gigantopithecus* was, in fact, not even really man-like.¹⁶ The author concludes, “. . . most, if not all, of the supposed man-like characters are not in fact resemblances to hominids at all, and *Gigantopithecus* should not therefore be regarded as a hominid. . . .”

No Cell Is Simple

It is reported that in many kinds of living cells "microtubules," tiny rigid tubes, have been found.¹⁷ The tubes are about 250 Angstroms in outer diameter, and thus their diameter is about one twentieth to one thirtieth of a wavelength of visible light. Thus these would hardly be seen by usual light means, and apparently have been investigated with the electron microscope.

Functions of the tubes are not clear, but they may be useful for moving materials around in the cell. If this is so, is it not remarkable? Our own circulatory system is a marvel of complexity, far exceeding the water works of many cities. The system of air tubes in insects, I believe, is also extremely complicated. And now we find that a single cell may have a circulatory system. Truly cells, as well as we, are "fearfully and wonderfully made."¹⁸

But let us not neglect to notice that these cells, which are about as complicated as we are, only on a smaller scale, are supposed, according to the evolutionary theory, somehow to have "grewed" like Topsy, at the very beginning. In the light of what we are finding out about cellular complexity, though, how can anyone seriously maintain that cells came about by accident?

Hypothetical Particles: An Illustration

Lately much discussion in journals devoted to physics has centered on "tachyons": hypothetical particles moving at speeds greater than that of light.¹⁹⁻²¹ There has been no report that such things have actually been detected; but still the discussion continues. Some writers, it is true, are skeptical; others practically assume that the tachyons exist.

As Creationists, we shall likely not worry much whether or not there are such things. Perhaps, though, we may draw an illustration from this situation.

There either are or are not particles moving at speeds greater than that of light. If there are not, then the way in which many people are coming to talk as if the question were answered in the affirmative shows that, if people say the same thing often enough, they will come to believe it.

Thus, the fact that a proposition is commonly accepted, even by those who have made a study of the matter, is no guarantee of its truth. People may be "jumping onto the band wagon."

So the fact that many people who are concerned with plants and animals believe that such organisms evolved is no guarantee that in fact they did so. It became popular to believe such things in Darwin's time; people jumped onto the band wagon and their successors are still on it.

If there are such particles as tachyons, then a major job of re-writing of textbooks would seem

to be indicated. Practically all authors of books on physics, written in the last fifty or more years, have insisted that nothing could go at a speed greater than that of light. That conclusion, so the proponents of the tachyons say, was reached by a missapplication of the theory.

If all this is true, then the fact that something has been accepted and taught as true for many years does not guarantee that it is true; it might be overthrown tomorrow.

So the fact that the theory of evolution has been taught for rather more than fifty years is no guarantee of its truth. For it could have been reached—we maintain that it was reached—by the misapplication, not so much of a theory in this case, but rather of observations.

Vision, Physiology, and Teleology

Recently I have been reading a very interesting book: *The Physiology of Vision* by Sir C. V. Raman, published by The Indian Academy of Sciences, Bangalore, India, 1968.

The author's thesis is that the trichromatic theory of color vision; the hypothesis that there are different processes involved in photopic and scotopic vision; and the photochemical theory of vision are all false. Rather, he proposes that our sensation of color depends on the photon energy of the light, modified by thermal agitation and by the mixing of energies when several spectral colors are involved at once.

Various experiments which support the author's views are described. Many of these need only simple equipment; they might be done easily in school and a teacher might find some ideas here for classroom activities.

It may be of special interest also that, while nothing is said about Creation, teleology seems to be taken for granted in various places in the book. There are such parts as:

Another noteworthy feature is that the nerve-fibers from other parts of the retina do not proceed across its central region but arch round it . . . to avoid traversing it. . . . The avoidance of the central area of the retina by the larger blood vessels, as also by the nerve-fibers . . . evidently favors . . . clear perception. . . . (p. 9)

. . . That they [the visual pigments under discussion] are products of human metabolism may be taken for granted. For, it can scarcely be supposed that the functioning of the visual organs which are so fundamental to life would be left solely to depend on materials which adventitiously find their way into the blood stream. . . . (p. 97)

And nothing at all is said about "evolution" or "natural selection."

Another Case of Circular Reasoning?

As Christians, and as Creationists, we really have no need to be troubled by the vast size of the universe. We know that nothing is too hard for God to do; He could make a large universe as readily as a small one. Nevertheless, as Christians we do need to speak the truth, and to seek it and to uphold it.

The point of these remarks is that it is often not realized, when distances in the universe are being considered, that distances beyond those of the very closest stars are not at all measured directly. Indeed, the methods may be very indirect, and sometimes such as to leave a suspicion that there is a circular argument involved.

For instance, distant stars are supposed to be moving away from us, at velocities proportional to their distances; these velocities are judged by the "red-shifts" in their spectra, brought about by the Doppler effect. But it is often not clear whether or not the distance has been judged from the magnitude of the "red-shift"; if so, then of course the observations should not be used to prove that velocities are proportional to distances.

In fact, some recent observations of galaxies which are believed to be related, and which, presumably, should show the same effect, have shown differences in the shifts.²² Thus it is concluded, "... galaxy redshifts are not only due to Doppler velocities."

Application of this to our purposes seems not yet to be clear, but it should be worth keeping in mind.

Food for Thought

Consider the nuts left over from Christmas. How much we all enjoy these particular examples of the "... fruit of a tree yielding seed ... for meat."²³ But the present purpose is to suggest that, as well as serving as food for the body, they can also provide some food for thought.

To come at once to the point, how could anyone believe that the various kinds of nut came to have their particular features by "natural selection"? Consider, on the one hand, the simple shape of the "meat" of a filbert or an almond; and, on the other hand, the complicated shape of a walnut or a pecan.

Can anyone really believe that the walnut was somehow more fitted to survive because of the complicated shape? But if "natural selection" cannot explain all of the characteristics of living things, is it not a useless concept?

Surely the only other possibilities are Divine plan, on the one hand, and on the other hand: chance. Now if we have to admit one of these anyway, are we not entitled to wield Ockham's razor, and to say that since we must have one cause, what is the point of introducing another?

As for the mutations, they do not really add to the alternatives just suggested. For surely to appeal to them is either to appeal again to chance, or else to chance followed by natural selection.

Now to say "by chance" is really not to give a reason for the state of affairs; rather it is to decline to give a reason. If someone throws a die, and it turns up six "by chance," he had better not know the reason. So to say, "It is by chance," is really to say, "I do not know why"; or, at the best, to say, "It is so because it is so." Which is perhaps true, but not very satisfying!

But to say, "It is by Divine plan," is to give a sufficient and meaningful reason. And that is the answer which we have been giving.

About Man's "Unknowability"

The first material brought back from the moon has generated far more questions than answers; about the only unexpected conclusion to have been reached seems to be that the moon is about as old as the earth.

At the Board of Directors meeting in May, 1969, some of the members, on the way to a session, were discussing the (then) forthcoming landing on the moon. One member remarked that one aim of that landing centered on the desire to learn the origin of the moon. We considered that it was very unlikely that anything conclusive would be found.

After all, we have been on the earth for a long time, and are free to explore it without being hampered by e.g., a space suit. Yet there is no agreement about the origin of the earth. Was it likely, then, that a few hours on the moon, under awkward conditions, would suffice to learn its origin?

Some readers will remember a somewhat similar situation. When the 200 inch telescope was being prepared, we read that astronomers would learn about the limits of the universe, whether space was curved, perhaps something about the origin of the universe, and so on. Well, it has been in use now for some time, and not one of these questions has been answered.

Be it understood that I am not criticizing the men who landed on the moon, or those who have used the huge telescope. All these people, as far as I know, have done their work well. But it might be in order to criticize the excessive claims—and be it noted, moreover, that often the people who make such claims are not those who are going to have to try to make them good.

If excessive claims are made in order to get public money (or money from any source) for the projects, such a practice cannot be defended at all. But even aside from that, surely statement of excessive claims is, in the long run, self-defeating; the dictum that you cannot fool all of the people all of the time is still true.

It would also be more honest, even with ourselves, to admit that probably there will remain very many things which we do not know. Maybe we should take Deuteronomy 29:29 seriously.

More Stellar Regularities

It is a fact that most planets rotate about axes which are roughly in the same direction, and that their periods, *i.e.*, the lengths of their days, are not so very different. The very fact of so much regularity makes the irregularities, such as the odd orientation of the axis of Uranus, and the fact that a number of the members of the Solar System (satellites included) rotate in a retrograde direction, seem more remarkable.

Now there is evidence that the asteroids, too, rotate about axes.²⁴ This was judged by fluctuations in their brightness. The periods are mostly a few hours, about the same as those of most of the planets. The axes, for the most part, seem to be more or less normal to the orbital plane, and thus in more or less the same direction as those of most of the planets. The asteroids seem to depart a good deal from a spherical shape.

It is suggested that such a state of affairs would hardly have come about if, as is often believed, the asteroids had resulted from the breaking up of a large planet. Rather, it would seem more likely that the asteroids have existed for as long as the rest of the Solar System in their present condition.

These arguments are called to Creationists' attention in the thought that they may provide some ammunition against evolutionary theories of the origin of the Solar System.

Selection of Genes or Characteristics?

A critique of evolution appeared recently in *Nature* magazine.²⁶ Though I am not a biologist, and I found it difficult reading, it did seem to

me, however, that the author faced some of the difficulties rather frankly. Thus some readers might find there some useful ammunition.

One point was mentioned which seems not to have been considered often enough. Supporters of the notion that there have been variations of characteristics, followed by natural selection, must face the fact that, if mutations are to be depended on for the variations, it is the genes that would be mutated.

But natural selection would be, not of genes, but of characteristics, which would presumably involve several genes. Thus it is hard to see how the two processes, mutation and natural selection, would be coordinated to yield something new or better.

Spurious Carbon 14 Dates

Some recent attempts at dating the mortar in old buildings in Britain, by testing samples for carbon 14, have been described.²⁶ The mortar had been made with calcium oxide, which, as it hardened over some years, absorbed carbon dioxide from the air and turned into calcium carbonate. Samples could be tested in the usual way. Of course, it was known when the buildings had been built.

Of seven samples, with known ages that ranged from about 400 to 800 years, six gave ages too great. One sample, from Oxford castle, known to be 785 years old, gave an age of 7,370 years by carbon 14 test.

Some sort of contamination was presumed, but in just what kind was not made very clear. However, this is yet another piece of evidence, if more were needed, to show that ages indicated by carbon 14 need to be taken with very great caution, and that in some cases they may be completely wrong.

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REPORT OF BOARD OF DIRECTORS MEETING

Again this year we enjoyed the hospitality of Concordia Junior College, Ann Arbor, Michigan. The Board of Directors met at 6:30 P.M., April 17, Dr. Henry Morris presiding. Each member engaged in silent prayer for guidance. In addition to Dr. Morris, members present were Harold Armstrong, Larry Butler, Clifford Burdick, Thomas Barnes, Duane Gish, Wayne Frair, Karl Linsenmann, Walter Lammerts, Wilbert Rusch, Sr., Richard Korthals, George Howe, John Klotz, John Moore, Emmett Williams, and William Tinkle. Harold Slusher was lecturing in the Northwest and John Grebe probably considered a trip from Arizona too strenuous for him.

Minutes of 1969 were adopted without change. Report of the Treasurer, Richard Korthals, showed a substantial balance as in former years. None of the members has been paid for his work, even in the time-consuming writing of the textbook. We do not give free samples of our *Quarterly*, for this would cheapen it. And although it costs much to print our literature the subscribers gladly pay for it.

Dr. Lammerts moved that members continue to serve without compensation, and that no executive secretary be hired. The motion passed unanimously.

Membership Secretary, Wilbert Rusch, Sr., reported a voting membership of 318 and total of 1417. Voting members hold either a doctor's or master's degree in some field of science. Sustaining members are not scientists, but some are well educated in other fields. Mrs. Behnke, wife of a mail carrier, who assists Mr. Rusch, still does excellent work at a reasonable wage. Mr. Rusch urges that changes of address be reported to him promptly to avoid expense of returned *Quarterlies*.

Interest in the biology textbook for high school continues high. John Moore, co-editor with Harold Slusher, reported that type is now being set by the Jackson Typesetting Co. and the completed book will be available in October, 1970 from the publisher, Zondervan Publishing House of Grand Rapids, Michigan. Plans were made for the writers to read the galley sheets to correct all mistakes. Dr. Moore also showed the second edition, paperback, of *Heredity* by William J. Tinkle, published by Zondervan Publishing House and priced at \$2.45.

Dr. Lammerts reported on the progress of the anthology consisting of selected articles published in our *Quarterly* during the first five years. Galley sheets have been read. The book will be published by the Craig Press, Nutley, New Jersey. Harold Armstrong has written an outline for the general science book assigned to him a year ago.

Larry Butler reported a project which the Research Committee has approved. Clifford Burdick's identification of pine pollen in very deep rock strata of the Colorado River Canyon is to be checked by others to corroborate his discovery. Other research is in progress and all members are encouraged to do research if possible.

George Howe and John Moore were given a vote of thanks for their work on the *Quarterly*. A forthcoming issue will be devoted to chemistry and ecology. Dr. Howe then reported that many newspapers in the country credited the Creation Research Society with the decision in California that wherever evolution is taught in a school, creation also shall be presented as an alternative. The truth is that individuals presented their views at hearings of the California State Board of Education but *not* as representatives of our Society. Dr. Lammerts moved that the C.R.S. continue the policy of not becoming involved in such matters but that we encourage individual members to supply information wherever it is needed. The motion was passed.

Harold Armstrong moved that we answer an invitation of the American Scientific Affiliation thus: "The Creation Research Society, as a society, does not hold or sponsor meetings. Individual members, however, are ready to attend meetings and to present the creation position." After this motion was passed, Karl Linsenmann moved that we preserve our past stance and objectivity as gatherers and disseminators of creationism information, avoiding any alliance or commitment with individuals or organizations outside the Creation Research Society. This motion also was passed.

During many years, reports have been made that vestiges of Noah's Ark still remain on Mt. Ararat in Turkey. Two investigating expeditions are planned for the summer of 1970 and Clifford Burdick has been invited to go on one of them.

Board members discussed the report of human footprints in various places, especially on the Paluxy River in Texas. Since the implications for geology are very important, some scientists refuse to believe until the evidence cannot be doubted. Further research is needed.

Lammerts and Tinkle reported that a convention is being planned by creationist colleges which is planned at Bryan College for the latter part of the summer of 1970.

President Morris appointed the following men on committees: General Textbook Committee, John Moore, chairman; Life Sciences Textbook, Wilbert Rusch, Jr., John Klotz; Physical Science Textbook, Harold Armstrong, Emmett Williams; Earth Science Textbook, George Mulfinger;

Visual Aids, Duane Gish; and Research, Larry Butler (ex officio), Harold Slusher, Emmett Williams, Jr.

The following officers were elected again for one year: President, Henry Morris; Vice President, Larry Butler; Secretary, William Tinkle; Treasurer, Richard Korthals; and Membership Secretary, Wilbert Rusch, Sr.

The next Board of Directors meeting will con-

vene at the Frontier Beef Buffet, 2333 E. Stadium Blvd., 5 P.M., April 16, 1971.

The strength of this Board resides in the interest each man has in the cause, no one attempting to advance his own reputation above that of the others.

Respectfully submitted,
WILLIAM J. TINKLE,
Secretary

BOOK REVIEWS

Essays From the Creationist Viewpoint, Edited by Paul A. Zimmerman, 1966. Ann Arbor, Michigan: 435 Pine Brae, 48105. Paperback. (\$1.00). Reviewed by George F. Howe*.

As stated in the title, this work is a symposium containing five essays on origins. Each article is in keeping with a conservative understanding of Scripture and each is written by a thoroughly qualified scientist.

In "An Evaluation of the Evidence for Evolution," Dr. John W. Klotz demonstrates that the "facts" which supposedly support evolution are not very impressive after all. With key references from the literature, Klotz shows that evidences from genetics, morphology, and biochemistry are not satisfactorily explained by evolution theorists. He concludes that evolution theory is far from proven, and by judicious quotation he affords ample indication that even some evolutionists are cautious and uncertain about their own views. Such information will be valuable stock in the creationist's arsenal.

On the other hand, Klotz challenges creationists not to be antiscientific or unduly emotional in their own approach to matters of science.

In the chapter entitled "Analysis of So-Called Evidences of Evolution," Professor Wilbert Rusch, Sr., points to the inadequacies of evolution theory in the areas of taxonomy, anatomy, geochemistry, paleontology, and physical anthropology. He presents a thorough summary of presently known functions for the supposed "vestigial organs."

He points to inconsistencies in the recapitulation concept and asserts that the heart and the kidney change forms in development to follow the needs of a developing fetus.

He deals with "skipping" in the fossils in which evidence of a creature is present, absent, and then present again in the supposed age-sequence of rock strata. He provides the following brief and tantalizing reference to Ohio road cuts:

*George F. Howe is Professor and Chairman, Division of Natural Science, Los Angeles Baptist College, Newhall, Calif. He holds the Ph.D. degree in botany.

It will be interesting to read a final report on the evaluation of the fossils found in the Cleveland shale along the construction of I-71. First reports indicate numerous anomalies, among them land plants deposited far from land, reptile-like parts when at the time of the Cleveland shale deposition there supposedly were no reptiles, and index fossils misplaced by some millions of years. (p.20)

This reviewer would appreciate further data on such anomalies as they develop and it would appear that this area of Ohio would provide an excellent research problem for a creationistic geologist.

Dr. Paul Zimmerman (theologian and chemist) speaks of current trends in theology in his chapter "The Word of God Today." He deals extensively with the general interrelationship between science and the Bible. For example, he tackles the question of supposed errors in Scripture. Mention is made of work from modern Biblical studies which supports the trustworthiness of Scriptures.

In the face of such ideologies as modernism, neo-orthodoxy, existentialism, and the "new hermeneutics," Zimmerman asserts that Genesis 1-3 is an authoritative record of real events. In the warm, evangelical conclusion, Dr. Zimmerman directs the reader to place faith in Christ.

The fourth author, Professor Richard G. Korthals, stresses the difference between natural evidence and supernatural revelation. In his section "There Was Evening—and There Was Morning," Korthals argues that if one uses human logic and scientific methodology alone, he may arrive at an evolutionary concept of origins. But given the revelation of Scripture, one will arrive at a creation of "kinds" with only limited change within the "kinds."

One of the valuable sections in Korthals' essay emphasizes the problem of false assumptions. A person who wrongly avoids acknowledgment of the Creator will form erroneous conclusions. He asserts that the assumption of "creation with apparent age" is as valid if not more so than the "big bang" assumption.

Neither science nor philosophy can attack the ultimate "why" questions, reasons Korthals. Given revelation, however, religion ". . . is enabled through this means to answer questions which the scientist and philosopher cannot begin to touch." (p. 47)

The short article "Critique of Evolution Theory" by Dr. Walter E. Lammerts is an essay which every biology student should read. Dr. Lammerts deals with variation as Darwin conceived it. He also describes Mendel's first law of inheritance which places definite limits on the variability potential of any species.

In answer to the question, "Is Evolution Possible by Mutation," Lammerts demonstrates from his own research and the work of other geneticists that mutations are very largely harmful. In a valuable quotation from *Evolution* magazine, Lammerts casts scientific doubt on the reality of the process of natural selection (as envisioned by neo-Darwinists).

Although originally presented as lectures to conferences in the Lutheran Church—Missouri Synod, these articles in published form merit wide circulation. The inexpensive presentation coupled with the broad spectrum of article coverage (from philosophy and theology to genetics and geology) make this work a valuable supplemental text for high school or college science courses.

* * *

Evolution and Christian Faith by Bolton Davidheiser. Philadelphia: Presbyterian and Reformed Publishing Company, 1969; \$6.50, 372 pp. Reviewed by Rousas J. Rushdoony*.

The bleating hand-wringers are at it again: not since *The Genesis Flood* have they found so much to regret and bewail in a book. This strange crew of men who insist on professing both creation and evolution, both God and process philosophy, have every reason to be unhappy.

What *The Genesis Flood* did with respect to geology, Dr. Bolton Davidheiser has done with respect to biology; namely, to analyze critically the purported biological evidences for evolution and to indicate their basic irrelevance. Not only so, but, with patience, kindness, humor and gentle irony he has repeatedly pin-pointed the absurdities in evolutionary theory.

One of the most moving, pathetic, as well as most amusing of passages is his account of "the worst journey in the world in the interest of science," the expedition by Wilson, Bowers, and Cherry-Garrard to provide "proof" of the recapitulation theory (pp. 249-254).

*Rousas J. Rushdoony, a noted author, is currently engaged in research, lecturing, and writing. He holds the M.A. degree.

Davidheiser traces, after defining terms, the history of evolutionary thought from the Greeks to the present. In the course of this analysis, he corrects the misrepresentations of many evolutionists as well as those of heterodox scholars; thus Russell L. Mixter of Wheaton College has said of Darwin,

He did not, as popularly believed, hold that man descended from monkeys. A more accurate way of expressing Darwin's idea is to say that man and the apes descended from a common ancestor through a process termed "natural selection" (p. 25).

But Darwin actually said, in *The Descent of Man*, "The Simiadae then branched off into two great stems, the New World and Old World monkeys; and from the latter, at a remote period, Man, the wonder and glory of the Universe preceded" (p. 26). Davidheiser repeatedly corrects the record, and, since so many men are bent on expunging all scientific absurdities from the record, his account is bound to give offense.

Critics of Davidheiser thus bewail his *attitude*. They are bent on trying to convey the impression that somehow his thinking is unscientific or obsolete. This is a better strategy, if the facts are against you, than answering his precise scientific analysis. Thus, Davidheiser, in examining the purported evidences for evolution from comparative anatomy, clearly points to its radical poverty.

Under precise analysis, the generalized statements of "proof" or "evidence" quickly dissipate. The same is true of the supposed evidences from "vestigial, rudimentary, and atavistic structures" from embryonic recapitulation, from taxonomy, genetics, and ecology.

Various tests "prove" a variety of strange things; thus, seriological tests show pigs to be related to many things, and show that "Hyenas appear to be more closely related to cats than cats are to themselves" (p. 274)! "Kingfishers and petrels (birds) are more closely related to dogs than to chickens, and . . . pheasants are closer to human beings than to ostriches" (p. 274). The seriological "evidence," like all else, proves to be an embarrassment to evolutionists.

The analysis of animal distribution, the fossil record, the dating of remains, and other kinds of "evidences" add to the compelling account Davidheiser gives of the failure of evolutionary theory and research.

This study will not convince the evolutionary true believers: they are firmly committed to a faith and cannot tolerate the facts. Davidheiser is aware of this. He recognizes that what we face is a clash of faiths. Christian presuppositions require creationism; atheistic presuppositions require evolution. The schizophrenic will try to maintain a foot in both camps, but the two positions cannot be reconciled.

Davidheiser seeks carefully to expose the pre-suppositions of evolutionary faith; he points out that, rather than refusing to face the facts, the creationist most rigorously faces the facts, while the evolutionist runs from them and finds refuge in a variety of generalities, in broad assumptions which are unprovable but are assumed to be proven.

In terms of this, Davidheiser seeks to clarify also the position of the scientific creationist, and to indicate its basic consistency with the facts of a God-given world and the premises of a Biblical faith. The real issue is not one of "facts," it is the faith behind the facts; "It is a matter of substituting one faith for another" (p. 365).

In writing his analysis, Davidheiser clarifies the issues for the Christian scholar and man of science. He cuts the ground out from under his opponents. He exposes the fact that they, who accuse creationists of being governed by faith, not by science, are themselves governed by faith, and by a faith which is in radical self-contradiction, which confuses and confronts its proponents, and which indulges them in intellectual nonsense to retain its position.

Dr. Davidheiser, as a Christian who believes that only regeneration can convert men, does not expect to change the thinking of these schizophrenic and/or unbelieving scholars. But, very, very clearly, he has upset them. Over this we can take heart and rejoice. And we have cause to be grateful for the impressive and substantial scholarship and science he has brought to bear on the creationist position.

* * *

A Symposium on Creation by Henry Morris and others. Grand Rapids, Michigan: Baker Book House, 1968, 156 pp. Paperback, \$1.95. Reviewed by George F. Howe*.

This is the printed form of a series of lectures given at a conference of the Association for Christian Schools, held in Houston, Texas. This book is the first in what has become a continuing series of symposia.

The work is composed of seven chapters from five different authors who present background qualifications in various fields such as theology, chemistry, genetics, hydraulic engineering, anthropology, and geography. Despite this breadth of coverage, there is considerable unity of purpose around a common thesis indicated in the preface by T. Robert Ingram:

New findings have amassed an overwhelming body of data that simply cannot be accommodated to the twin pillars of evolutionary thought—eons of time and change.

On the other hand, the doctrine of creation offers an exciting basis for interpretation and as more and more work is done along this line, the greater is the response from all sides. (p. 6)

In Dr. Morris' essay, "Science Versus Scientism in Historical Geology," he defines "science" as the study of present phenomena and processes. The author does not question the uniform operation of natural laws in science (methodological uniformitarianism), but objects to the application of the uniformity principle as unalterable dogma to the geologic past (substantive uniformitarianism). He suggests that historical geology becomes a religion (scientism) when it projects absolute uniformity into ages past and when it fosters a full-orbed religious philosophy of development in the name of "science."

He also reasons that the first two laws of thermodynamics actually conflict with the evolution theory because they are conservative and degradational, but not creative or progressive. He asserts that these same two laws fit well with the special creation view since God's creative work was finished on day six and was thereafter followed by sustaining action—in keeping with the first law or conservation principle. Dr. Morris continues by suggesting that the rule of decay and disorder (the second law) became operative only after the fall of man and the resulting curse.

Creationist Viewpoint

The second section entitled "Creationist Viewpoint" by Dr. John Klotz begins by illustrating how evidence of creation can become an integral part of science teaching in the Christian school. Dr. Klotz lists key areas that should be stressed while discussing the evolution theory with students. In addition, he points to the unique characteristics of water, the complexity of a polypeptide molecule, the interactions of the yucca flower and its moth, and the delicate balance in nature as evidences of design.

Dr. Klotz regards the inadequacy of mutation and polyploidy to provide an evolutionary mechanism as the paramount problem facing the theory. He also regards the scarcity of fossil support for human evolution as a major problem.

Dr. Klotz advocates that a teacher emphasize strengths and weaknesses of both evolution and creation in the area of scientific explanation. He advises that the student realize the ultimate choice between these two opposing viewpoints will involve a step of faith.

From the standpoint of theology and hermeneutics, Dr. Paul Zimmerman attempts to answer the question, "Can We Accept Theistic Evolution?" In his thorough reply, the author claims that Bible statements are inerrant when compared to the facts of science. Rejecting the documentary hypothesis, he maintains that Genesis 1

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and 2 do not conflict but rather complement each other. He hastens to show that there are no indications of evolution in the Genesis account and that man in particular was made from actual dust.

From the vantage of philosophy, Dr. Zimmerman argues that theistic evolution cannot be "baptized" since evolution (when thoroughly conceived) demands that one go all the way with naturalism.

Dr. Zimmerman concludes on a note of admonition—that we not let science infringe on our understanding of the complete faith in the Bible creation record. This essay bolsters a simple trust in God's Word taken at face value—a truly worthy achievement for any paper!

Postulated Flood Mechanism

"The Noachian Flood and Mountain Uplifts" by Mr. Donald Patten is a treatise which postulates a tidal mechanism as the main cause of the flood. He asserts that the Bible words "increased continually" (in reference to the flood waters) may have been describing daily tidal action accompanying a celestial catastrophe. As a result, the author reasons, mountains were formed and sedimentary layers were deposited and finally the ark was carried to Mt. Ararat by such tides.

According to Mr. Patten's analysis, internal tidal effects on the earth's magma caused by a celestial visitor resulted in two major zones of mountains on the earth, correlated with two proposed crisis periods in tidal interaction of the earth and the approaching planet.

In "The Ice Epoch" Mr. Patten discusses eight phenomena which must be explained by any adequate glacial theory. These include the great depth and area of the ice at the magnetic poles, and various characteristics of the ice such as radial flow pattern, pancake geometric shape, and ice caves containing lava.

As regards the ice source, Mr. Patten suggests the postulated icy moon-like body fragmented as it approached Roche's limit. These particles, after orbiting the earth, are described as descending on the magnetic poles, presumably because of the accumulation of an electric charge from solar radiation.

Reviews of Mr. Patten's theory have generated three main criticisms:

1.) Why did the ice not evaporate upon entering the earth's atmosphere? (K. J. Touryan, Review of "The Biblical Flood and The Ice Epoch," *Journal of American Scientific Affiliation*, 20(4):125-125, December.

2.) Does ice exist on other planets? (Joseph Henson, George Mulfinger, Robert Reymond, and Emmett Williams, Jr. 1968. Book review in *Creation Research Society Quarterly*, 4(4):129-132.)

3.) Does there exist a calculated orbit which would allow an approach speed adequate for extensive mountain building? (Joseph Henson *et al.*) These questions are not answered by Mr.

Patten since they were raised after the Houston conference.

Mr. Patten has presented an impressive amount of astronomic, geologic, and geographic evidence in support of catastrophism.

Biblical Record and Evolutionary Time

In his paper "Origin of Civilization. The Biblical Record and Problem of Historical Explanation," Dr. R. Clyde McCone proposes that the Bible record is not a myth because it did not originate from the existing Egyptian social order, nor did it occupy a functional relationship in that social system. Neither does the Bible record have the usual anthropological traits such as animation and personification, nor is it not a plain historian's view in that it has the gospel message and is thereby up-to-date for every generation. As the author says, this distinction between history and Scripture does not detract from the Bible, but clarifies the issue:

The fact that the Biblical record lacks these necessary features of secular history in no wise calls into question the credibility of the events which it describes. (p. 88)

In his second paper "Evolutionary Time: A Moral Issue," Dr. McCone discusses the problem of "time" in relation to a spiritual and moral frame of reference. Accordingly, the evolutionary model of essentially infinite time has desperate spiritual and moral implications, such as making God the author of death. Since many laymen and young people often have blind faith in "science," the basic assumption of dating techniques are not questioned. The evolution theory leads to the acceptance of almost infinite time, a proposition totally irreconcilable with the Bible. Finally, the author holds that the long time approach to man's origin has produced an avalanche of human moral deterioration.

Concerning the nature of evolution, Dr. McCone says:

The position which I wish to present must sound to many a bit radical. It is that evolution with its time perspective is neither fact nor theory but is basically a system of values. (p. 148)

Dr. McCone feels that prevailing worship of an "evolutionary anti-trinity" is so blasphemous that one cannot accept both Christianity and evolution since they are competing systems of moral values.

These are both brilliant essays presenting much evidence in favor of the inferences drawn by Dr. McCone.

The articles of this symposium will be of profound interest and undoubted value for members of the Creation Research Society. The symposium samples the growing mass of scholarly scientific evidence which is accruing against the evolution view. This book is incontrovertible evidence to support the assertion that special creation is still a viable option for the thinking person.

